VOCATIONAL EVALUATION

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by

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TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

Futurists indicate that the industrial age is coming to an end. They point to the decline in the number if people engaged in prime manufacturing and to the increasing numbers of workers in the service occupations. They suggest that the nature if mass production is radically changing due to the increased use of computer technology and in the future replace standardized production. The futurists also tell us that the concept of work may become obsolete in the distant future.

Machines magnified the strength and the speed of human production. The welder of today does not need the brute strength of yesterday's blacksmith. Computer technology magnifies the strength and speed of brainpower. Computers calculate almost to the speed of light. Computers have not made the accountant obsolete but their use has not certainly changed the way that accountants work. As electronic spreadsheets have changed the accountant's job, most other jobs can be changed by technological innovation. The industrial age is being replaced by the information age according to the futurists. This term is used to convey the idea that future workers, will be in one way or another, be engaged in the processing of information Data and knowledge will be the major product of the future.

These implications for the future of work will impact upon the profession of vocational evaluation. While the short-term implications may be readily apparent, one can only make educated guesses about the long-term implications.

Work is central to the vocational evaluation process. The use of work (real of simulated) to evaluate the potential for work performance and work adjustment is the distinguishing characteristic of the vocational evaluation profession. The use of work as a tool by the vocational evaluation specialist differentiates this profession from other professional disciplines. While psychologists and rehabilitation counselors may have similar goal, they rely upon other methods to achieve their objectives such as counseling and standardized testing.

The primary purpose of vocational evaluation is to enhance the probability that individuals will be able to enter into and remain within the work force of our economy. The vocational evaluation process increases the probability of vocational success but the process alone cannot insure success. This statement of purpose is phrased in this manner for several reasons.

1. Most people enter into and remain within the work force without the benefit of vocational evaluation.

2. Not all persons who participate in the vocational evaluation process enter the work force and others who do may later dropout or are forced out of the work force for various reasons.

3. While vocational evaluation assists people to identify appropriate jobs, other factors may prevent their employment and/or interfere with job tenure.

Traditionally, the evaluees of the vocational evaluation process have been persons with disability and/or disadvantaged individuals. The social/economic system has individuals. The

social/economic system has erected barriers that prevented or made it more difficult for the disabled/disadvantaged to secure employment and vocational evaluation has the potential for bypassing these barriers. Even if there were no social/economic barriers to employment, decisions based upon vocational evaluation are far superior to trail and error methods for job selection or choosing a career. To date, the disabled/disadvantaged have benefited most from vocational evaluation. However, the technology of vocational evaluation could in the future be available to any one needing help in choosing a career.

Vocational evaluation developed within and is an integral part of the vocational rehabilitation movement. However, the practice of vocational evaluation extends beyond the boundaries of vocational rehabilitation. Vocational evaluation specialists are employed in a diversity of employment settings. Consequently, the role and function of vocational evaluation specialists may vary according to their place of employment. A later section of this book considers the practice of vocational evaluation as it occurs in a number of work settings.

One purpose of this book is to examine the state-of-the-art of vocational evaluation (process and methods) and to consider ways that the process could be improved upon. But before discussing the state-of-the-art and future trends it may be worthwhile to look at the past. Even though people's interpretation of history may change, history and evolution of vocational evaluation, this writer is borrowing extensively from the earlier version of this book.

HISTORICAL DEVLOPMENT

The profession of vocational evaluation has borrowed much from other disciplines. Psychology, vocational and industrial education, occupational therapy, military, all contributed to the knowledge base of vocational evaluation. It has been the vocational rehabilitation movement that has provided the impetus and means for vocational and technology requisite to becoming a separate discipline. There was a need in vocational rehabilitation to discover tool and techniques that could be used with people with disability while not discriminating against them as other methods had in the past.

Contributions of Psychology: During the late 1800's and the early 1900's psychologists began to be concerned with individual differences of people (Boring, 1950). During the 1890's experimental psychologists began to develop tests to measure human faculties. In 1882, Galton established a testing laboratory to inventory "British abilities" and in 1883 published "Inquiries into Human Faculty". A similar testing laboratory was set up by Chattel at the University of Pennsylvania where he developed a series of five tests, which were described in a paper entitled "Mental Tests and Measurements", and this was published in 1890 (Boring, 1950). Throughout Europe and America other psychologists began developing tests: Oehm at Heidelberg 1889, Jastrow of Wisconsin 1890, Musterberg at Friburg in 1891, Boas of Clark University 1891, Gilbert of Yale 1893-1896, Binet in France 1894- 1898, and Ebbinghaus 1897 (Boring, 1950).

The idea of a testing laboratory we owe to the early experimental psychologists. The modern work evaluation unit has much in common with these testing labs and certain facilities today still refer to their evaluation units as testing laboratories. The concept of norming we owe to Binet who used a scale of age norms (Boring, 1950). While more difficult to trace to the exact origin, the concepts of standardized administrative procedures and the use of statistical rigor in developing tests has been borrowed and applied to work sample development.

Hugo Munsterberg who is one of the founders of applied psychology and considered the father if industrial psychology is credited with the developing the first work sample. His simulated "trolly car" which was used to select potential conductors was ingenious even though

the work sample approach did not catch on at the time (Bregman, 1969). In fact, even though work samples are the "brain child" of psychologist testing only gave passing reference to work samples and they were usually criticized as being an inefficient and an expensive testing method (Cronbach, 1949). More recently, the reviews of work samples are more favorable (Cronbach, 1970).

Perhaps the most important concept that vocational evaluation has borrowed from the psychological testing movement is so obvious that it is never mentioned in the literature. That is the concept that the information derived from evaluative methods or instruments may be used to understand current behavior and to make predictions about future adjustment. This would include not only the psychological testing contribution but also the clinical interpretation of behavior and research studies on expressive behavior.

Prior to reviewing the contributions to vocational evaluation from other sources, at least passing reference should be made to contributions of the vocational guidance sectors of psychology. From the time of Frank Parsons, who is considered to be the father of the vocational guidance movement, to the present day, emphasis has been placed upon the accurate matching of objective vocational data with the requirements of the job. In this regard, accurate occupational information has been published in a variety of ways, the most useful document in recent years has been the Dictionary of Occupational Titles and it's supplements. Job analysis, while born in industry, has also been a most valuable tool to obtain accurate information about the requirements of jobs.

Contributions of Industry: Many of the contributions credited to industry are shared by industrial psychology in the previous section. These would include job analysis techniques, development of behavioral rating scales, and use of simulated tasks as selection devised, development of situational tests and the use of job try-out for vocational evaluation purposes. Since these topics are considered extensively in subsequent chapters, at this point it will only be noted that vocational evaluation is indebted to industry for these contributions. It might also be noted that on rare occasions, industry has developed and used work samples for the selection of workers (Treat, 1929 and Campain, 1970). In the year 1972, Humble Oil Company was advertising the fact that simulators of a super oil tanker were being used to evaluate ant train future captains (NBC TV Commercial, 1972).

Contributions of the Military: Vocational evaluation is oriented to the individual. However, rarely does the vocational evaluation specialist work only on a one-to-one basis with an evaluee. Usually, his evaluation will work with four or five evaluees at any one time when the evaluation consists of work samples and may work with 20 to 30 evaluees when using the situational assessment approach.

Group testing was an innovational of the Army during World War I (Boring, 1950). The Army alpha and Beta Intelligence tests were used to screen out individuals of subnormal intelligence. Due to the military's need to screen masses of men within a relatively short time period, they relied upon group testing.

Work samples owe part of their heritage to the simulators used by the military during World War II. The Link Trainer is a classical example of a simulated work sample. The Link Trainer was used to evaluate and train pilots. Today, computerized simulation programs are used to train military and civilian flight personnel.

University of Wisconsin-Stout: The first graduate degree program in vocational evaluation was established at Stout State University (Now the University of Wisconsin-Stout) in 1966. At that time Dr. Paul Hoffman, who was Director of the Counseling Center, applied for a

planning grant from the Vocational Rehabilitation Administration. The purpose of the grant was to determine the feasibility of a graduate degree program in vocational evaluation. After receiving the grant award, many authorities in the field of vocational evaluation were consulted and a curriculum development workshop was conducted on campus that year. In 1967, 14 students enrolled in this major and 13 graduated in August of 1968. Since that time the program has grown and currently graduates between 30 and 40 students per year. The graduates are employed in all states throughout the country and in several foreign countries. A number of other universities now offer graduate degree programs in vocational evaluation.

Contributions of Rehabilitation Facilities: The Institute for the Crippled and Disabled (ICD) is credited with the developing the first work sample battery or system in 1937. ICD calls its approach the TOWER System. This is an acronym for Testing, Orientation, and Work Evaluation in Rehabilitation. The Tower System includes over one hundred work tasks or tests within 14 broad occupational areas (Rosenberg, 1969). A number of other rehabilitation facilities have pioneered in vocational evaluation The May T. Morrison Center of San Francisco, California was one of the first facilities to use the principles pf industrial engineering in developing work samples (Crouse, 1959). Another pioneer in work sample development was the Vocational Guidance and Rehabilitation Service of Cleveland, Ohio (VGRS). In addition to developing a large quantity of work samples having utility, they strongly advocated the use of standardized administration and norming procedures (Overs, 1964) The Jewish Vocational Service of Chicago, Illinois pioneered into the situational assessment approach in vocational evaluation. Chicago JVS also made a major contribution through the development of the Scale of Employability for Handicapped Persons (author, 1959). While there are many other rehabilitation facilities that have been involved in vocational evaluation, their contributions to the field have been to provide effective vocational evaluation models. Every geographic are in the U.S. has at least one facility that has provided a leadership model for vocational evaluation. Space limitations prevent listing all of these facilities. However, they are professional publications of their staff and by their leadership contribution to VEWAA.

Contribution of VEWAA: In order for a profession to grow and have unity, there is a need for professional affiliation. The Vocational Evaluation and Work Adjustment Association came into existence as a result of an ad-hoc committee, which met at the 1966 Annual Conference of the National Rehabilitation Association in Denver, Colorado. In 1967, VEWAA become a provisional division of NRA. The Association has grown from less than a 100 members in 1967 to approximately 1700 members at the present time.

In comparison to many national professional associations, VEWAA is small but it has been very influential in prompting standards and ethics for vocational evaluation and work adjustment specialists. VEWAA was instrumental in prompting certification and was the impetus for the establishment of the Commission on Certification of Work Adjustment (CCWAVES). VEWAA has chapters in most states. VEWAA members are employed in non-profit rehabilitation facilities, private-for-profit rehabilitation organizations, public schools, medical facilities, universities, and other community organizations. Over the last two decades, the history of vocational evaluation and VEWAA are closely intertwined. For a more detailed history of VEWAA, one should refer to Vocational (Work) Evaluation (Pruitt, 1977).

VOCTIONAL DEVELOPMENT THEORY

Theories of vocational development have impacted upon vocational evaluation. One focus of vocational evaluation is upon the vocational development of the evaluee. In part, the

vocational development of the evaluee is reflected by interests, achievement levels, aptitudes, skills, and work related attitudes. Therefore, it may be worthwhile to review vocational development theory.

Super (1957) postulant's five vocational life stages. (1) Growth stage, (2) Explorations stage, (3) Establishment stage, (4) Maintenance stage, and (5) Decline stage. In vocational evaluation, our primary concern is with persons in stages two through four. To satisfactorily progress through the vocational life stages, young people need to have experiences in developmental tasks appropriate to the various vocational life stages (Samler, 1964; Havighusrst, 1964; Borow, 1964). Examples of some developmental tasks are as follows: During the growth stage the developmental task would include doing household chores such as washing dishes, mowing lawns, and cleaning one's own room. Developments tasks during the exploration stage would include part-time jobs and summer employments while attending school and job trials following graduation from high school. During the establishment stage, developmental tasks might include establishing career goals, learning about the community resources for obtaining employment, job interviewing, and meeting employer/co-worker expectations.

Other vocational developmental theories conceptualize three life stages: fantasy, tentative, and crystallized (Ginzberg, 1952). Children and adolescents daydream about being policeman or astronauts, fashion models and nurses. Later they begin to gauge personal attributes with the realties of life and start to form more adult career choices. Once established within a career, goals become crystallized. Unfortunately, these theories do not take into account the fact that a number of career changes will be necessary for most people. Those who are lucky or have good guidance will plan career changes and make a smooth transition from one to the next. However, the onset of disability, economic slowdowns, and technological changes that may create psychological problems.

Adult Vocational Development Theories:

Super and his colleagues theorized that the movement of individuals through the life stages was both typical and correct process that was loosely tracked to an age referred time-line, Hence, one would first have gone through the stages of Growth, Exploration, and Establishment before reaching Maintenance, never to return to previous stages. Jordaan, (1977) made the point that both he and Super (1976) now believe that individuals are capable of moving through these stages at various speeds and that it may return to an earlier stage without venturing outside normalcy.

Adult career development theories are not as clear-cut as those for children and adolescents and many of the key principles are in conflict. Levinson (1978) in a chronological age study of blue collar and white-collar men between the ages of 18-45 sought to identify universal, genotypic, age-linked developmental periods. He found relatively low variability in the age in which periods began and end. Levinson concluded that this finding violates the long held ideas that individuals adult develop at different paces.

This is in conflict with the Grant Study (Vaillant, 1977). Studying 200 men over a 35-year period, Vaillant found that the life cycle is more than an invariant sequent of stages with single predictable outcomes. Havighurst (1952) proposed that each adult developmental task produces a readiness to learn, which at its peak presents a teachable moment. The order of development for some of the tasks is:

Young Adult:

Selects a mate
Learns to live with partner
Rear children
Begin occupation
Civic responsibility

Middle Adults:

Achieve civic responsibility
Maintain home
Guide adolescents
Develop leisure
Adjustment to body change
Relate to spouse

Old Adult:

Adjust to decreased health or income
Adjust to loss of spouse
Fulfill social obligations
Affiliate with own age group
Adjust to retirement

Of value to the vocational evaluator's perspective is the idea if continuing vocational development throughout life. Individuals may have progressed satisfactorily through the early vocational development stages, but because of the onset of disability in adult's life, must make a new transition. LIFE changing crisis can force people forward or backward to an earlier developmental stage.

A worker-model is a necessity for vocational development. One or both parents worked and discuss their work at home. There are also many single parent homes. Parents teach work skills and work attitudes in a number of ways. Most parents are required to fix things about the home. Children observe and learn to use command tools. Children are encouraged to perform household chores and are rewarded for good performance. Worker-models not only facilitate vocational development but also tend to foster attitudes about job gender, which may later be restrictive in choosing a career. Worker role models are also necessary for assisting in the development of a work personality. In the absence of natural parents, significant others can provide the worker-model for youngsters.

Individuals, who progress through the various developmental stages, as a rule, do not become vocational evaluation clients. Traditional vocational guidance does not seem to work for people who encounter barriers in the vocational development process. Let us consider some of the barriers to vocational development.

1. Inability to perform household chores because of disability.
2. Parental overprotection that prevents the person with a disability from engaging in chores around the home.

3. Developmental tasks unavailable in deprived environment.
4. Lack of appropriate worker-models.
5. Sub-culture factors that negate participation in vocational developmental tasks.

Vocational evaluation facilities the vocational developmental process. Fixation at an earlier stage of vocational development problems may surface during the intake interview, during the evaluation process, or when the evaluator is providing feedback counseling. Some of the clues would include: deficiencies in independent living skill, unrealistic or poorly formulated job goals, poor work skills even on simple tasks, over dependency on the evaluator, inability to sustain motivation to complete work tasks or work samples. Once the problems are identified, the vocational evaluation specialist can begin some remedial action. For example, the evaluator can direct the evaluee through career exploration if the evaluee is unrealistic about job goals. While vocational evaluation is not a cure-all for vocational development problems, it can begin to move the evaluee in the right direction. Evaluees can begin to learn work skills while performing work samples. The interaction with other evaluees who are moving through the process can help them to begin developing a work personality, if this is a deficiency. The socializing with other evaluees can improve their own skills in this area and these skills will be helpful in future employment. In summary, it may be noted that vocational evaluation owes its existence to many other disciplines and to the contribution of many individuals and organizations. It is distinctive from other professions, such as psychology, by its utilization of work as the primary evaluative tool. Work samples and situational assessment provide the basic methodology for the evaluative process. Even though these methods have been only partially validated, the approaches have more utility for evaluating vocational potential than other methods especially with handicapped individuals.

VOCATIONAL EVALUATION TODAY

Vocational rehabilitation has undergone a number of significant changes in the past decade. These changes have been brought about by a number of factors. Our economy has been changing. Manufacturing is of lesser importance now than it was ten years ago. This is especially true for heavy industry. Steel production has decreased sharply. Lower labor costs in other countries had contributed to this decline. As a result of these economic conditions, there has been a shift in service industries. Many jobs previously open to people with disabilities are no longer available. However, many new hobs have become available as a result of technological changes.

Society has moved from the industrial age into the communication age. Computer technology has been the major factor for this advance. Microcomputers have become affordable to both businesses and individuals. This change has impacted upon vocational rehabilitation and people with disability. Many new jobs have come into existence while other jobs are disappearing. Rehabilitation engineering and microcomputers technology have allowed for certain jobs to be performed by persons with very severe disability.

Rehabilitation legislation has brought additional changes to the professional field. The 1978 amendments to the Rehabilitation Act provided for some significant changes.

1. Rehabilitation, Comprehensive Services, and Developments Disabilities Amendments of 1978 (P.L.95-602). This legislation authorized a four-year extension of various vocational rehabilitation programs, including authority for basic grant-in-aid to the states and research and training and special project grant authorities. The Act also included several new and expanded programs designed to open up more employment opportunity for physical and mentally disabled citizens. Title V of the law provided a three year extension of developmental disabilities state

formula grants as well as funding for state protection and advocacy systems, university affiliated facilities, and special projects.

Some of the most significant aspects of this legislation are as follows:

Centers for Independent Living, in states having approves independent living plans, HEW made grants to vocational rehabilitation agencies to establish and operate centers for independent living. Handicapped individuals must be substantially involved in the policy development and management of such centers, which may provide intake counseling and evaluation of client needs; referral and counseling for attendant care; advocacy regarding legal and economic rights; skills training; housing and transportation referral and assistance; health programs; community group living arrangements; individual/group social and recreational activities; and attendant care and training of personnel to improve such care.

National Institute of Handicapped Research P.L. 95-602 required the establishment of National Institute of Handicapped Research to stimulate, coordinate and support studies into the special needs and problems of handicapped individuals. Among the key features of the statutory provisions authorizing the Institute are the following:

The Institute was created as a separate administration entity with in HEW, independent of the Rehabilitation Services Administration, with a director appointed by the President.

A network of research and training centers, developed in conjunction with institutions of higher education, were authorized to train rehabilitation professional and researchers and to coordinate and conduct research. The twenty existing federally funded Rehabilitation Research and Training Centers formed the basis for the network.

Federal Interagency Council was established to identify and coordinate all federal rehabilitation research activities.

A long-range plan for rehabilitation research was developed to identify research needs, funding priorities, and the goals of the institute.

Developmental Disabilities Program: Title V of P.L. 95-602 made a number of substantive changes to the then current developmental disabilities program, including: (a) a redefinition of the eligible population; a shift of emphasis from planning to priority service areas; (b) a clarification in the role and change in the composition of state planning councils; (c) a clearer statutory delineation of the missions of university affiliated faculties; and (d) increased authorization levels of state protection and advocacy systems. Congress subsequently adopted a revised definition for developmental disability:

“developmental disability” means a severe, chronic disability of a person which (a) is attributable to a mental or physical impairment or combination of mental and physical impairments or combination of mental and physical impairments; (b) is manifested before that person attains age twenty-two; (c) is likely to continue indefinitely; (d) results in substantial functional limitations in three or more of the following areas of major life activity: (1) self care, (2) receptive and expressive language, (3) learning, (4) mobility, (5) self-direction, (6) capacity for independent living, and (7) economic self-sufficiency; and (e) reflects the person’s need for a combination and sequence of special, interdisciplinary, or generic care, treatment, or other serviced which are of lifelong of extended duration and are individually planned and coordinated.

Comprehensive Employment and Training Act (CETA) Amendments (P.L. 95-44, P.L. 95-524) authorized a range pf programs to assist unemployed persons to develop job skill and work potential; it also proved public service employment opportunities and job counseling. Public service employment offered both a source of manpower to serve disabled children and

adults. These amendments had a number of implications for the handicapped in that they emphasized employment and training services for handicapped individuals:

CETA prime sponsors (local organizations designated to carry out program) were required to include in their master and annual plans descriptions of employment and training services to handicapped and disabled individuals;

The prime sponsor's annual plan was required to set fourth an affirmative action program it would undertake for outreach, training, placement and advancement of handicapped person in CETA programs, including (a) a description of the extent and methods used to meet the special need of the handicapped; and (b) the number of handicapped individuals served during each of the preceding two years, the type of training or employment they were placed in, and the number who were moved into unsubsidized employment.

The prime sponsor's planning council and the state employment and training council were required to include in their membership representatives of the handicapped; Discrimination of the basis of handicap was prohibited; Part-time, flextime and other alternative working arrangements were permitted for individuals unable, because of age, handicap or other factors, to work full time.

Prime sponsors were required to make on effort to remove architectural barriers to employment of the handicapped. Such efforts were not intended to provide CETA funding for major construction programs, but prime sponsors could use CETA and other funding to remove barriers that prevent qualified handicapped persons form filling in available positions of that impede ready access to public facilities and services.

Tax Credits for Employing Handicapped Workers (P.L. 95-30, P.L. 95-600) provided certain employers with a tax credit when they hire specific categories of unemployed persons. This tax credit amounted to 50 percent of the increased taxable wages paid by the employer, above the previous year wages. P.L. 95-30 also allowed an additional credit of 10 percent of the wages paid to employees who were vocational rehabilitation referrals.

While there was many other legislative acts during the 1977/78 period that benefited persons with disability, those sited above appeared to have the most impact on vocational evaluation during the past decade. The types of clients served by vocational evaluation services began to change about a decade ago. While rehabilitation facilities continued to serve clients referred by the Division of Vocational Rehabilitation, services were expanded to serve clients from other referral sources. CETA programs, school special education programs and development disability centered provided additional clients for vocational evaluation services. During this period, the Department of Education was created and Rehabilitation Services Administration was moved to this new department.

Following the 1980 election there were cutbacks in many social service programs. While case service monies for rehabilitation services were not affected as much as were other human service programs, there was a general belt tightening throughout the state/federal system. Accountability was emphasized and DVR began to demand shorter evaluation periods but without a decrease in the quality of vocational evaluation services. During the past decade the technology of vocational evaluation has changed and most of these changes have been positive. Microcomputers are being used as tools in the evaluative process. While not widespread, computer assisted vocational evaluation is a reality and it is proving to be cost effective. Many vocational evaluators have developed work samples programmed for microcomputer use. VALPAR has developed MESA as a screening device and as a method for evaluating many client attributes using microcomputers.

A dozen or so commercial companies have developed and marketed microcomputer job matching systems. While these systems are not always useful due to the size and content of their job banks, when applicable, they save many hours of vocational evaluator time in matching client attributes with job requirements.

Many new commercial vocational evaluation systems have come on the market in the past decade and some systems that were widely used ten years ago are no longer as vogue.

Most vocational evaluators are still employed in private, non-profit rehabilitation facilities. However, over the past decade there has been a great increase in the number of vocational evaluators employed in the public schools and this would include both secondary and post-secondary educational settings.

Due to the changes in workmen's compensation laws in most states, the private for profit companies have expanded greatly and have become one of the major employers of vocational evaluators. This industry has expanded so much that they now have their own national professional organization and local chapters in many states.

Vocational evaluations have now begun invading private industry. Many large corporations now have their own rehabilitation programs to assist workers injured on the job. Insurance companies, who deal in workmen's compensation, sometimes employ vocational evaluators and other rehabilitation professionals either as full time employees or as consultants.

In a young but rapidly expanding profession changes occur more frequently than with the older professions. One of the most significant happenings in the vocational evaluation field has been the certification program. As early as 1975, the Vocational Evaluation and Work Adjustment Association (VEWAA) began exploring the feasibility of a national certification program. In 1978, the Delegate Assembly if this organization voted overwhelmingly in favor of certification for both work adjustment and vocational evaluation specialists. As a result of this action, a Standards Committee was established and input was collected from the membership of VEWAA and other professional organizations. The culmination of these efforts resulted in the establishment of the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES) on August 31, 1981.

Beginning in 1966 at the University of Wisconsin-Stout, graduate education in vocational evaluation was initiated. Since that time, other graduate programs training specialists in this area have been established: Auburn University, University of Arizona, University of Southern Illinois, North Texas State University, and East Carolina University have subsequently developed graduate degree programs in vocational evaluation. Other universities having graduate programs in Rehabilitation Counseling have developed concentrations within their major to train vocational evaluators. Included in this group are the University of Georgia, University of Missouri-Columbia, Syracuse University and Mississippi State University. In 1984, and administrative decision was made within the Rehabilitation Services Administration to fund one vocational evaluation training program in each of the RSA regions. The effect of this decision should have considerable impact on the field during the next ten years. Today, the existing vocational evaluation graduate programs can only supply about one-tenth of the demand. With the new programs, the supply and demand could be about equal if new sectors of employment do not increase dramatically.

Summary: This chapter focuses upon the history or vocational evaluation. Considerations were given to the contributions of psychology, induststry, the University of Wisconsin-Stout, selected vocational rehabilitation facilities and the Vocational Evaluation and Work Adjustment Association. Theories of vocational development were examined and related to the vocational

evaluation of persons with disability. Legislation, which has impacted upon vocational evaluation, was discussed. Finally, the significant changes in the vocational evaluation profession over the past ten years were highlighted.

CHAPTER II

STATE OF THE ART

During the 1960s and early 1970s there appeared to be some confusions about the difference between vocational evaluation and work adjustment. Part of the problem stemmed from the fact that the same practitioner was often involved in both processes. There was also some unclear thinking about when vocational evaluation ended and work adjustment began or could they both occur at the same time. This problem seemed to be resolved when the Tenth IRS Study Group III (1972) provided definitions and discussions that differentiated the two processes. Its definition of vocational evaluation is as follows:

"Vocational (work) evaluation is a comprehensive process that utilizes work, real of simulated as the focal point for assessment and vocational counseling to assist individuals in vocational development. Vocational (work) evaluation incorporates medical, psychological, social, vocational, educational, cultural, and economic data to assist in the attainment of the goals of the evaluation process (1972)."

During this same time period there was disagreement within the field whether the process should be called vocational evaluation of work evaluation. The terms have been used interchangeably in the literature and the Tenth IRS Study Group included both terms in its definition. Today, vocational evaluation appears to be the accepted term, even though work evaluation seems to be more accepted in certain area of the country. When vocational evaluation is used in the public school system, the term vocational assessment is more frequently used. There are probably some good reasons why some professionals prefer one term in to the others. The following discussion will clarify these semantic differences.

Work evaluation is a somewhat narrower or more explicit term than the term vocational evaluation. It is also conceptualized as having more immediate objectives such as determining if the evaluee can work at all of determining the type of work the evaluee currently can perform. While vocational evaluation also has these immediate objectives, it is also concerned with the longer-term goals such as determining the evualee's maximum potential. Vocational evaluation focuses on career planning as well as entry-level hobs. However, these differences are conceptual rather than real. Other factors such as the evaluation setting, severity of disability, needs of the evaluee, type of recommendations, and competency level of the evaluator are more likely to determine the level and scope of the evaluation process rather than the term used to identify the process.

A number of years ago a national seminar was held in Washington, D.C. to discuss the topic of vocational evaluation and work adjustment services in Manpower, Social Services, and Rehabilitation Programs. The consensus of one of the discussion groups was that the system had many entry points and identifiable phases (Pacinelli, 1970).

Phase one of the system provided for screening to determine the client's need for evaluation and/or work adjustment services. At the entry point in the system, employability is assumed. Those people who can go into training or employment with minimal orientation, counseling, testing, and/or a brief evaluation will not progress to phase two of the system. At this stage, some provision needs to be made to obtain a current medical history of tot obtain a current

medical examination if necessary. The family assistance need should be determined at this initial phase. Referral may occur at the end of phase one or at some later period. This is dependent on the capability of the intake agency to provide the necessary evaluative and adjustment services. When referral is made, the pertinent client records should go on to that agency. At critical points the client should be told the results to date and the questions that further evaluation should answer.

Phase two of the system provides for intermediate levels of evaluating and work adjustment services. Services at this level may be performed by the intake agency or by the referral organization. Evaluation within this phase should focus on the client's vocational potential and determining vocational objectives. If the client is not ready for training or employment at the end of phase two, advancement to the next phase is made.

Phase three is for those clients who need extended evaluation or long-term work adjustment services. Phase three clients are those traditionally served by vocational rehabilitation. Clients who go to this phase are usually the severely disabled and/or those with multidimensional problems.

Phase four provides for advancement into training, other services of employment. The employment may be competitive, sheltered or homebound. In the event of limited employment activities, some provision needs to be made for public-support employment. The system should provide for recycling of the client when and of the need arises for further services. Joint staffing should take place at all levels of the system, especially at the critical decision points where determination is made for advancement to a higher of evaluation or adjustment. The system as conceptualized goes from specific short term at the initial phase to intense services within a broad scope of possible services within the latter phases.

The VEWAA Project (1974) identified three levels of the assessment process and referred to them as screening, clinical assessment and vocational evaluation.

The first level was called screening. It is similar to the guidance procedures used by high school counselors of rehabilitation counselors in one or two interviews. Extensive reliance is placed on client statements of choice, competence and job history. It may be supplemented with additional routine information available in a program, such as normed aptitude tests and medical examinations (p.30).

The second level can be termed the clinical, case study, or in-depth vocational counseling approach. In addition to the methods used in screening, the clinical method uses detailed recovery of personal history, securing and synthesizing the findings or other agencies and professional persons, use of clinical interpreted tests, and several hours of interaction between counselor and client (p.30).

Vocational evaluation is the third level of assessment in a sequential strategy. This assessment process involves placing the client into real or simulated work experience within a controlled setting. It typically involves several days of observation and the interpretation of these observations (p.30).

It is apparent that in the opinion of experts vocational assessment has different levels of phases but the crucial component of vocational evaluation is the use of real of simulated work. The work may be at workstations in a rehabilitation facility, in industry or on work samples. There is a current trend outside of the non-profit rehabilitation sector for the people to claim to be doing vocational evaluation without involving the component of work. The assessment provided may not be more that case file review and transfer of skills for worker's compensation

clients or the use of prevocational tests. Misrepresentation of professional competencies is not only unethical but is a disservice to people with disability.

The goal and objectives of vocational assessment may vary both with the setting and the type and severity of the disability. As an example, in private-for-profit rehabilitation the major goal is the return to competitive employment as quickly as possible. In the public schools, career education is the major goal. The VEWAA Project (1974) identified a number of goals and objectives for vocational evaluation that are related to twenty-two functional outcomes (p.25-29).

"The first specific objective of the vocational evaluation is to identify an optimal outcome for the individual being served (p.25)." This objective takes into account that the optimal outcome may or may not be gainful employment. The functional outcomes identified in the VEWAA Project (1974) range from competitive employment to total dependence on others (p.26).

"A second specific objective of vocational evaluation is to identify the functional competencies and functional disabilities of the individual (p.27)." This implies that the vocational evaluation must be comprehensive and may include alternative services provided by other human service programs.

"The third specific objective is to identify those services needed to overcome the functional disabilities that are barriers to successful performance of the optimal functional outcomes (p.27)." This requires a detailed knowledge of available service resources. The authors caution that only functional disabilities that are barriers to success in an outcome are dealt with in treatment" and to insure that the functional outcomes will be reached as rapidly as possible.

"The fourth specific objective of vocational evaluation services is to reduce or eliminate functional disabilities of the individual (p.27)." The authors note that in contrast to the first three objectives, this objective deals with "treatment" rather than information gathering. There is some evidence to suggest that the evaluation process itself brings about positive change in attitudes, behavior and performance. Many of the assumptions underlying work sample theory are derived from this evidence. In addition, Gwillian (1970) identified several direct client benefits from vocational evaluation services including a greater awareness of goals, better understanding of personal abilities, awareness of functional capacity and potential and mere realistic aspirations. Dunn and Korn (1973) determined that clients had a greater awareness of goals and were able to take independent action to attain these goals as a result of vocational evaluation.

The VEWAA Project (1974) concludes that vocational evaluation is two-dimensional. The first dimension deals with the utility of information gain and the second with the utility of positive change. Most of the information is derived from work samples, tests, observations and interviews with the evaluees. The reasons for the positive changes that take place during evaluation are less well understood. In part it may be due to the "Hawthorne effect" where any environmental change tends to elicit positive human change. On the other hand, it may be related to the fact that the evaluation process makes the evaluees feels more in control of their life situation.

VOCATIONAL EVALUATION PROCESS

In the discussion on levels of assessment earlier in this chapter, the first two levels describe what usually takes place prior to referral for vocational evaluation. The referring person or agency normally does the screening and the clinical assessment of the individual. If the decision is made that further assessment is needed, the individual is referred for vocational evaluation. While there may be a number of models of the vocational evaluation process, most

have a common pattern. In order to gain a perspective of the evaluation process, one particular model will be discussed. Over a two-decade period, the vocational evaluation program at the University of Wisconsin-Stout has evolved into a highly systematic and effective process. Several research studies have revealed that referring agencies or counselors follow the evaluation recommendations, the evaluees are well satisfied with the experiences and a majority of the evaluees are successfully rehabilitated (Tharbes, 1971; Rentz 1983). The UW-Stout model is fairly straightforward and involves the following steps:

1. Referral and Intake
2. Orientation
3. Initial Interview
4. Preliminary Testing
5. Evaluation Planning
6. Vocational Assessment
7. Exploration/Experience
8. Feed-back sessions with the Evaluee
9. Staffing
10. Final Report
11. Follow-Up

The referral process varies with the referring agency but usually culminates in a written referral that provides background information on the evaluee. The amount of information varies in each case but would normally include information about the evaluee's disability, education and work experience, demographic data and referral questions. The referral questions may be very vague or very specific. Since the Vocational Development Center at UW-Stout receives a majority referrals or referrals from the Wisconsin Division of Vocational Rehabilitation, a standard vocational evaluation referral form is used. This form requires very specific information since the

Evaluation must normally be completed within a five-day period. The referring counselor will also include with the form demographic data, educational and work background, case notes from initial contacts with the evaluee and medical records if available and relevant.

Intake: Upon receipt, the referral data is reviewed for completeness. If additional data is needed, the referring counselor is contacted by telephone. The evaluee is scheduled for a one-week period. Two weeks prior to intake, the evaluee is sent a form letter that informs the evaluee when the evaluation is scheduled, information about the evaluation program, what to bring, and a map of the campus. A different letter is used for evaluees who will be staying in the residential dormitory than for those who will be commuting each day. A telephone number is provided and evaluees are asked to call if they cannot come when scheduled. Evaluees staying at the residential dormitory are asked to chick in on Sunday between 3:00 PM and 9:00 PM.

Orientation: The group orientation begins at 8:30 AM in Monday. At that time the evaluees are provided with a participant's manual. The manual and the presentations mainly follow a question and answer format:

1. What is the Vocational Development Center?
2. Why have I been sent here?
3. Who will be working with me?
4. Vocational evaluation at the VDC.
5. What happens during evaluation?

6. What other services are offered by VDC?
a. Psychological testing.
b. Placement services
c. Employment readiness training, experience training
d. Program for independent living
e. Housing
7. Where should my mail be sent?
8. How about spending money?
9. How about medication?
10. What should I wear?
11. What hours will I be at the center?
12. Where can I make phone calls?
13. Where do I eat?
14. What about sick days?
15. Where do I go on breaks?
16. Parking?
17. Where do I call in case of emergency?
18. What if I become sick or hurt while at the center?
19. Grievance procedures?
20. What do I do in case of fire?
21. Rights and responsibilities

Following the orientation the evaluees are administered the Wide Range Achievement Test to determine their reading level. This is followed by the initial interview with their vocational evaluator. Those evaluees staying in the dormitory are provided an orientation tot the dormitory and campus recreational activities in the evening.

Initial Interview: The purpose of the initial interview may vary somewhat depending on the evaluee and the evaluator involved but in general will have the objective of establishing rapport, giving information, obtaining and or validating information, and providing a basis for planning the evaluation. The interview should provide the following information:

1. Is the evaluee appropriate and ready evaluation services?
2. What are the evaluee's needs?
3. What are the evaluee's specific vocational problems?
4. What are the evaluees's assets?
5. What services are needed to achieve short and long term objectives?
6. What are the evaluee's attitudes, values, and motivation?

The initial interview may involve several sessions. The evaluator will determine the expectations of the evaluee and if necessary provide information as to what the evaluee can realistically expect from the evaluation. During the interview process a partnership is formed between the evaluator and the evaluee. The evaluee will learn about the responsibilities that must be assumed if the evaluation is to be meaningful. The evaluator will explain the evaluation process and discuss what will take place on a day-to-day basis. The evaluator will discuss the preliminary testing and the type pf information it will provide. The evaluator will attempt to determine how the evaluee views the disability and whether of not it has been accepted. At the same time the evaluator will determine the evaluee's perception of the vocational problem relate to the

disability. Finally, the interview process should assist to motivate the evaluee to perform at an optimum level throughout the evaluation period.

Vocational Evaluation Planning: Initial planning attempts to identify the tentative direction of the evaluation. The vocational evaluator generates some hypothesis or questions about the potential of the evaluee based on the information derived from the referral and interview data. The evaluator determines what are the critical factors of information resources to answer these questions. The evaluator also determines what assessment techniques should be used to gain this information and what people should be involved.

In analyzing the referral information, the evaluator notes the reason the evaluee has been referred and the specific referral questions to be answered. The source of this information is the referral case folder and by direct contact with the referral agent. The evaluator determines the primary vocational problem by noting the stated disability, the actual demonstrated vocational limitations and the evaluees's expressed vocational problem. The referral case folder, the initial interview and the results of the preliminary testing should provide the information needed.

The background information on the client is used in the planning process. In reference to education and training, the evaluator determines the evaluee's attained educational level, the completion of any specific vocational training, and the transferability of skills. The source of this information is the referral case folder, the initial interview and the Dictionary of Occupational Titles.

In reference to the evaluees's work experience, the evaluator considers the listing of the specific jobs held by the evaluee's description of these jobs, the classification of the jobs held and the potential transfer of skills. The D.O.T., case folder and initial interview provide the needed data.

The initial interview and informal discussion with the evaluee will provide vocational information. Hobbies and other leisure time activities can provide direction in the planning process.

Expressed, manifest, tested interests and the consistency of this interest is determined by preliminary testing and the initial interview. The evaluator compares the data from these different sources and notes similarities and discrepancies.

The achievement levels of the evaluee in the areas of reading arithmetic ability are obtained from the preliminary testing results. The evaluator will analyze the results to determine if they reflect an accurate level.

Information is also needed about the evaluee's motor functioning and functional capacities. The concern is with manual skills and physical capacities. The preliminary testing and, if needed, further dexterity testing provide this data. Data on the evaluees's functional capacities, including social skills, ability for independent living, etc., is gained from the initial interview, the referral source, and if necessary form interviewing parents or guardian.

Once this information is obtained, the evaluator's next task is to analyze the data and formulate several tentative hypotheses. The evaluator will approximate the evaluee's vocational functioning level in the areas of the Worker Trait Group. Achievement tests results and observation provide the Data level. The People level is approximated through observation and from the interest test information. Observation and the dexterity test results provide the information on the Things level. The evaluator then identifies feasible vocational areas for further exploration using all information obtained up to this point. The critical worker traits related to these vocational areas are obtained form the occupational reference information.

In selecting assessment techniques to explore these vocational areas, the evaluator will list psychometric test, work samples or simulated tasks that will measure the critical worker traits.

The schedule should allow the evaluator to move form general, exploratory decisions to specific, final decisions. The schedule and list provide an outline of the tentative evaluation plan. In the event that people other than the assigned evaluator are to be involved in the evaluation process, their names and designated responsibilities should be stated. During this initial planning, input from the evaluee also sets the direction of the evaluation process. The final plan is formulated within two days.

The components of the evaluation process may include all of the following.

1. Occupational information
2. Work samples
3. Situational assessment
4. Community based assessment
5. Psychological testing
6. Special projects
7. Observation
8. A-V material
9. Client information
10. Feedback sessions
11. Interviewing

Staffing: After the evaluation is completed, a staffing conference is scheduled and the evaluator completes a staffing report. Information contained in this report would include the results of achievement testing, GATB, and intelligence testing within the first section. The second section would list the evaluee's interests and goals, both expressed and tested. The third section would specify the high areas of performance in occupational categories. This section would also include a list of the evaluee's vocational assets and vocational limitations. The next section would specify the recommendations, both immediate and long term. The final section of the report would provide the evaluee's reaction to the plan.

Goals of Staffing: The primary purpose of the staffing is to share information obtained during the evaluation. However, there are some specific goals of staffing that should also be met. The staffing should:

1. Promote the efficient and effective delivery of services to the evaluee and it should also serve to expedite these services.
2. Address the referral question(s) and provide answers based on the evaluation results.
3. Provide additional information relating to the evaluee's vocational problems and other background information of which the referring counselor might not be aware.
4. Serve to highlight both the sort term and long term services that will be needed if the evaluee is to reach the recommended vocational goals.
5. Assist in analyzing and solving problems relating to the evlauee's need for further services.
6. Pinpoint the help that will be needed from other professionals.
7. Provide concrete recommendations based on the evaluation results.
8. Seek agreement and commitment from all involved parties.
9. Determine time-lines and specific courses of action.

Vocational Evaluation Reports: Following the staffing conference, and assuming that the evaluation period is not extended, the evaluator writes the evaluation report. The University of Wisconsin-Stout model uses narrative reports. The format for the longer narrative report is as follows:

Section I: Referral Reason
Section II: General Description
A. Initial Impressions
B. Physical Appearance
C. Special Characteristics
D. Vocational History
Section III: Recommendations
A. Immediate
B. Long Term
Section IV: Performance
A. Work Sample Skills
B. Special Assessment
C. Performance Related Psychometric Tests
D. Physical Capacities
E. Discussion of Significant Performance
Section V: Behavior
A. Temperaments
B. Interests/Needs
C. Personality/Social
D. Discussions of Significant Behavior

Follow-Up: The purpose of follow-up is to ascertain the results of evaluation services in order to improve the program. Follow-up also communicates to the evaluee and the referral source the continuing interest the evaluation staff has in the evaluees it serves. Thus, follow-up can be thought of as both a program evaluation tool and another vehicle for public relations.

In the UW-Stout model the follow-up begins with the exit interview. At this time the evaluator determines the evaluee's satisfaction with the evaluation process and outcomes, and the evaluator may review the recommendations based on the evaluation's results. Emphasis is placed on the evaluee's continuing cooperation with the referring counselor in order to obtain assistance in moving toward the vocational objectives. By this time sufficient rapport should have been established to assure the evaluee's cooperation in future follow-up endeavors.

The second phase of follow-up involves a survey of the referring counselors to obtain their perceptions of the evaluation outcomes and their satisfaction with the evaluation service. They also expect to get some feedback on the progress of the evaluees.

While not always feasible, the evaluation staff attempts to do six and twelve month surveys of the evaluees. In addition to the follow-up efforts of the evaluation staff, graduated students periodically conduct theses research projects on the evaluees who have participated in the evaluation program. In these studies the evaluees may have gone through the program several years prior to the study. This can provide information on the long-term effects of vocational evaluation.

A written description of a model program cannot convey all of the qualitative aspects that make it effective. The above description of the University of Wisconsin-Stout evaluation program is

only a skeleton but it does provide an outline of the evaluation process. What cannot be conveyed is the high degree of competency of the evaluation staff and the multiple resources available to assist its members in the evaluation process.

CARF VOCATIONAL EVALUATION STANDARDS

The CARF Standard on vocational evaluation were developed by the Standards Committee of VEWAA and accepted by the Commission on Accreditation of Rehabilitation Facilities as its official standards. The following revised standards became effective on September 1, 1982. These standards are used by CARF surveyors for determining if a vocational evaluation program within a facility should be accredited. Most rehabilitation facilities (accredited or non-accredited) have adopted these standards.

CARF defines vocational evaluation in the following manner:

Vocational evaluation is a service that is provided on a systematic, organized basis for the purpose of determining individual vocational objective(s): assets, limitations, and behaviors in the context of work environments in which the individual might function, and specific recommendations that may be used in the development of the individual's rehabilitation plan. Assessment services that are limited to determining the most appropriate placement within the facility for a person are not subject to these standards. Where real work is used as an integral part of providing the vocational evaluation program, the appropriate standards in Section K., Work Service must also be met (p.53-54).

1. The range and scope of the evaluation services should be sufficiently comprehensive to assess or obtain information concerning at least the following:

a. Physical and psychomotor capacities
b. Intellectual capacities
c. Emotional stability
d. Interests, attitudes, knowledge of occupational information
e. Personal, social, and work histories
f. Aptitudes
g. Achievements (e.g., education, vocational)
h. Work skills and work tolerance
i. Work habits (e.g., punctuality, attendance, concentration, organization, interpersonal skills)
j. Work-related capabilities (e.g., mobility, communication, hygiene, money management, homemaking)
k. Job seeking skills
l. Potential to benefit from further services that are specifically identified
m. Possible employment objectives, that may involve either competitive or non-competitive employment
n. The Individual's ability to learn about themselves as a result of the information obtained and furnished through the evaluation experience, and
o. Assessment of the most effective mode of understanding and responding to various types of instruction. (p.54).

2. Appropriate adaptive assessment tools and methods should be used wherever possible with individuals having sensory, physical, communication or other functional impediments (e.g., visual, hearing, speech, orthopedic, language, cultural, or learning disabilities) that might invalidate otherwise standardized procedures (p.54).

3. The length of time an individual remains in vocational evaluation should be based primarily on the time necessary to accomplish the individual's evaluation goal (p.54).

4. Evaluation data should be supplemented by personal interviews and behavioral observation (p.54).

5. Job areas assessed in vocational evaluation should be based on the person's interest's capability, and opportunities in the labor market geographically accessible to the person, and questions asked by the referral source (p.54).

6. The vocational evaluation service should assure that a variety of work settings and tasks are available sufficient to meet the evaluation needs of individuals being served. A vocational evaluation service should use two or more of the following techniques:

a. If psychometrics are used, the selection, administration, scoring, interpretation, and reporting of all psychological and psychometric tests should be under the supervision of a person who meets the qualifications as defined by state law and by American Psychological Association standards.

b. If work samples are used:

(1) they should be representative of realistic competitive worker traits/skills.

(2) they should be established by an analysis of job tasks related to a specific area of work and should be standardized as to materials, layout, and instruction and scoring.

(3) competitive norms or industrial standards should be established and used.

(4) Each work sample should have an examiner's manual that specifies:

(a) its relationship to Occupational Divisions, Worker Trait Groups, or an appropriate job analysis system

(b) prerequisites, e.g., any specific task requirements that might make administration unfeasible for a give individual

(c) the work sample purpose, e.g., specifically what the sample is attempting to assess

(d) the materials and equipment used

(e) preparation for testing and the layout of materials

(f) instructions to the individual

(g) instructions for timing, evaluating errors, and scoring, if applicable, and

(h) instructions for interpreting scores.

c. If simulated job stations are used, the individual's job performance should be evaluated against competitive industrial standards (e.g, quality, quantity, physical demands).

d. If on-the-jobs evaluation is used, a job site should be evaluated as to its appropriateness with regard to:

(1) adequate supervision,

(2) appropriate safety,

(3) physical accessibility,

(4) transportation accessibility, and

(5) competitiveness of work tasks and demands (pp.54-55).

7. Based on referral information, the initial interview and the stated purpose of the evaluation, a specific written evaluation plan should be developed with each individual. This plan should:

a. identify the questions to be answered through the evaluation,

b. indicate how these questions will be answered,

c. where appropriated, specify persons (staff, family, etc.) who will be involved in carrying out the plan (There should be evidence that these individuals are aware of their role in carrying out this plan), and

d. periodically be reviewed and modified as necessary (p. 55-56).

8. For each individual served in vocational evaluation, a written functional evaluation report should be prepared, properly interpreted to the individual and disseminated to the program manager, referral source and other appropriate agencies or individuals (p.56).

9. Goals of those served should be expressed as job possibilities in terminology such as job titles of job families related to existing occupations in the community. When vocational goals are not found at the time of evaluation, non-vocational goals should be specified (p.56).

10. The vocational evaluation should be designed suitably for the activities and should have sufficient space for current operations. (p.56).

11. Equipment used in vocational evaluation should represent the type that can be used in competitive industry; it should be based on the capability of the person served and the opportunities in the labor market geographically accessible to the person (p.56).

12. Vocational evaluation services should be provided by or be under the supervision of an individual who is a vocational evaluator a vocational specialist (See Glossary of Terms for vocational evaluator and vocational specialists (p.56) (CARF, 1985).

The VEWAA/CARF standards were developed first and foremost to assure quality vocational evaluation services. Secondly they serve as minimum guidelines for rehabilitation facilities that desire accreditation. The standards also provide guidelines for referral sources that expect that the evaluation services will be comprehensive and cost effective. As conditions change in the future, the standards will also change and be refined to reflect changing conditions.

PROGRAMS/SETTINGS

A majority of vocational evaluation programs are housed in rehabilitation facilities. Vocational evaluation has grown and expanded beyond the boundaries of this initial setting. The principles and processed of vocational evaluation have been accepted by other disciplines. Secondary and post-secondary schools, medical facilities and industry have adopted vocational evaluation as an effective tool in providing services to students, patients, and workers. As vocational evaluation is adapted to different setting, it may undergo certain modifications to meet the immediate objectives of the organization. Even the terminology may be changed.

Secondary Public Schools: In secondary public schools, vocational evaluation is referred to as vocational assessment and is normally a part of the special education program. In rehabilitation settings, the immediate objective of vocational evaluation is job placement or vocational training. IN the public schools the immediate goal is career education, job placement and training are long-range goals. The vocational evaluator is normally a certified schoolteacher. In a study by Ellsworth (1977), the results indicated that school vocational evaluators are performing the same tasks as vocational evaluators in rehabilitation. However, despite the similarity of tasks performed, there is a great deal of variation in the amount of time spent on each task. The author notes that this lack of consistently in the time priority given to various tasks indicates that there is no formalized model followed by school vocational evaluators in providing evaluation services. A distinct attitudinal difference is described by Nadolsky (1985).

“Special education programs are almost exclusively concerned with serving children who are disabled, while rehabilitation programs emphasize the provision of services to disabled adults.

Except for the recently established transitions rehabilitation services programs (that are probably temporary in nature); neither discipline maintains a commitment to serving disabled children as they develop into adults."

The author also points out that despite the passage of the Education for All Handicapped Children Act (Public Law 4-142) in 1975, the majority of special education programs treat disabled teenagers as if they were children and continue to place primary emphasis on the learning of basic elementary-level skills and concepts. As a result, most disabled students are poorly equipped to function as adults when they attain the age of 21.

The lack of the vocational emphasis in public school vocational assessment programs has been a major criticism for a number of years. There is evidence to suggest that the vocational emphasis makes a crucial difference for the students later securing employment. For example, Verschelde (1983) compared the effects of employment readiness training on the ability to secure immediate employment. Half of a group of high school special education students were enrolled in an eight-week training program and the other half (control group) did not receive training but rather attended regular scheduled classes. The results showed that 76.9 percent of those students receiving training were working within a 4-week period compared to only 33.3 percent of the control group who were working during the same period.

Peterson (1981) discusses a team model of vocational assessment for use in public schools in Texas. The team is to be made up of vocational evaluators, vocational counselors, diagnosticians and vocational adjustment coordinators. The assessment methods included (1) job analysis, (2) psychological testing, (3) work sample evaluation, and (4) situational assessment. The author emphasizes that the goal of a comprehensive assessment is to come up with recommendations for specific vocational training, prevocational and life skills training, job placement, support services and related agency services, teaching techniques and curriculum modification. The author also recommends that vocational assessment begin in the seventh grade and be provided on a yearly basis.

In summary, vocational evaluators in the public schools use the same methods and tools, and perform the same tasks as vocational evaluators in rehabilitation, but because of tradition and/or attitudinal differences have different purposes and may achieve different results. In rehabilitation, vocational evaluation normally occurs only once and is done within a set time period. In the public schools, vocational evaluation is done periodically during the secondary school years. Vocational evaluators employed in the public schools usually have less formal training in vocational evaluation than their counterparts in rehabilitation.

Private For Profit Rehabilitation: Due to changes in the state worker's compensation laws over the past two decades a new service industry has developed. These changes require insurance carriers to provide certain rehabilitation services to industrially injured workers. Insurance carriers have traditionally provided physical restoration services and have employed rehabilitation nurses as case managers. Private for profit businesses have been established to provide rehabilitation counseling, vocational evaluation, job development and job placement. In many instances they have also assumed the case management function. Private sector rehabilitation has opened up an expanding job market for vocational evaluation specialists. Even though vocational evaluation specialists use the same knowledge and skills in both private for profit and non-profit organizations, there is a basic philosophical difference between these two sectors. Traditionally, vocational rehabilitation has sought to rehabilitate individuals to their optimum level. The private sector's philosophy is to rehabilitate individuals to the same level as prior to the industrial injury. Consequently, the vocational evaluator in the private sector is first

of all concerned with the transferability of skills. According to Gise (1985), an analysis of transferable skills involves defining an injured person's:

1. educational development necessary to function on the job
2. aptitudes (potential to learn or perform a task) required to function in the job
3. skills required to function in a job
4. interest patterns typical of workers in the job
5. physical capacities required in the job

This is done by and in-depth review of a person's work experience, defining the physical capacities of the person's post injury and systematically comparing these variable to the world of work (p.4-7).

Theoretically this in-depth analysis could be accomplished by doing no more than reviewing the case file. But if this were the method, a vocational evaluation specialist would not be needed. While the scope of vocational evaluation varies with the private sector organization, the problems if the client and with the referral questions, it is usually not as comprehensive as would occur in the non-profit sector. In addition to the normal tasks performed by evaluators, the private serve as a vocational expert in court hearings, conduct marketing of services and serve as office manager.

Since the private for profit rehabilitation organization operate on the profit motive and need continuing referrals from insurance carriers or lawyers, can the vocational evaluation specialist be a client advocate or even impartial? This is an ethical question that will probably be debated now and in the future. In the non-profit rehabilitation sector, the evaluator is expected to be in the client's advocate. This divided loyalty could in the future contribute to the burnout rate to the private sector evaluator.

Innovative Vocational Evaluation: The majority or vocational evaluation specialists are employed in rehabilitation facilities. The role and function of these evaluators may vary with the type of facility. Vocational evaluation in the traditional facility is carried on in the typical evaluation unit. The evaluation is usually an on time process and lasting one or two weeks. Further evaluation may be done later in the subcontract area using situational assessment techniques. In the non-traditional rehabilitation facility, evaluation may be initiated in the evaluation unit but continued in work sites within the community. The non-traditional facilities use innovative community based services such as supportive work, transition from school to work, work groups performing such jobs as janitor or lawn care, and enclaves in industry. Vocational evaluation in the community takes on a new dimension. The focus of the evaluation is as much on the work related behaviors as on work performance. Since the community based programs normally involve lower functioning clients, who may need many services ova a long duration, evaluation is periodical and may continue over many months or years.

Other Employment Settings: Employment for the vocational evaluation specialist is not limited to rehabilitation facilities, public schools or private-for-profit rehabilitation agencies. Evaluators are currently employed in correctional facilities, rehabilitation hospitals, insurance companies and certain industries. The vocational evaluator compenties required for employment is these settings are essentially the same as in other settings. However, the purpose of the evaluation may differ. For example, in industry the purpose is to identify transferable skills for workers injured on the job. In correctional facilities, the purpose may be either to evaluate for job skills used in prison industries or to evaluate for vocational training. As in industry, insurance companies use vocational evaluators to assess skill transferability. The potential for expanding employment in these other employment settings has never been realized due to organizational

goals and in some cases due to national priorities. Changes in the economy and technological changes could alter this situation in the future.

SUMMARY

Vocational evaluation as a profession has come of age. There is a common agreement on the terminology and the process of evaluation is fairly standardized. Vocational evaluations specialists have more formal training a greater number of them have advanced degrees. National standards have been adopted for the practice of vocational evaluation in rehabilitation facilities. A majority of vocational evaluation specialists have become opened up to the vocational evaluator in the private for profit sector of rehabilitation. Vocational evaluation is expanding in the public schools. The Vocational Evaluation Act of 1985 mandates vocational evaluation for all handicapped students. Despite economic recession and political conservation vocational rehabilitation funding has held its own.

CHAPTER III

DEVELOPING OBSERVATIONAL SKILLS

Introduction: The primary activity in situation assessment is observation. Skilled observation requires focus, sensitivity, objectivity and much practice. The purpose of this chapter is to develop some guidelines that will aid evaluators to develop or improve their observational skills. Some of the concepts to be discussed might be termed common sense of folk knowledge. Other concepts to be reviewed have a more sophisticated origin and have been borrowed from other branches of the behavioral science field. Since perception is intrinsically a major factor in observations, initial emphasis will be given to this psychological process.

Focus and Perception: The term focus implies the deliberate limiting of behaviors to be observed and highly selective perception. It might be noted that in a sense all perception is selective. The number of incidents is legendary where spectators of an automobile accident give different and conflicting reports of the event. Some reasons for this phenomenon are that people tend to look without seeing, hear without comprehending, and are oblivious to most of the stimuli that bombard their senses. People also see what they want to see, hear what they want to hear, and unconsciously screen-out or distort perceptions that might be threatening to their self-concept, ego, values and attitudes.

Perception is the process of giving meaning to sensory input. It is not interpretation, reflection, apperception, or the term proposed by Allport (1960), "proception." As Blake and Ramsey, (1951) formulate it: "Perception refers to those interactions between an organism and its environment in which the form of response is governed by the signal or sign significance as contrasted with the energy strength or quality or meaning of the stimulus configuration." The significance or meaning or the stimulus is dependent on past experiences, i.e., previous somewhat different terms by Bruner (1951), Perception involves a three-stage cycle: (1) Expectancy or hypothesis, (2) Information input, and (3) Confirmation, rejection, or modification of the hypothesis.

Not only is perception determined by the previous experienced of the individual; it is also determined to some extent by the culture or subculture of the perceiving person. Dennis (1951) points out a number of examples that exemplify how perception is culturally determined. The class of studies dealing with the Rorschach seems to illustrate the cultural determination of perception most aptly. For those readers not familiar with the projective personality test called the Rorschach, it is a series of ambiguous ink blots printed on test cards. When individuals are asked what these ink blots look like, they tend to project aspects of their own personality into their responses. The following examples illustrate the differential responses and the probable culture factors (in parenthesis) contributing to this phenomenon.

1. Moraccans gave a remarkably high proportion of small detail and anatomy responses (Morraccan art and religion gives importance to details).

2. Pilaga children gave many details and many sex responses (The frequency of sex responses by them seems to be directly related to the sexual experiences and sexual freedom permitted to them).

3. In Samoa, whole responses and space responses were unusually frequent (In Samoa, white is a favorite can symbolic color).

4. The Salteaux see Rorschach cards as figures previously seen in dreams (To the Salteaux, dreams are a means of communication used by supernatural beings and direct experiences with supernatural beings are likely to be vivid).

It is usually assumed that perception is a totally conscious process. However, the research studies dealing with subliminal perception, sleep-teaching and the operant conditioning or unconscious organisms tend to negate this belief (Miller, 1951). Likewise, there are many studies showing that the perceptual processes can be grossly altered through drugs, fatigue, and illness, and by sensory deprivation (Beach, 1951; Miller, 1951; Solomon, et al., 1961).

In summary if this section on perception it may be worthwhile to remind the reader that; "seeing is believing" is not necessarily true. What we perceive, the way we perceive, and the level of perception (conscious, pre-conscious, or unconscious), is determined by a large number of factors. Our perceptions (if accurate) help us to maintain contact with reality. However, perceptions are not absolute facts but only personal manifestations of reality. Just the awareness of the fact that what the observer sees needs further verification is a first step in developing observational skills.

Observational Focus: Focus in this context means becoming hyper-viligent to select cues and indifferent to others. For the vocational evaluation specialist this might logically be those behaviors that interfere with work activity and those behaviors that enhance work performance. More specifically, perhaps the focus should be on those behaviors that will provide answers to the referral questions and other questions elicited by the vocational evaluation process. For example, of there is a question about the evaluee's ability to follow instructions, the evaluee could be observed in a number of work situations where this ability would be required. We would focus on such behaviors as attentiveness when provided instructions, asking appropriate questions for clarification, and demonstrating comprehension by following those instructions in performing work tasks.

Sensitivity: Observational sensitivity, like any other skill, is learned and improved through practice. One way of improving this skill is to team up with another observer and frequently compare notes. Areas of disagreement between observers may result from unconscious bias. Discussion of the conflictual material will help both observers become aware of their blind spots. Vocational evaluators should also become sensitive to deviational behavior.

Deviational Behavior: Deviational behavior has been defined as "conduct departing materially from social and ethical standards; conduct departing so far from the usual as to be socially disproved" (English and English, 1958). In order for the evaluator to be sensitive to deviational behavior, she must be familiar with the norm group to which the observed person belongs (Wallen, 1966). Deviational behavior may be seen in the way a person grooms herself and dresses, by the way she talks and by her actions. In the event clothing, speech, or actions differ significantly from the expected, the deviational behavior should be noted and described in the observational notes.

1. Clothing: A person's attire can reflect social level, cultural fads or recreational interests. However, in this context the concern is with deviations in attire. It would be a deviation if a male client comes to work in a suit and tie when the appropriate dress is blue jeans.

2. Speech: In certain sub-cultural groups, the use of profanity is "normal" while in other groups it would be considered an extreme deviation from expected behavior. A specific person, who is known not to belong to a specific group such as the citizen band radio hobbyists, might be suspect if he began using their stylized speech patterns.

3. Action: Odd of bizarre activity from people not from a psychiatric population should be noted by the evaluator. Compulsive behavior, hyperactivity or apparent restlessness may signify personal problems manifested by physical atypical behavior. In order for an evaluator to evaluate changes in style or habit, it is necessary to know something about a person's past behavior (Wallen, 1966). If an evaluee is generally on time but then reports to work late for several days, something must be happening in the evaluee's life to alter the typical behavior. In a similar manner, if an evaluee is normally talkative and suddenly becomes silent and withdrawn, chances are almost certain that something or someone is bothering that person. One of the most obvious symptoms of conflict is inconsistent behavior. The conflict may be situational, interpersonal or internal. The conflict may be manifested in work performance, speech, or vacillations or affective behavior, i.e., appearing happy at one moment and sad at the next, showing ambivalence toward peers or suddenly avoiding close friends.

From the preceding discussion, it should be obvious that a border interpretation is being made of the term 'deviational behavior' than is provided by the dictionary. Behaviors other than those that are socially disapproved have been used as examples. In the vocational evaluation process, the observer is dealing with subtle as well as gross behavioral cues. The evaluator must be sensitive to all variations in work behavior is she is to arrive at a complete and accurate report on the evaluee. This is not to imply that all deviational behaviors will interfere with work performance or affect the evaluee's future work adjustment. However, the evaluator needs to make this determination based on an understanding of the evaluee. Not all evaluees proceed directly from evaluation to training pr placement. Many need counseling, therapy or work adjustment training. The observational sensitivity of the evaluator is a key factor in determining the evaluee's next vocational step. A lack of sensitivity may result in a premature job placement with a subsequent failure experience by the evaluee.

Expressive Movement: Expressive movement has been the area of particular interest in clinical psychology for many years. For a time there was an unsuccessful attempt to relate expressive movement with "state of consciousness" (Wallen, 1956). Later interest focused on the relationship between the internals state of the person and his expressive movements. For example, when a person is anxious, there is a tendency for the person's rate and the total number of body movements to increase.

There have also been a number of studies dealing with the relationship between personality factors and styles of movement. The study by Krout (1935) dealing with autistic gestures is one example. Other studies have attempted to differentiate common gesticulations of certain ethnic groups, i.e., "traditional Italians" and "traditional Jews" (Effron and Foley, 1937). Not only were differences in gesture patterns found for these two groups, but also differences were noted between the two traditional groups and assimilated Jews. This later fact is worth noting because as individuals become more integrated into the larger society, there is probably less tendency for cultural factors to determine expressive movements. On the other hand, if it is known that an evaluee has been isolated from the mainstream of society, the evaluator should attempt to differentiate those behaviors that are culturally determined form those behaviors that may indicate internal conflict and anxiety. The prime prerequisite is that the evaluator be familiar with the evaluee's background and subculture.

Observational Objectivity: There are a number of factors that may influence the objectivity of observations. Evaluators are dependent on objective data on which to base their recommendations and should be aware of these factors and attempt to control their influence. Prior to discussing some of the more important factors influencing observational objectivity, it

may be well to note that the terms objectivity and subjectivity are relative rather that absolute. Also of importance is the fact that subjective data may be as accurate as objective data. For example, the evaluator's within a specific occupational are may turn out to be more accurate than the objective test score that indicates low ability in this area. The innovative evaluator may try other assessment methods to validate the hunch rather that relying on a test score that may be invalid.

Factors Influencing Objectivity: Preconceived ideas about a specific evaluee may affect the objectivity of the observational data. Studies in education have shown that students whom the teacher expects to fail, do fail, regardless of the student's academic potential. In a like manner, the evaluator may be influenced by referral information or by what others have to say about the evaluee. The influence may be positive or negative. The preconceived ideas tend to determine the expectancies the evaluator has about the evaluees and his behavior. Consequently, the evaluator's perceptual processes may function in such a manner as to screen out data that fail to validate these expectancies. In certain rehabilitation faculties this factor has been considered so important that a policy was created to withhold background date and other referral information from the evaluator until the evaluation was completed. In a similar manner, the evaluator's attitudes, biases or stereotyped ideas about certain disability or ethnic groups may influence observations of an evaluee who is a member of one of these groups. The typical vocational evaluator is a product of our middle class society. The evaluator will have incorporated many of the values and attitudes associated with middle class society. These would include attitudes about dress and grooming, sexual morals and social conduct. The middle class citizen places high value on achievement, competition, acquisition of property, orderliness and reason. The rehabilitation client is more likely to be from the lower of lower middle class and have somewhat different values and attitudes. Thus the possibility exists for the evaluator's values and attitudes to bias both the perception of the evaluee and the later interpretation of the observational data. A special diploma exists in a situation of this type. Most appropriate work behaviors and attitudes toward work are middle class. The evaluator needs to note or infer inappropriate behaviors and attitudes without allowing non-work values to influence the observations.

Racial and ethnic prejudice is prevalent in our society. Therefore there is no reason to assume that the vocational evaluator is immune. The evaluator who is aware of her biases can control their influence and maintain her objectivity. However, the evaluator who has strong biases of this nature (but denies them) will tend to distort perception in order to validate biases and not be aware of the subjective influence.

Stereotyped Ideas about Disabled People: "People with mental retardation work well with their hands and are able to tolerate monotonous work." "Mentally restored individuals are unable to tolerate stress." "The printing vocation is a good one for the deaf since they are not easily distracted." "Since the blind tend to develop outstanding hearing, they make good piano tuners." The preceding statement reflects some of the stereotypical thinking that has prevailed in our society. If an evaluator has preconceived ideas about what a member of a specific disability group can or cannot do, these concepts will color both the perception and the later interpretations of behavioral data. The evaluator should attempt to keep an open mind on the potentials of evaluees. The evaluator should make inferences but be slow to draw conclusions.

At this point the reader may feel that the objectivity of behavioral observation is a myth or (at least) an idealistic but unrealistic goal. However, if evaluators can become aware of their biases, they can probably learn to control their influence. The control involves formulating interferences, describing behavior, validation or rejecting rather than on isolated events, and

finally interpreting behavior consistency with facts and theory. If objectivity is achieved, anyone who later reads the observational notes should be able to draw the same conclusions.

Free Ranging Observations: For the novice observer who is attempting to develop observational sensitivity, there is considerable advantage in focusing on predetermined behaviors. As the evaluator gains observational skill, there are times when global observational more adequately serve the evaluator's immediate goal. To paraphrase an old cliché, there are times when one can't see the forest from the trees. According to Wallen (1956), the value of free-ranging observations is dependent on the emergence of natural or spontaneously formed perceptual units. In the vernacular of the gestalt psychologist, the principles of proximity, similarity, continuation and closure would apply to these perceptions. The observer is cognizant of repetitions, patterns, gaps, and deviations. Minimal as well as subliminal cues play a part in supplying the observational data. The observer's reaction to the total situation may help to later channel the observational data.

Situational Context: Behavior does not occur in a vacuum. Vocational evaluation specialists need to be aware of the situational factors when observing evaluees. In the process of developing observational sensitivity, the observer should always be aware of the ongoing interplay between people and the immediate environment. As noted by Stern, et al., (1963) "Behavior is a functional of the transactional relationship between an individual and his environment" (p. 35). Behavior is always determined both by the person and the situation and any attempt to isolate one from the other or to neglect the context results in a loss of data. Not only is there a loss of data but there is also a greater probability of later having the behavioral data misinterpreted.

Stern, et al., (1963) states, "…this environment provides a continual source of actual and potential stimulus demands and consequences. It consists of people, institutions, situations, tasks, rewards and penalties, as well as numerous factors of physical and biological significance. In the exchange between the individual and environment, both give to each other and both are affected and to some degree altered by the exchange. For assessment purposes a major first task is to reduce the detail and complexity to more manageable proportions" (p. 36).

Behavior is modifiable by the situation. Other things being equal, the more natural the situation, the more likely is the behavior to be characteristic of the individual (Wallen, 1956). A person may behave differently in a social situation than in a work situation. In a similar manner, there are many possible variations in behavior that are attributable to changes in the situations context of work tasks. These variations may be due to either physical or psychosocial factors or a combination of these factors. At any point in time, the observer may not be aware of how the situation is influencing the person being observed but if these situational variable are attended to and described and if the observer has the opportunity to observer the person in a variety of situations, interferences may be made about the probable influence.

Neff (1968) notes that: "The objective is to identify present conditions that influence work behavior and also to ascertain how past environments have become incorporated into present behavior potentials" (p. 132). In situational assessment, the present conditions are observable and past conditions are inferable and at times verifiable. Even though there is an infinite variety of situational factors that may affect work behavior, there are also a number of factors common to most work situations.

Physical Factors: Some of the obvious physical factors influencing work behavior are heating, lighting, ventilation and sanitation. In a production workshop, these factors may or may not vary from one production task to another. However, the evaluator should be able to note

many individual reactions to these factors. Often the behavioral reactions take the form of complaints such as: it's too hot, it's too cold, it's too drafty, this light is too bright, or why don't they sweep the floor more often? These physical factors may also influence production rates and quality, punctuality, absenteeism, and in certain instances the person's interpersonal relationships. The presence of irritants or toxic fumes in the air is another possible physical factor to be considered when assessing the affect of situational factors on work behavior. Dust, paint, odors, distillates, and other chemical cleaning compounds are a few of the irritants in industrial work situations. While these irritants may not affect the work behavior or performance of any evaluee, the evaluator should be especially vigilant when he knows the evaluee has an allergic condition and suffers from asthma or sinus problems.

Though not as obvious, but of relative importance, are the physical factors such as workspace, the orderliness of work equipment and materials, the relative comfort of the work furniture (benches, chairs, tables, etc.), and the physical requirements of the job (standing, sitting, stooping, etc.).

The above is not intended to be an exhaustive last of all physical factors within work situations that may influence work behavior. These and other factors in combination can (but do not necessarily) influence performance and work related behaviors. Some individuals may be insensitive to the physical work environment but may be highly sensitive to the psychosocial variables of the work environment.

Psychosocial Factors: Much has been said about the importance of the interpersonal factors in assessing work behavior. Most behavior rating scales have items to assess how the individual relates to supervisors, peers, people of the opposite sex and people who may differ in ethnic of socioeconomic background from the evaluee. Therefore, it is unlikely that the evaluator will disregard the differential influence that other people will have on the work behavior of the evaluee.

Zoologists have long been aware of the territorial needs of animals. It has however only been recently that we have become aware that people may also have similar needs. Hall (1963) has noted that a person's personal territory is divided into four zones, i.e., intimate distance, personal distance, social distance and public distance. Intimate distance varies from actual contact to eighteen inches and is reserved for spouses, lovers, parents, and children. Personal distance is usually reserved for close friends and varies from eighteen to thirty inches. Social distance may vary anywhere from four to twelve feet. Public distance, reserved for total strangers (as in a public gathering), may vary from twelve to twenty-five feet. Fast (1970) in his best-seller "Body Language," illustrates a number of situations where individuals' territory zones were violated. Typical reactive behaviors included: fidgeting, nervous hand and feet movements, moving around in the chair, crossing and uncrossing arms and legs, rigid posture and withdrawing physically form the situation. It was also noted that certain foreign ethnic groups require more and sometimes less personal space than citizens of this country. Other studies indicate that people who commit violent crimes need as much as four times the personal space a the average person (Knizel, 1969). In a similar manner introverts need more personal space thane extroverts (Fast, 1970).

These facts and theories relating to personal territory have a number of implications for the evaluator who must be cognizant of the situational factors influencing work behavior. Foremost is the possibility that the evaluator may be intruding into the personal space of the evaluee being observed. According to Hall's theory, the appropriate distance would be between twelve and twenty-five feet, i.e., public distance (1963). The crowding of clients into a work are

that does not provide adequate personal space for each one may not only increase the individual's anxiety level but may also serve to precipitate interpersonal conflict.

For individuals who are not close friends, the "social distance" figure of a minimum of four feet would appear to be applicable. Shy or introverted individuals may need the maximum personal space.

The personal space needs of evaluees should be taken into consideration when the evaluator makes vocational recommendations. Occupational areas that require working in close proximity to others would be inappropriate for evaluees who need average or greater personal zones. Barbers, hairdressers and dental hygienists must either have low territorial needs or must be able to tolerate and/or defend against the intimate proximity required by these jobs. Fast (1970) notes that one such defense is to regard the other individual as a non-person or object. Professional attitudes and jargon may also serve as an appropriate defense. The dental hygienist, in talking about cavities, proper brushing techniques or the use of dental floss, conveys to the patient that "despite my intimate closeness, this is strictly in the line of business."

When conveying those psychosocial factors that may influence work behavior, the discussion would be incomplete if the group dynamics of work situations were excluded. While there have been volumes written on the topic, the vocational evaluation literature reveals little concern for the influence of group dynamics on the behavior of the evaluees. Some questions the evaluator may wish to ask are as follows:

1. Within the work group, what is the "pecking others"?
2. Who assumes the leadership roles and who are the followers?
3. Who are the popular group members and who are the isolates?
4. Is the group relatively cohesive or is it subdivided into cliques?
5. What types of behaviors are rewarded by the group and what type of behaviors are taboo?
6. What pressures are used to force group conformity?
7. What is the degree of competitiveness within the group?
8. What is the degree of competitiveness between this group and other groups?
9. How cooperative are the members of the group with each other?
10. Do the group rules tend to enhance or impeded individual productivity?
11. What is the solidity of the group and how readily do the members accept new members?
12. Does the group's influence extend beyond the work situation?
13. Does the evaluee being observed have a similar role status in various groups assigned?

McCandles (1971) recommends "sensitivity training" for evaluators. He suggests that if evaluators are aware of their own emotionality and the limits it places on their objectivity, they are more apt to make more valid observations of the evaluee's performance. He also noted that if evaluators are aware of their own assets and liabilities, they will be more open to the real assets and liabilities of their clients.

While sensitivity training may have value in helping the evaluator appreciate the subtleties of group dynamics, those evaluators who have not had the opportunity for this training should still be sensitive to those behaviors that are situationally determined by the group dynamics.

Recording Behavior: Even though expert observers do more than record details accurately, it is an important first step in the process of situational assessment. The following is a simple guideline for recording behavioral data. It is not meant to be an all-inclusive list nor a mechanical substitute for sensitivity. Rather it is presented as an aid to the beginning observer in order to improve observational skills.

1. Strive for accuracy. The evaluator should describe exactly what is observed and not what is assumed to have happened. If other people's observations are incorporated into the evaluator's notes, they should be so identified and later compared to the evaluator's own observations.
2. Avoid interpretation and editorializing. There is a time and a place in the evaluation process to interpret observational data. However, description of behavior and interpretation should not be mixed when recording. If the evaluator records that the evaluee became angry when criticized by the supervisor, the evaluator is interpreting rather than describing behavior. However, if the evaluator recorded that the evaluee got red in the face, tossed the tools onto the bench, and told the supervisor to "go to hell" (when criticized by the supervisor), the evaluator is only describing what the evaluee did and noting the antecedent factor that proceeded the behavior.
3. Use simple/commonly used terms in describing behavior. Avoid emotionally loaded terms. The basic principle in effective communication is to avoid words that the reader may not understand or worse yet, cause the reader to derive the wrong meaning from the evaluator's intent.
4. Don't attempt to describe each minute detail, movement, or gesture, but rather be selective. A good rule of thumb is to record only those behaviors that enhance of interfere with work performance. Also, describe the situational aspects that retard of positively influence work behavior.
5. Don't trust entirely to memory. Use mechanical aids such as rating scales, checklists and observational notes.
6. Always note the date and time on the observational notes. It can be useful in later organizing the information. It can be useful in relating the evaluee's behavior to external social incidents. It is also of importance in determining variations in work behavior and performance. For example, in industry, normal productivity follows a fairly regular cycle. The evaluee's productivity cycle can be compared to this norm.
7. Organize observational notes in a systematic manner. On suggested method is to organize the notes according to the format of the evaluation report used by the evaluator's rehabilitation facility.
8. If possible, compare your notes with that of others observers. As noted previously, this is a check against misinterpretation and observational bias.
9. Compare the observational notes on a specific evaluee recorded over a period of time. Look for definite patterns and note behavioral inconsistencies.
10. Use observational data to answer specific questions about work behavior and work performance. However, don't expect the observational data to provide answers to all vocational questions. Observational data in combination with other available data (work sample performance, psychometric testing and interview data) is usually sufficient to answer most evaluation questions.
11. Summarize the notes of each observational session. Underscore those behaviors that may be of most significance to the evaluee's future vocational functioning. Likewise, underscore critical behaviors that have been observed previously and appear to be indicative of patterns and traits.

Behavioral Observation Aids: This section will focus on two types of behavior observational aids, i.e., rating forms and checklists. There are some advantages and disadvantages associated with the use of both types.

Ghiselli and Brown (1955) have noted that there are two general types of rating scales, i.e. scales of discrete categories and continuous or graphic scales. Within the two general categories rating

scales may be identified according to the standards used. The four general types of standards are as follows: numerical/alphabetical, descriptive-adjective, man-to-man, and behavior sample. With the numerical of alphabetical scales a series of number or letters is used to represent varying amounts of the traits being rated. Ghesilli and Brown (1955) point out that these letters and numbers are abstract and have no relation to reality. While a rater may be told that a score of 10 is high and a rating of zero is low, the rater is forced to interpret this in terms of past experiences. Since different raters have different experiences, these memory base data become a source of discrepancy between raters.

The descriptive-adjective scales were developed to overcome (to some extent) the abstractness of the numerical of alphabetical scales. Even though the adjectives "excellent" or "very good" have more meaning that A or 10, they still require interpretation on the part of the rater and consequently the standards vary between raters.

The procedures used in developing man-to-man (or rather person-to-person) rating scales require the rater to select a number of individuals who differ on the characteristic that serves as the standard. Ghiselli and Brown (1955) recommend that the rater first select a person who is average for their characteristics being rated. Then two people are selected, one who is superior to the first person and one who is inferior to the person considered average. Fourth and fifth people are selected who are half-way between the superior and average person and halfway between the average and inferior person. This process continues until there are as many individuals as there are comparison standards desired. The authors also not the main advantage of this type of scale is that the standards are concrete and the main disadvantage is that a person-to-person rating scale constructed by one rater cannot be used by other raters.

The behavior-sample rating scales are the most sophisticated and the most difficult to construct. However, they do decrease rater error and eliminate the need for interpretation. This type of scale might be divided into a number of behavioral categories. Within each category would be a series of graded behaviors that could be checked by the rater. An example would be as follows:

( ) Evaluee pays attention to the instructions provided by the work supervisor asks appropriate questions and then performs the task according to the instructions.

( ) Evaluee pays attention to the instructions provided by the work supervisor but fails to ask for any clarification and then performs the task but makes a small number of errors and deviated slightly from the instructions.

( ) Evaluee is attentive at times but is distracted by other people in the general area. After beginning the task, the evaluee stops and calls the supervisor over to clarify part of the instructions. In performing tasks, the evaluee deviates significantly from the instructions.

( ) Evaluee is inattentive. He starts to perform the task but goes at it using a trail and error method. He becomes frustrated and does not try to complete the task.

The above example does not include all possible variations of evaluee behavior associated with this standard but it does illustrate the behavior-sample type of rating scale. In constructing this type of scale the scale developer should attempt to get the work supervisors to provide behavioral descriptions of their best worker, average worker, poorest worker and as many additional behavior work standards as are required according to the objectives of the scale developer.

Behavior rating scales have been a subject of interest to a number of professional disciplines. Rather than providing an extensive review of the literature, it may be more worthwhile to note the general sources, summarize the evolution of these scales, and set some guidelines for the reader who is interested in developing and using behavior-rating scales.

Development and Utilization: Considerable space in the professional literature has been devoted to the discussion of behavior rating scales. Books on psychological testing usually include a section or chapter on this topic. In a like manner, textbooks in the areas of industrial psychology, personnel management, and guidance often give consideration to the development, validation and utilization of behavior rating scales. The evolution of these scales has been significant. Earlier behavior rating scales tended to be developed through and arm-chair approach. That is, the psychologist or other expert would rationally determine the behavior items associated with the attribute to be measured. Then the expert would assign numerical values according to a point scale and these values would usually related to and interpretive term such as superior or average. Later innovations included adaptation of the "Likert" type scale and Q-Sort techniques. More recent developments in behavior rating scale construction include eliminating the forced choice aspect and allowing the rater to note that the item was not applicable of that the behavior was not observed. Other improvements include:

1. Using items that are descriptive rather than forcing the rater to interpret the behavior
2. Involving the users of rating scales in the development and refinement stages
3. Using the vernacular of raters rather than the terminology of the scale developer
4. Making terms precise enough so that rater would not misunderstand their meaning
5. Having items focus on critical behaviors
6. Providing adequate training for the individuals who will be using the rating scales

The purpose of using behavior-rating scales has also changed somewhat. While there is still the concern for predicting future behavior, the emphasis has changed to understanding behavior and using this knowledge to implement behavior changes. Prior to considering some guidelines in developing and using behavior rating scales, it may be of value to discuss the major criticism that has been directed toward behavior rating scales in the past. Much of the criticism relates to either the types of errors inherent in the scales or the error inherent in the rater.

Types of Error: There are six major types of errors:

1. Sampling error
2. Error due to response set of rater bias
3. Error due to ambiguous items
4. Error due to interpretation
5. Error due to the validity criteria
6. Error due to untrained raters

Sampling Error: Sampling error results from inadequate sampling of behavior and/or failure to consider the situational context when rating behavior (Cronbach, 1949; Cronbach, 1970; Dunnette, 1967; Freeman, 1967). In using behavior observation as an evaluation tool, the intent is to determine the evaluee's typical behavior and/or patterns of behavior that are indicative of assets and limitations. Behaviors that occur very infrequently may not be a serious limitation for the evaluee. If the evaluee is observed many times in varied work situations, the typical behavior patterns will be discovered. However, if the evaluee is observed infrequently and not in some systematic manner, the evaluator is more likely to spot a typical behavior that is situation specific.

Error Due to Response Set or Rater Bias: If the rater is unable to discriminately evaluate behaviors of different people of discriminate between the varying behaviors of a single person, there will be a tendency to rate all people in a similar manner. This may be shown by the rater

using the average rating consistency or by being overly latent in making the ratings. If the rater is either positively or negatively biased toward the individual being rated, there is a tendency to find all good or all bad ratings (Cronbach 1970; Stone, 1970).

Error Due to Ambiguous Items: Ambiguous items may result from poor sentence construction, the use of negatives or double negatives that confuse the rater, the use of words that have multiple meanings and by using terms not understood by the rater (Ghiselli and Brown, 1955).

Errors Due to Interpretation: Due to the differential experiences of people, values and standards vary enormously within our society. When rating scale items require the rater to subjectively interpret such terms as "good," "fair," "poor," "excellent" or "outstanding," the ratings rend to mirror the value structure of the rater rather than reflecting the performance and behavior of the evaluee. In a like manner, terms such as "friendly," "hostile," "cheerful" and "aggressive" vary in meaning between rater. Both the validity and the reliability of the rating scale suffer when the rater is required to interpret rather than describe behavior (Ghiselli and Brown, 1955).

Errors Due to Validity Criteria: One of the uses of behavior rating scales is to predict future behavior and performance. In the vocational rehabilitation field, the common criteria are often job placement, training success and job success. These criteria are global, ambiguous and difficult to define and measure. There is considerable disagreement as to what actually constitutes job success. Furthermore, these criteria are easily contaminated by other factors (Dunnette, 1967; Fiske, 1960).

Error due to Untrained Raters: Work supervisors in rehabilitation facilities are often directed to rate the clients they supervise. They may be giving the rating forms and be told that the directions are self-explanatory. Sometimes the work supervisors are assembled for the purpose of being oriented in the use of a new rating scale, but seldom do the trainers follow through to see if the rating scale is used correctly. Occasionally, work supervisors are given intensive training, not only in the use of the rating scale, but also in observational techniques. If the training is to be effective, it must be more than a one-shot orientation session. The trainers should supervisors see the value in using the scale and are using it appropriately and consistently (Ghiselli and Brown, 1955).

In recent years there has been considerable effort to develop behavior-rating scales that decrease the various types of errors enumerated above and to insure that trained raters appropriately use the scales. The following guidelines have been developed to assist in evaluating existing behavior rating scales and to assist vocational evaluators who may wish to develop their own scales.

Guidelines for Behavior Rating Scales:

I. Precision and Reliability: Rating scale items should be descriptive of evaluee behavior and stated in the vernacular of the intended rater. The terminology should be precise enough so that two or more raters (rating the same person) would arrive at the same of very similar rating on each item. The scale should be designed so that each rater would rate the person in the same or similar manner during subsequent rating sessions (test-retest reliability). If the scale is consistent, any change in rating should be due to the change in the person's behavior and not because of deficiencies within the rating scale or due to the inconsistency of the rater.

II. Relevance to Criteria: The major behavioral categories included in the rating scale should encompass those dimensions that are essential for job performance. The dimensions are ascertained through job analysis and/or consensus of the industrial managers who hire fire and

supervise workers. The specific behavioral items within each category should be descriptive of those behaviors that are critical for satisfactory job performance within that dimension.

Note should be made that it is easier to develop an effective rating scale to cover a limited range and level of jobs within an occupational are than one that is designed for the broad spectrum of diverse occupations. Scale items should be field tested by raters who would subsequently use the scale. Items should be eliminated or modified if they are ambiguous (disagreement between two or more raters) or if they overlap other dimensions.

III. Validity Criteria: If the behavior rating scale is to be used for predicting future work behavior, the criteria should be defined and measurable in terms of behavior patterns. The behavior patterns selected should be essential to success in any job determined feasible through vocational evaluation. Avoid ambiguous and global criteria such as job placement or job success. Not only are these global terms difficult to define and measure, they are easily contaminated by other factors, i.e., job market demands, local rate of employment, etc.

IV. Length of Scale and Time Required to Administer: This is a cost/benefit consideration and is crucial to the utility of the behavior rating scale. If the scale is too lengthy or too difficult to learn to administer, raters will resist using it. If the behavioral data can be obtained through other means (without loss of objectivity) in a shorter time, why not use the more economical method?

V. Training Time: The briefer the time required training raters to use the scale consistently, the greater the probability the scale will be used effectively. Other things being equal, training time will be directly related to the strength of the scale and the ease of use. Training time will also be briefer if the scale items are stated in the language used by the raters in their daily work activities. Finally, training times is related to the level of discrimination that the rater must make. The more specific the scale item (the easier the discrimination) the shorter the time required to train rater to use the scale.

VI. Rater Credibility: In order for any behavior rating scale to be used consistently and effectively, the individuals using the scale must be convinced that it will do the job effectively, economically and better than other methods. Selling the rater will be easier if the potential raters have been consulted during the phases of scale development and field testing.

Adjective Check Lists: Another tool available to the vocational evaluator who utilizes the situational assessment approach is the adjective checklist. The adjective checklist is not a predictive device but rather a memory aid.

In developing an adjective checklist, the usual procedure is to list all possible adjectives that describe behavior in a number of relevant categories. For example, under a category that might be labeled “Behavior toward Supervisor,” such adjectives as friendly, reserved, cool, detached, fearful, hostile, passive, etc. might be listed. The evaluator in observing the evaluee would check or underline the evaluee’s relationship with his supervisor. The adjective checklist not only serves as an aid to the evaluator’s memory but also serves to provide the appropriate descriptive terms when the evaluator prepares the vocational evaluation report.

An adjective checklist is relatively simple to construct. It involves providing a sufficient number of adjectives under each behavioral category sot that the evaluee’s behavior can be identified. In utilizing and adjective checklist, the evaluator is required to observe and interpret behavior accurately (Note should be made that the adjective checked is only an abstraction of the actual behavior). In communication observations to others, the evaluator should refer to the behavior and the situational context and not just to the interpretation alone. For example, if the evaluator checked the term “hostile” (under the category of evaluee’s relation to supervisor) and

noted in his report that the evaluee often acted in a hostile manner toward his supervisor, he should also specify the specific behavior that should also specify the specific behavior that led to this interpretation. AS an example …when asked by his supervisor to "speed it up," the evaluee told the foreman to "go to hell." When he was reprimanded for being five minutes late returning from his rest break, the evaluee 'thumbed his nose' at the foreman.

A danger exists if the adjective checklist is the only evaluation tool. If the evaluator has a bias toward the evaluee) either positive or negative) may influence his interpretation of the evaluee's behavior and the instrument allows no way of insuring against this possibility. Unless the adjective checklist is used in a systematic manner and frequently reviewed, the evaluator may not differentiate typical from non-typical behavior. However, if the adjective behavior observation notes, the possibility of decreasing the types of errors enumerated above is fairly good.

Summary: This chapter has dealt with the topic of developing observational skills. Since observation id dependent on perception, this process was pf prime concern. This writer drew on the expertise of writers in other fields in order to explain how culture and experience can influence perception. The concepts of focus and sensitivity were discussed to emphasize the need for vocational evaluation specialists to be vigilant of verbal and non-verbal clues that can assets them in understanding the behavior of evaluees. Emphasis was also placed on the need for objectivity in recording behavioral observations. One way to achieve objectivity is to free ourselves of stereotypical ideas about the behavior of people with disability. Because behavior is always interplay between the person and the environment, mush was said about the need for evaluators to always consider the situational context of behavior. Note was made of the need for evaluators to be aware of the group dynamics of the work place and to use this knowledge in better understanding their evaluees. Some guidelines were provided to improve the recording of behavioral data so that this information can be used more effectively in vocational evaluation. Finally, this chapter focused on the use of behavior rating scales and adjective checklists as observational tools. Sources of error inherent in rating scales were enumerated and guidelines were provided for developing and using these tools.

CHAPTER IV

VOCATIONAL EVALUATION PLANNING

The importance of vocational evaluation planning cannot be overemphasized. Planning increases the effectiveness of the outcome, decreases the evaluation time, and makes the process more efficient and accountable. It has been suggested that if vocational evaluation is to be comprehensive, it must be planned. Back in the late 1960's, Barton (1967) noted that in order for vocational evaluation to be comprehensive it must include the rehabilitation diagnostic and program planning process. Planning is as important for evaluation as a read map is for auto travel. Without planning, vocational evaluations are haphazard and at best no more than a trail and error process. If evaluation time is limited, without a plan, certain potential vocational areas may be overlooked. Trail and error methods are inefficient in what they waste time and prolong the evaluation period.

Planning Rationale: There are several good reasons for planning in vocational evaluation. The first is that each evaluee is a unique individual. The concepts of individual differences are widely accepted by both lay and professional people when applied to the so-called normal, unimpaired and non-disadvantaged individual. Consideration of individual differences is even more important when working with people who are disabled and/or disadvantaged. One of the basic concepts in vocational rehabilitation and special education is that the services provided must be individualized and based upon needs, strengths and limitations of the specific individual. The Division of Vocational Rehabilitation requires counselors to develop individualized rehabilitation plans for each client. This is mandated by the Rehabilitation Act of 1973 (Public Law 93-112). The public schools require that teachers develop individualized educational plans for each special needs student. Even though vocational evaluators are not mandated by law to develop a plan for each evaluee, it is a requirement for CARF accreditation. Also, common sense suggests that vocational evaluation need to be tailored to the evaluee.

The staff of the University of Wisconsin-Stout Vocational Development Center has provided their rationale for evaluation planning:

A. Accountability:

1. Less time required for evaluation.
2. Increased cost effectiveness and demonstration.
3. Increased efficiency with more control during evaluation.

B. Client Motivation:

1. More individualized planning with resultant improvement in client awareness and attitude.
2. Allows client selection of occupational areas and tasks.

C. Referral Source Relationships:

1. System designed to directly answer specific referral questions.
2. Feasibility of varied-length evaluation periods.

D. Evaluator Tasks:

1. Makes evaluation task selection easier.
2. Simplifies the decision making process.
3. Relates directly to logical, sequential report writing.

The vocational evaluation plan determines the direction, scope and focus of the evaluation process and generates specific questions to be answered. Utilizing both referral data

and the information obtained from the intake interviews; the parameters of the plan begin to take shape. For example, if the evaluee is confined to a wheelchair, only work samples representing sedentary jobs should be considered. One word of caution: always base the plan on the actual requirements of jobs rather than on stereotyped notions.

The vocational evaluation plan not only limits the scope of the evaluation process for each evaluee but also determined the selection of the evaluation techniques, instruments and experiences needed to answer specific questions. If a client has an expressed or tested interest in the clerical area, work samples or psychometric tests in this area should be sequenced- in early in the process to foster the evaluee's motivation. Conversely, it is easy to turn-off evaluees by involving them in tasks that are unrelated to their interests. Evaluation methods that will help to answer referral questions should also be applied early in the evaluation process.

The evaluation plan should be designed to maximize success experiences and minimize failure. Many evaluees have a long history of failure experiences. Those with learning disabilities and mentally retarded realize many failure experiences during the school years. The physically disabled frequently have failed to perform in recreational activities considered easy be the unimpaired. Individuals with speech and hearing problems often experiences failure in social and school situations. Consequently, the vocational evaluation plan should provide for as many success experiences as is realistically possible. These positive experiences should tend to sustain the evaluee's motivation during the evaluation period.

Planning in one of the essential performance areas or certification of vocational evaluation specialists (Commission on Certification of Work Adjustment and Vocational Evaluation Specialists, 1984). Their definition of this function is as follows:

Individualized Vocational Planning: This is a process for developing and writing a plan to structure the evaluation process. It presupposes knowledge about the total vocational process. The specific skills include planning, writing abilities and the integration of information from client referral sources, and other relevant data.

The Commission of Accreditation of Rehabilitation Faculties (CARF) requires that an individualized vocational evaluation plan be developed for each individual. This standard reads as follows:

Based on referral information, the initial interview, and the stated purpose of the evaluation, a specific written evaluation plan should be developed with each individual. This plan should:

a. Identify the questions to be answered through the evaluation;

b. Indicated how these questions will be answered;

c. Where appropriate, specifies people (staff, family, etc.) will be involved in carrying out the plan. There should be evidence that these individuals are aware of their role in carrying out the plan; and

d. Periodically be reviewed and modified as necessary (CARF, 1984).

In concluding the arguments favoring the importance of individualized planning in vocational evaluation, it should be stressed that the planning makes the evaluation experience realistic for the evaluee and encourages the vocational evaluation specialist to base the plan on the evaluee's needs, know strengths and limitations. Because of the motivational factors inherent in a well-thought-out plan, the evaluee drop-out rate should be minimized.

Some of the possible pitfalls of inadequate planning have been implied in the foregoing section. However, there are additional considerations which merit discussion. The drop-out rate will be high if the evaluee spends much time on evaluation tasks that are either too simple of too

difficult of not relevant to the evaluee's goal. If all evaluees are given the same evaluation tasks, the range of jobs for which they are recommended and placed will be quite narrow. And finally, the rue potential o the evaluees may never be known unless the evaluation is base on a well-thought-out plan. The ability to develop an individualized plan is a primary competency for all vocational evaluation specialists.

Many work samples and psychometric tests set minimal levels for reading and other academic skills. Frequently, the developers of these evaluative instruments assume minimum intelligence levels for all evaluees. In developing a vocational evaluation plan, achievement levels of evaluees needs to be determined initially in the program, if this information is not included in the referral data. Otherwise, the evaluator risks the possibility of having evaluees demonstrate low performance not because they could not comprehend the instructions. Without proper planning evaluees may be exposed to greater risk of failure. Consideration should also be given to the evaluee's health status and limitation. If the data is not already available, physical capacity evaluation should be included in the initial evaluation process.

Planning Process: The first step in the planning process would involve the review of the referral data. This data will probably include information about the evaluee's disability, limitations, and vocational problems, education and work experience, other demographic data, and the referral questions. If the referral data is incomplete, the evaluator should contact the referring person and obtain the missing information. This referral information will generate questions about the evaluee's vocational functioning. The information provided but the evaluee will answer some of these questions during the initial interview and unanswered questions will set the tentative direction of the evaluation.

The second step involves interviewing the evaluee. The purpose is to obtain as much information about the evaluee as possible and to determine the critical factor to answer the questions generated up to this point in time. During the interview, the evaluator should validate the accuracy of the referral data. In reviewing the evaluee's educational background, the evaluator should identify and vocational preparation and special work skills developed by the evaluee. Later, the evaluator should use the Dictionary of Occupational Titles to determine transferability of these skills. In reviewing the evaluee's work experience, the evaluator should note the listing of the jobs held, the evaluee's description of what each job entailed, the classification of these jobs and the possibility of skill transfer. The vocational interests of the evaluee as might be revealed through hobbies and other leisure time activities. Questions about the evaluee's functional capacities not answered by the referral data may be answered during the interview.

The third step involves identifying the critical factors. Some of these factors are related to the strengths and limitations of the evaluee while other critical factors relate directly to the requirements of jobs. The critical factors may be stated on terms of abilities, knowledge, skills and capacities. Fine finger dexterity, eye/hand coordination and visual acuity might be the critical factors for an electronic assembler. The physical capacity to lift and carry heavy objects could be one of the critical factors for a dock worker. The assessment description found in most work sample manuals will provide the critical factors necessary for successful performance.

The fourth step in the planning process will be to determine what evaluation tasks will be needed to answer the questions generated. The evaluator should be familiar with the critical factors measured by work samples and psychometric tests and determine of additional evaluation experiences will be needed to answer all the questions.

The fifth step involves administering appropriate achievement, interest and dexterity tests. The information obtained from these tests will help to identify tentative evaluation tasks and to eliminated others because the evaluee would not meet the prerequisites specified in the work sample and/or test manuals.

Step six would involve having the evaluator formulate tentative hypotheses. Based on the initial testing, interview and referral data, the evaluator can stimulate the probable Data, People, and Things levels of the evaluee. Other hypotheses will relate to occupational areas that should be explored.

The seventh step is to decide the assessment techniques necessary to explore the occupational areas and write up the evaluation plan. The plan should be flexible so that it can be modified later if necessary.

Client Involvement: The evaluee should be totally involved in the vocational evaluation process. The evaluee's attitudes, needs and opinions should be respected and the evaluee's decisions should take precedence during the evaluation (Fischer, 1970; Nodolsky, 1969).

In planning phase, the evaluee should have the opportunity for input as to the occupational areas to be explored, the evaluative tasks or instruments to be employed, and modification to the initial plan. The evaluator provides the expert knowledge about the requirements of jobs in a vast spectrum of occupations, the applicability and limitations of evaluative tasks and techniques, and the dynamics of human behavior. Together, the evaluator and the evaluee from a working partnership to plan and implement the evaluation, the major purpose of which is to assist the evaluee to make appropriate vocational decisions.

Job Matching Systems as a Planning Tool: Job matching systems can be used to aid the evaluator in developing the evaluation plan. One such system is the GATB/COPS SORT (Jenkins and Kirsling, 1981). Using the General Aptitude Test Battery scores and the results of the California Occupational Preference Survey, an Apple Microcomputer, and the GATB/COPS SORT program, the evaluator can get a print-out of jobs requiring these aptitude/interest patterns. The jobs are cross-referenced to the Occupational Aptitude Patterns (OAP) and to the Guide to Occupational Exploration (GOE), supplements to the Dictionary of Occupational Titles. Using the entry-level jobs in the various occupational areas, the evaluator can then determine the critical factors of each job area and the evaluative tasks or tools that are needed to assess them.

Other job matching systems may be used in a similar manner. Many of these systems also allow restricting the job matches by such factors as physical limitations, environmental limitations, general educational developmental, etc. For example, the evaluator may wish to obtain a list of jobs which are sedentary, performed inside in an environment free of dist and fumes, and which do not require hearing. Inputting these restrictions and the aptitude and interest scores will provide such a computer print-out list. The evaluator then only has to select those work samples or tests that will assess the critical factors associated with these jobs.

Guidelines for Planning:

1. Whenever possible, proceed from the simple to complex within an occupational area.
2. Involve the evaluee in the planning process as well as at all decision points throughout the evaluation process.
3. Utilize the interests in developing the sequence and focus of the valuation plan.
4. Develop the evaluation plan so that all referral questions can be answered as specifically as possible.

5. Design the evaluation plan so that the results may be directly related to the requirements of jobs.
6. Utilize the Dictionary of Occupational Titles and other sources of occupational information to generate questions or hypotheses about the evaluee's strengths limitations.
7. Use the referral data and information obtained it the intake interview to generate questions about the evaluee's strengths and limitations.
8. Sequence interest, achievement and physical capacity testing early in the evaluation plan. This will minimize failure experiences and provide for a more effective use of evaluation time.
9. Intersperse any required psychometric testing with other vocational evaluation tasks so that the evaluee relates the evaluation process to work rather than to a school-testing situation.
10. Be aware of individual evaluee differences and individualize the vocational evaluation plan.
11. The vocational evaluation plan should be considered tentative and modifiable as additional data is gleaned and the evaluator develops a better understanding of the evaluee.

Format and Context: The format for individualized vocational evaluation plans will differ from one work setting to the next. It is suggested that the format include a face sheet, the tentative plan and a daily planning schedule. The types of information that would be included on the face sheet are as follows:

1. Referral Source: This would either be the name of the organization referring the evaluee or the name of the specific individual making the referral.
2. Reason for referral: the information included here would be the type(s) of disability and the resulting vocational problem. For example: Knee injury and rheumatoid arthritis prevent her from working at her former occupation.
3. Specific questions to be answered: This could include questions such as: Is she capable of working full time? Does she have the interest and aptitude for factory work? Does she have the potential to be trained in the clerical are.
4. Primary vocational problem: This would be the specific problem as perceived by the referral person. For example: Currently classified as severely disabled or fired on last job because of drinking problem.
5. Background information: Included here would be the age the sex of the evaluee, information about education (educational level and specific vocational training), work experience (job titles and D.O.T. codes) and hobbies or other leisure activities that may have vocational relevance.
6. Interests: Include here results of any preliminary interest testing. List test by name and form, e.g., California Preference Survey (COPS, A). List the high interest area or the actual scores. Also in this section list any expressed interests of the evaluee.
7. Achievement Levels: List here the tests used and scores (percentiles, grad level, etc.)
8. Motor Function: First list the psychometric and/or work samples that were used. Secondarily, indicate the results of the testing. For example: Whole Body Range of Motions work sample. Was able to work 2 minutes and 30 seconds before requesting to stop due to stabbing pains in both shoulders. Eye, Hand, Footwork samples. Ability to coordinate eyes, hands, and feet.

9. Estimated Data, People and Things (D.P.T. functioning level: This information may be based upon the highest functioning level on previous jobs or an estimate based upon the preliminary testing in the event the evaluees has no previous work experience.
10. Other Information: Include here the name of the referring counselor, the name of the evaluee and the date the face sheet was completed.

The next step in the process will be to write-up a tentative evaluation plan. The suggested format would have three columns. In the first column list the questions or hypotheses. For example: Does Jane have the interest and aptitude for clerical work? In the second column provide the critical factors. For example: Typing and filing skills, ability to communicate orally and in writing. In the third column list the work samples, psychometric tests or the activities, which will allow the evaluator to determine if the evaluee meets these critical factors. For example: Typing work sample, Filing work sample, Ward Clerk work sample, Mail Sorting work sample, Able III, B.

After the tentative plan is completed, it should be discussed with the evaluee. The evaluee may sign the form to indicate agreement with the plan. The tentative plan should be modified if the evaluee is not in agreement with the plan.

In addition to the face sheet and the tentative plan, the format should include a daily planning schedule. The format should allow for listing the names of the work samples, psychometric tests and/or special projects, the time that they are to be administered, and the rationale for their inclusion. For example: Ward Clerk work sample, time 9:15, to determine if the evaluee has the ability to complete hospital records neatly and accurately.

The daily planning schedule should follow the tentative plan but not rigidly. For example it may be apparent that the evaluee has poor finger dexterity and that the evaluee has poor finger dexterity and that she would be unable to handle most of the bench work samples. At that point, by mutual agreement, the tentative plan is modified. The daily planning schedule should provide for rest breaks and time to provide feedback to the evaluee. If the schedule is too tight, insufficient feedback to the evaluee. If the schedule is too loose, the evaluee may become bored or angry waiting for the next assignment.

<u>Summary:</u> In this chapter the rationale was proposed for developing an individualized vocational evaluation plan. The consequences of conducting an evaluation without a well-thought out plan were discussed. The following guidelines were presented to maximize the effectiveness of vocational evaluation planning:

1.Whenever possible, proceed from the simple to the complex within an occupational area.
2. Invovle the evaluee in the planning process as well as at all decision points through out the process of evaluation.
3. Utilize the evaluee's expressed, tested and manifest interests in developing the sequence and focus of the evaluation plan.
4. Develop the evaluation plan so that all referral questions can be answered as specifically as possible.
5. Design the evaluation plan so that the results may be directly related to the requirements of jobs.
6. Utilize the Dictionary of Occupational Titles and other sources of occupational information to generate questions of hypotheses about the evaluee's strengths and limitations.
7. Use referral data and information obtained in the interview to generate questions about the evaluee's strengths and limitations.

8. Sequence interest, achievement and physical capacity testing early in the evaluation plan. This will minimize failure experiences and provide for a more effective use of evaluation time.
9. Intersperse any required psychometric testing with work sample testing or other vocational evaluation tasks so that the evaluee relates the evaluation process to work rather than to a school testing situations.
10. Be aware of individual evaluee differences and individualize the vocational evaluation plan.
11. The vocational evaluation plan should be considered tentative and modifiable as additional data is gleaned and the evaluator develops a better understanding of the evaluee.

CHAPTER V

WORK SAMPLES

Introduction: Work sample is a generic term used to describe any sample of work, either real or simulated, irrespective of its purpose or use. A work sample may involve the simulation or mock-up of a job or an instrument for measuring a work trait. Our concern here is with work samples that are used for diagnostic purposes. Work samples may be used for diagnoses and prediction, primary purpose of work samples is to evaluate for work potential. A work sample may include equipment, machines, tools, materials and a manual for providing standardized administration and scoring procedures. This chapter will focus on the historical development of work samples, assumptions underlying work sample theory, various types of work samples and their utilization.

Historical Development: Work sample evaluation has a relatively short history. Hugo Munsterberg developed the first know work sample around 1900. His work sample, a model of a street car, was used to evaluate prospective operators for the Boston Railroad Company (Bergman, 1965). In the late 1920s a standardized work sample was developed to select garment machine operators (Treat, 1929). Work samples have been used (in conjunction with other tests) to screen candidates for profession schools. The Iowa Dental Qualifying Examination included a work sample that required trimming a plaster of paris block to specifications. It also included a metal-filing work sample (Super and Crites, 1962).

During the 1930s, the Institute for Crippled and Disabled (ICD) Testing Class became the forerunner of the well-known TOWER System. The TOWER System was the first standardized and normed work sample battery. The initials TOWER refer to Testing Orientation and Work Evaluation in Rehabilitation (Rosenberg and Usdane, 1963).

The Vocational Guidance and Rehabilitation Service of Cleveland did extensive pioneer research on the development and utilization of work samples. While not developing a standardized battery of work samples, it performed a valuable service to the vocational evaluation movement by demonstrating the effectiveness of work samples with a large variety of disabled and disadvantaged individuals.

Perhaps the best-known work sample is the Pennsylvania Bi-Manual Work Sample. It was developed by the McDonald Training Center in Florida and was standardized and marketed by the Educational Test Bureau. The Pennsylvania Bi-Manual Work Sample was one of the five evaluation devices within the Vocational Capacity Scale for the Retarded. More recently, work samples have been developed for use with specific disability groups. Two examples illustrate this trend. The Trainee Performance Sample was developed to assess the overall responsiveness of severely retarded people to commonly used vocational training techniques and strategies (Gersten and Irvin, 1984). The work sample assesses a variety of skills required in bench work tasks. Task difficulty attributes, such as difficulty of visual discrimination, nee for coordinated two-hand movement requirements, and sequencing of steps are sampled. Standardized on a sample of 500 severely retarded adolescents consistency reliability of .95 and a test-retest reliability of .93. The concurrent validity between sample performance and supervisor rating of current performance and skill acquisition rating an actual work setting was .78.

The Valpar Independent Problem Solving Work Sample can be used as a diagnostic instrument of cognitive impairment. The work sample is designed to measure performance on

tasks that require visual comparison of geometric shapes. Patterns of work sample performance suggest general skill levels in retention of multi- step oral instructions, selective attention to color and shape, visual tracking and cognitive shifting between sets of stimuli. Brekecki and Growick (1984) conducted a study to validate the instrument. A sample of 90 rehabilitation clients made up of 30 physically impaired, 30 psychiatric, and 30 brain damaged were administered the IPSWS. A discriminate analysis function classified the participants with an accuracy rate of 78.9 percent. Authors caution that the IPSWS should be used for screening purposes only but that neurological testing is recommended for people with a cutoff score of 1155 seconds.

Work samples have been almost exclusive American phenomena. Vocational; evaluation in most other countries relies on psychometric testing, situational assessment and job try-out. The work sample method is used almost exclusively by the vocational evaluator. Although work sample evaluation have been a defined technique for several decades, in the field of psychological testing it was considered a minor and inefficient method of assessing people as compared to standardized paper and pencil tests. The rapid growth of vocation rehabilitation during the 1950s and 1960s with the concurrent development and explosive expansion of rehabilitation facilities led to the refinement of the work sample approach. Work sample evaluation is also and extension of prevocational activities developed by occupational therapists and of simulators used in military and industrial training situations.

Work sample evaluation is still increasing but not at the dramatic rate of the 1960s and 1970s. Work samples today are more complex, more sophisticated, and cover a wider range of occupational areas. In the past few years computer technology has been incorporated into work sample evaluation. The popularity of work samples seems to be directly related tot eh limited value of psychological tests with the clientele of rehabilitation facilities and other human service organizations. A comparison of work samples and psychological tests point out some basic assumptions for the theoretical understanding of the work sample approach.

Under Chronbach's definition of a test "…a systematic procedure for comparing the behavior of two or more people" (Chronbach, 1949), work samples are a special type of test. Work samples are compatible also with Chronbach's purpose of testing, i.e. prediction, diagnosis, and research. Many people concerned with vocational evaluation especially those with a background in psychological testing, would probably say that psychological testing theory adequately covers work samples and that further theorizing is a waste of time. Other in the field would au that work sample evaluation differs from psychological test; therefore, there is a need for a comprehensive theory of work sample evaluation.

In developing and refining work sample technique, come concepts, such as standardized administration and norming, were borrowed from psychological testing (Neff, 1966). Despite this inclusion, work samples would logically appear to be distinct form psychological tests and work samples is the performance test. It is very difficult to delineate specific differences between performance type psychological tests and work samples designed to assess isolated traits.

In considering the basic assumptions underlying work sample theory, this writer has surveyed the literature searching for the implicit as wall as the explicit assumptions of others who have been concerned with the problem. Certain assumptions and concepts have been excluded because they appear to be inconsistent with a comprehensive theory of work sample evaluation. Some of the basic assumptions have been tentatively validated by Jewish Employment and Vocational Services (JEVS, 1968). However, for the most part, the underlying assumptions of work sample theory are still untested. Any theory should define its basic terms and concepts and present its

underlying assumptions in a manner, which will allow for verification or rejection through research. Good theories also generate further research. The reader is referred to the glossary for definition of terms used in vocational evaluation.

BASIC ASSUMPTIONS

I. People who perform poorly on psychological test can be effectively evaluated by work sample evaluation (Cohen, 1966; Overs, 1968; Neff, 1966; Kyostio, 1969).

Discussion: There is a large minority within the population who, for various reasons, consistently perform poorly on standardized psychological tests. Some of the reasons include:

A. Most psychological tests are verbal, i.e., test performance is dependent on the manipulation of verbal symbols. Therefore, the people with low verbal ability tend to perform poorly.

B. Most Psychological test require at least a minimum amount of academic achievement, i.e., reading, writing and arithmetic. Therefore, the person with educational deficiencies is handicapped.

C. Most psychological tests require a minimum intellectual level of at least dull normal. Test performance is predicted upon the assumption that the testee can understand, comprehend, and follow the test instructions. Consequently, people of low intellectual ability do poorly.

D. The external conditions of psychological testing (lightning, ventilation, noise level) are usually well controlled, but interfactors (motivation, anxiety level, sensory and perceptual ability, attentiveness and the ability to concentrate on the test task) are also equally controlled (Neff, 1966). Therefore, people with low achievement motivation, persons who are anxious and disturbed or people who cannot concentrate or focus their cognitive and psychic energy upon the test task will show lower test performance than persons of equal ability who do not have these problems.

E. Finally, there is a strong probability that people who consistently perform poorly on psychological test are not proportionately represented within the standardization norms. In general, these people are physically disabled, retarded, culturally disadvantaged or emotionally disturbed (JEVS, 1968).

II. Work samples differ from psychological tests in the degree of relatedness to the criteria. The criteria are work behavior and job performance (Overs, 1968; JEVS, 1968; Lustig, 1966).

Discussion: A paper and pencil vocational interest or aptitude test has little relationship to the world of work. A performance test has some relationship to actual work. However, a work sample is either an actual sample of real work or a simulated sample of real work. Work sample evaluation lacks only the physical and psychological conditions of real work. Therefore, work samples can be distinguished from psychological tests by the greater degree of construct validity and the obvious face validity. The major implications of how closely work sample tasks are to real work is in the evaluee's perceptions of the tasks.

MINOR ASSUMPTIONS

A. Evaluees see themselves as performing at work rather than taking a test (Overs, 1968; JEVS, 1968).

B. Evaluees have a greater interest in performing work task than in taking a psychosocial test. (Over, 1968).

C. Within the population of evaluees, "taking tests" has a strong negative connotation and "working" has a strong positive connotation (JEVS, 1968).

D. Evaluee will put forth a greater effort on a work sample task than they would on a test (Overs, 1968; JEVS, 1968).

E. A more realistic picture of work potential is obtained from work sample evaluation than from psychological testing (JEVS, 1968).

F. There is less frustration inherent in work sample in that the results provide information adequate and applicable for vocational choice (Overs, 1968).

G. The evaluee's behavior is a response to a total situation rather than to a specific test item (Lustig, 1966).

H. Work sample evaluation helps to switch the evaluee's focus form self to task (JEVS, 1968)

I. Deficient as well as efficient work behavior manifests itself in the work sample evaluation (Lustig, 1966).

J. Work sample results are more related to community need and local jobs than are psychological tests (Over, 1968).

K. Work sample evaluation is more flexible than psychological testing (Overs, 1968).

L. Because of administration time, work samples provide a better measurement of sustained motivation than do psychological tests (Overs, 1968).

M. Sustained performance is more important that speed in most work sample tasks (Overs, 1968).

III. Work sample evaluation is as efficient as inexpensive as other evaluation methods, including psychological testing.

Discussion: Test evaluation time includes administering a battery of psychological tests plus on to ten counseling sessions in arriving at a vocational choice. Work sample evaluation is limited to entry-level jobs for most occupations and the evaluation is limited vertically if not horizontally. Therefore, much time is saved by not having to assess the evaluee's potential for the upper range of occupations (Overs, 1968).

IV. Work samples illustrate the evaluee's ability to function in a field of work such as bench assembly, clerical work, etc. This broadens the scope of possible job selection and helps to narrow choices to a field of work suited for the evaluee (Overs, 1968).

V. Work samples can be graded according to their problem-solving complexity and occupational area. This graded aspect helps to predict occupational level as well as occupational area (JEVS, 1968).

Discussion: In contrast, the typical aptitude test may be valid for predicting entrance into an occupational area but almost useless in determining the level within the occupation at which the testee can function after training.

VI. Work samples measure not only qualitive performance but evaluate such factors as motivation, vocational self-concepts, interpersonal relationships, initiative, and ability to improve in any of these factors. In addition, work samples provide information on manifest interest as opposed to the measured interests of psychological tests (Overs, 1968).

VII. Work sample evaluation reports are more meaningful and have more immediate application to both the evaluee and the rehabilitation personnel (vocational evaluators, counselors, placement specialists) than do psychological test reports (JEVS, 1968).

VIII. Work sample evaluation provides the necessary information for vocational choice/decision making. Work samples look like real work to DVR counselors which allows

them to live more comfortably with decisions stemming from their use (Overs, 1968; JEVS, 1968).

Discussion: If this assumption is correct, then it follows that the evaluee's chosen vocational objective will be based on real ability and potential and there will be less trail and error in the placement process.

IX. Work sample evaluation provides information of broader scope than do psychological tests (Overs, 1968; JEVS, 1968).

Discussion: Work sample evaluation gives the evaluee a greater choice of vocational objectives than do psychological tests. If these results in more meaningful information of a broader scope than would result form psychological testing, then a number of other assumptions also apply. These assumptions include:

A. The evaluee will be more successful in gaining, adjusting to and holding jobs than the evaluee whose evaluation was limited to psychological testing (JEVS, 1968).

B. The evaluee who goes through work sample evaluation will have a better appreciation of the realities of work than will the evaluee undergoing only psychological testing (JEVS, 1968).

C. The evaluees' realistic orientation toward work will contribute to their willingness for behavior modification in order to meet the requirements of their vocational goals (JEVS, 1968).

Work Sample Evaluation: Work sample may be classified in several different ways, i.e. actual vs. simulated, multiple-trait vs. isolated trait, or according to occupational area, i.e. clerical, woodworking, etc. Work samples can also be classified according to predictive purposed. The predict potential for a specific job, for general occupational areas or for entry into training situations. The next section will consider the classification of work samples based on their development.

Job Analysis: Work samples that are used to evaluate potential for specific jobs are to evaluate potential for specific jobs are referred to as job samples. The preferred method for developing job samples includes conducting a job analysis, identifying the essential tasks and constructing the job sample to incorporate the essential tasks. The job sample utilizes the same machines, equipment, tools, work aids and materials as the community job. The job sample tasks will be performed in the same manner as job tasks.

In selecting and developing a battery of job samples, the evaluator may initially consider jobs that the facility's evaluees have held in the past. However, the battery should not be limited to these job samples. Potential jobs may be overlooked because of stereotyped ideas about the capabilities of people with disabilities and/or because of the limitations of the facility's placement program. Controversy exists about whether evaluees should be evaluated only for jobs that exist in the community or for all possible occupational areas. The argument for the latter cites a highly mobile labor force and the fact that workers move to geographic area that demand their skills.

When the evaluators select community jobs as potential job samples, they should know the capabilities of the evaluee population. This knowledge of the population presumes some previous evaluation and analysis of the range of evaluee capabilities. In a facility serving a large number of evaluees of mixed disabilities, the intelligence may range from superior to retarded. Likewise, physical capabilities may range from no limitations to very sever limitations. This type of facility will have a need for a large number of job samples that range from simple to complex,

while a facility serving only mentally retarded clients will need a fewer number of job samples, with the majority being in the manual skills and service areas.

In a highly industrialized community, many of the available jobs will be in the area of machine operation. Even though many evaluation units will contain work and metal lathes, drill presses, power saws, etc., very few facilities have either the need or financial capability to purchase a large variety of expensive machinery. If this is the potential job market, the evaluator may make the astute decision to develop simulated work samples designed to assess occupational traits rather than ones related to specific job requirements.

There are many advantages for developing and using actual job samples. They have high face validity, construct validity, and high potential predictive validity. They can be instrumental in facilitating placement by showing the employer the relationship between performance scores and the industrial norms for that particular job. If the evaluator has good public relations with the company, it may be possible to borrow or have the equipment and material donated by the employer. The performance data can be generalized to other jobs requiring the same of similar worker characteristics.

There are limitations in using actual job samples. Within a large industrial community it is impossible to incorporate job samples for all possible jobs where the evaluee may be placed. Due to technological change, job samples can quickly become obsolete. Keeping abreast of these job changes is both expensive and time consuming. While it is possible to duplicate the physical attributes of a job in a job sample by using the same equipment, tools, and materials, it is difficult, if not impossible, to replicate the psychosocial job climate. The job climate may be the crucial factor in determining job satisfaction, which in turn influenced worker satisfactoriness.

Many rehabilitation facilities that operate a production workshop build their job samples around these production tasks. If their job samples battery consists only of subcontract tasks, it is almost impossible to evaluate the total range of worker potential. Often subcontract work performed differently in the workshop than in the contractor's business. This may at times be due to the technological inadequacies of the contract procurement person and/or work supervisor. At other times the differences are due to innovative improvements that allow for higher productivity. Sometimes jigs and fixtures are used to compensate for the client's disability. Job samples based on subcontract tasks are useful in predicting workshop performance but may have undetermined value in predicting performance in the industrial job.

Dictionary of Occupational Titles: The D.O.T. is a valuable resource for assisting in developing work samples. The D.O.T. has more than 12,000 job titles and definitions, most of them based on job analysis. Most jobs were in existence at the time of publication. The method for developing work samples based on D.O.T. job definitions is similar to developing job samples based on job analysis.

There are a number of other ways to use the D.O.T. and related publications to develop work samples. The Occupational Group Arrangements (O.G.A.) defines the technology of occupations and list the jobs found in each occupational group. These jobs are listed in a hierarchical order with the most complex job heading the list and the entry-level job at the bottom. In a sense, each list is a career ladder within the occupational group. Work samples that predict potential for a single job. Jobs within an occupation are not necessarily limited to a single industry. As an example, welding jobs are found in eight different industries. Another advantage of the occupational work sample is that fewer work samples are needed to provide a comprehensive evaluation. Occupational work samples have high face validity and good construct validity. Their potential predictive validity is about the same as for the other types of

work samples discussed previously. The primary disadvantage of occupational work samples is that the majority focuses on entry level jobs within the occupation and provides no assessment of the evaluee's ability to perform higher level jobs requiring different worker functions.

A third method for using the D.O.T. and related publications in work sample development involves using the Data-People-Things worker functions. Each job within our economy can be rated or classified according to the degree of each of these functions. In developing work samples based on worker trait groups, it is important that the work sample tasks accurately reflect the significant work functions. However, it is not essential for the work sample to be a replica of any job within the worker trait group. There are a number of advantages for developing and using work samples based on worker functions. In comparison to job samples, fewer work samples are required to provide a comprehensive evaluation. Good performance on these work samples indicates potential for a large number of jobs for which training and/or job placement is possible. Like the other types of work samples discussed previously, worker trait group work samples have good face validity.

While it is not difficult to develop work samples that assess the worker functions under data and things, it is difficult to develop work samples that incorporate the people relationship. For those worker functions grouped under data and things there is a logical hierarchy. The people functions form a hierarchy only in a general sense. While it is possible to rate and classify job according to the degree of significant people relationships, in actual work situations the incidental people relationships can be of equal importance.

There are many advantages to developing and using D.O.T. work samples. One advantage is the time saved by not having to do a job analysis. However, the D.O.T. job definition is a composite of jobs having the same title, while the job in your community may vary to some extent. D.O.T. work samples will resemble and actual job. Therefore, this type of work sample will have good face validity and potentially good construct validity. The potential predictive validity may be somewhat lower than for the job sample. If the work sample has 79 percent or more of the tasks contained in the community job, good performance on the work sample is a reasonably good predictor of job performance. There are a number of limitations in developing and using D.O.T. work samples. The D.O.T. is revised infrequently. Consequently, technological advancement has made many of the job definitions obsolete. For example, most of the development and refinement in personal computers has come about since the last drastically changed many jobs. In addition, there are literally hundreds of jobs that have come into existence because of microcomputers and related technology.

Isolated Trait Work Samples: Isolated trait work samples are often based upon a statistical procedure called factor analysis. The process involves factor analyzing a verity of work samples and discarding those that measure more than one trait or those that do not measure the desired trait. In the refinement stage of this process, the work sample often resembles equipment found in experimental psychology laboratories or performance type psychometric tests. Single trait work samples may be useful in assessing psychomotor skills, sensory and perceptual abilities.

The basic premises underlying the isolated trait work sample are as follows: with a limited number of work samples, the evaluator can determine a wide range of traits, skills, and aptitudes. The evaluee's performance on this battery of work samples can be profiled and compared to a profile of traits required on actual jobs. The General Aptitude Test Battery has the same purpose. However, the GATB uses paper and pencil test and performance tests rather than work samples. In a sense the term isolated work sample is a misnomer since work samples

always measure more than a single trait. For example, a work sample designed to measure finger dexterity may also be measuring visual acuity, depth perception, eye-hand coordination and the ability to follow instructions.

The primary disadvantage of the isolated trait work sample is the loss of face validity when the work sample fails to resemble real work. The predictive validity may also be less because other sources of error may be injected into the process when the performance results of several such work samples are profiled to match job requirements.

Utilization of Work Samples: Diagnosing the evaluee's strengths and limitations is a primary use of work samples. Within the vocational context, there is a need to know specifically and generally the functioning level of each evaluee. While the performance scores on work samples reveal skills, abilities and potentialities, it is the concurrent observational data that indicates manifest interest, work attitudes and other psychosocial data. The diagnostic data obtained from work samples (when integrated with psychometric test data and other evaluation material) provide the information necessary for future vocational planning. It is the basic for prognosis, for determining vocational objectives, and for planning methods to achieve these objectives, i.e., vocational training, work adjustment training, on-the-job training, etc.

Because vocational rehabilitation feasibility has traditionally been a criterion of acceptance of clients for rehabilitation services, the evaluation prognosis is a primary use of work sample data. While the diagnostic data shows how the evaluee is currently functioning, there is a concern about the evaluee's future functioning. While evaluated skills, aptitudes and interests indicate potential vocational areas, the evaluee's ability to learn or to be trained determines the vocational level to which the evaluee can realistically aspire. Learning curves can be plotted following repeated administration of appropriate work samples. Learning curves that plateau at performance levels below the minimum of the industrial of training group norms are indicative of poor risk vocational areas. The graded aspect built into many work samples can also predict occupational level. As an example, an auto mechanic work sample may have several gradients. Successful performance at the station work, at the second level potential for placement as a mechanic's helper, and at the third level potential for technical training in auto mechanics.

Prognosis in work evaluation is more than predicting vocational potential. Because most workers lose jobs due to problems in interpersonal relationships rather than of lack of skill, prediction is necessary in the area of future work adjustment. An evaluee's problems in getting along with supervisors and coworkers or inappropriate behavior could rule out immediate placement. These behaviors must be identified and evaluated. The evaluator must decide if the evaluee's behavior can be modified and if so, the appropriate, method to be used such as counseling, work adjustment, behavior modification, etc. Trainability, employability, placeablilty, and readiness for training and/or employment along with vocational potential are the area of major focus when the evaluator makes predictions from work sample data. However, with industrially-injured workers, the emphasis may shift to predictions about the evaluee's physical capacity and work tolerance. In such cases, the evaluator may be asked such questions as: Can the evaluee work at all? Does the disability preclude the evaluee from all jobs within the community? Does the evaluee have the energy level to work fulltime or part-time?

Reliability of Work Samples: In psychological testing, the test reliability has always been a primary concern. The reliability of paper and pencil test is easily ascertained because of the structure and brief administration time of most tests. Learning is not an important factor when readministering most tests. It is also possible to design equivalent forms of the test or to compute

the reliability of the test by the odd-even item approach. Because of the concern for reliability, frequent administration of tests is discouraged.

Conversely, work sample reliability has been under-emphasized due to the amount of learning that takes place during the initial administration of most work samples. Even though test-retest reliability will be lower, the relative ranking of scores should remain the same if the work sample is reliable. Frequent administration is therefore encouraged in order to establish learning curves. In fact, in certain facilities clients are assigned to work samples until their performance is either equal to the industrial norm group or until further improvement seems unfeasible. In these instances, work samples are used for training rather than evaluation. Using work samples for this purpose is legitimate but very time consuming.

In using work samples and psychometric tests, varying the administration or scoring procedures invalidate the norms. However, it may be desirable to vary the administration procedures to obtain different evaluative data. Examples of this type of variation might be to substitute oral for written directions if the evaluee has perceptual and/or reading problems or to substitute written or pantomime directions for hearing-impaired evaluees. When work samples are adapted in this manner, there performance as well as the behavioral data is handled clinically. If this type of adaptation is done frequently, it may be worthwhile to re-norm the work sample. If the old and the new norm groups are comparable, statistical analysis will show if either of the two administrative procedures influences performance.

Work Sample Manuals: In this section the content and format for work sample manuals will be discussed. In general this writer favors the Materials Development Center's work sample format (Thomas, 1974) with some modifications. The title page of the work sample manual should contain a descriptive title, the name, affiliation, and address of the developer, and the date of development. Work sample manuals should contain a table of contents with sections and page number listed. The MDC format contains seven major sections and twenty-five subsections.

Introductory Section: There are a number of facts that should be presented in the introductory section such as the work sample title and the developer's name, Smith Saw Filing Work Sample. The assessment description follows the title page and should be written in two parts. The first part describes the task content of the work sample and the second part provides information on worker characteristics and job requirements. In part one, the work sample task should be listed and described. The recommended writing style is the method verb process statement described in the Handbook for Analyzing Jobs (U.S. Department of Labor, 1972, pg. 30-31). Task statements should be ranked in order of frequency with the most frequent task listed first. In addition, information about the task's purpose should be included. For example, a work sample could be developed to screen evaluees for specific jobs, predict potential within occupational areas, or predict potential for formal vocational training. If the work sample is an actual job sample, the assessment description should include the Worker Trait Group title to which it is related. The second part of the assessment description contains a list of the competencies (knowledge, skill, aptitudes or abilities) required for effective job performance. However, it is suggested that work samples not be listed, for example, ability to follow instructions. If the work sample based on a job analysis, list the D.O.T. title and code. Provide a description of the Data, People, and Things (D.P.T.) levels to further supplement the relationship. Follow the same procedure of the work sample is based on the D.O.T. job definition.

If the work sample is based on the technology of an occupational group, define the occupation and indicate the entry-level job within the occupational group to which the work sample bears the closest relationship.

List in hierarchical order partially related jobs with the one that has the closest relationship heading the list. If additional work samples or psychometric tests are needed to support recommendations in the related job area, the rests and/or work samples should be listed in this section.

Validity studies for this work sample should be discussed in the introductory section. It predictive or concurrent validity studies have been performed, the methodology, sampling and statistical procedures should be detailed. If no validation has been done, this fact should also be noted.

Instructions to Evaluator: If there are any prerequisites for the work sample, they should be noted here first. This might include less complex work samples within the same occupational group. If the evaluee is required to read the work sample directions, the minimum reading score or grade level should be specified. Special physical demands, such as the ability to stoop, kneel, or stand for prolonged periods of time, should be detailed. Any work sample or test listed as a prerequisite should be justified. Critical scores or minimum performance levels on other work samples or tests should be specified.

Environmental conditions under which the work sample is to be administered should be detailed next. Factors such as lighting, noise levels, special clothing, safety equipment, standing, sitting, or other physical demands should be specified.

The machines, equipment, tools, and work aids (METWA) needed to administer the sample should be listed. For clarification it would be helpful to lest these under Evaluator METWA and Evaluee METWA. If the amount of a particular material is critical to the administration of the work sample, this amount should be specified. A narrative description or a graphic representation should be provided for the layout of the METWA. This layout should be consistent with the principles of motion economy and work simplification. The layout should follow the industrial procedure of the work sample is based on an actual job. The involvement of both the evaluee and the evaluator in setting up of breaking down the work sample should be discussed in this involving the setup and/or break down of the work sample should be detailed in the Administration Section.

Orientation and Administration: The orientation for the evaluee to the work sample and to the real work it represents is critical for a number of reasons:

1. helps to motivate the evaluee to achieve maximum performance
2. provides a basis for job exploration
3. establishes the relationship between the work sample and the job(s) on which it is based
4. informs the evaluee about employment opportunities including: job titles, demand, pay ranges, working conditions, training and/or educational requirements, promotional opportunities/career ladders and geographical locations where jobs are typically performed
5. allows the evaluee the opportunity to ask questions and express his opinions about the types of work represented by the work sample. It is helpful if the information in this section is boxed.

In preparing the administration section, thought should be given as to whether the instructions will be oral or written. The rationale for this decision should be based on logic rather than whim. All demonstrations should be explicit. If graphic displays such as blueprints or illustrations are

part of the instructions, the vocabulary should be at the same level as is required for job performance. In writing the instructions for the evaluee, each step in the procedure should be in each step in the procedure should be in sequential order and numbered. All direct instructions to the evaluee should be boxed and in upper and lower case letters. Instructions to the evaluator should not be boxed and should be easily distinguishable from the evaluee's instructions. Precautions involving the safe use of hazardous equipment or machinery, safety equipment and special clothing need to be identified and emphasized. Instructions concerning the breakdown and cleanup performed by the evaluee should conclude the Administration Section.

Scoring: Techniques used to measure, rate, or assess the task performance competency should be identified and discussed in this section. Scoring techniques should be similar to the method used for evaluating job performance, i.e., units produced, time required for task completion, number of errors, or a combination of these methods. Sufficient detail should be presented so there is no possibility of the evaluator misinterpreting the scoring procedures. If qualitative criteria are used in the scoring, examples of each type of potential error should be provided. If scoring aids such as stencils or overlays are used, they should be described.

Conversion tables or scales used for converting raw scores to meaningful information should be presented with sufficient clarity to readily ascertain what is being measured. The conversion values (percentiles, standard scores, stamina scores, etc.) and criterion variables should be included here, if available.

Copies of all forms used for behavioral and performance assessment, scoring, and rating the work sample should be included at the end of this section. The types of forms commonly used include:

1. task observation record, which identifies critical behaviors or work qualities to be observed and recorded during the evaluee's performance
2. response sheets used by the evaluee when a written reply or answer is required
3. scoring aids such as keys and overlays.

Description of Norm Group: There are generally three types of normative data available for work samples, i.e. evaluee norms, trainee norms, and worker norms. Usually this type of data is not available at the time the manual is written. Consequently, it is sufficient to state "norm data not available." If the work sample has been normed, the norm group should be discussed with information about age, sex, disability, etc., so that the evaluator will know if the evaluee resembles the member of the norm group. Any special procedures used in obtaining the normative data should be discussed in this section.

Reliability: Reliability considerations are not as important to work samples as they are to psychological tests. Since considerable learning takes place during the administration of technical type work samples, one would expect an increase in performance using test-retest procedures. Work samples that are simple and repetitive foster boredom and fatigue. Consequently, decrease in performance would be expected with this type of work sample. If an estimate of the work sample's reliability has been made, the method should be discussed here along with the numerical values obtained. Otherwise, a statement indicating "reliability data not currently available" is sufficient at this time.

Interpretation and Insights: During the process of field-testing or norming a work sample, the developer may have gained some insights, which would be helpful to evaluators using the work sample. For example, some variation in task performance may have critical effectors on the quality of performance. If so, the developer should alert evaluators to look for this behavior. Critical behaviors noted during field-testing and/or norming of the work sample should be listed

so evaluators will be aware of positive and negative behaviors. If feasible, rating levels should be established to help describe each behavior in terms of its relation to work sample performance and the relevance of that behavior to the overall outcome.

Other factors that might be considered in this section are:

1. variation of tools, work aids, etc., used in the sample that are different from those found in the actual job
2. information or concerns the developer may have about the work sample, which are not listed elsewhere in the manual. An example might be the variation in the cost of material elsewhere in the manual. An example might be the variation in the cost of material ended in the administration of the work sample
3. work sample strengths and weaknesses observed in relation to predictive outcomes
4. suggestions for modifying either the work sample, the method of administration, and/or scoring for populations other than that for which the work sample was specifically designed.

Construction: To aid other evaluators to construct the work sample, blueprints or scaled 3-D drawings should be provided. Color photographs may also be provided to emphasize size, color, equipment and layout of tools and materials. Special assembly instructions may be necessary for proper work sample construction. The sequence of assemble may also require detailed instructions.

A detailed list of construction materials should be provided. This would include but not limit to the following information:

1. part names
2. quantity of parts
3. purchase order numbers
4. shipping weights
5. sizes and descriptions (color, grade, etc.)
6. purchase source and address
7. price lists and total construction price

Within this section there should be a breakdown of material and equipment necessary for initial construction of the work sample and a listing of administration equipment and materials, along with a detailed listing of cost to construct and administer the sample.

Reference and Style: Reference an Style: It is the general practice to use the American Psychological Association (APA) Publication Manual as it applies to typing the work sample manual as it applies to typing the work sample manual. If any information in the manual needs to be separate reference section utilizing the APA citation style.

Appendix: The appendix section should include a copy of the job analysis schedule. In addition, this section should contain pictures, drawings, forms and other information related to the work sample but not required in its administration, scoring, or construction. This might include pictures of the job being performed in industry, a floor plan of an evaluation unit showing the location of this work sample in relation to other work samples, a behavioral rating that could be used in task observation and/or demographic data concerning the norm population that was not included in the Description of Norm Group section.

Summary: At least three definite statements can be made about work sample theory: (1) Psychological test theory is inadequate to cover work samples. (2) There is a need for a comprehensive theory of vocational evaluation that would incorporate work sample theory as

well as the theoretical principles underlying the other approaches. (3) There are a number of basic assumptions underlying work sample theory.

In his chapter the basic assumptions underlying work sample theory were listed and discussed. It was noted that work samples may be classified in several interrelated ways, such as development, i.e., job analysis, D.O.T. job definitions, D.O.T. occupational Group Arrangement (O.G.A), D.O.T. Worker Functions (Data, People, and Things), and factor various types of work samples were considered. The advantages and disadvantages of each type were enumerated.

The utilization of work samples was considered in the context of purpose diagnosis and prognosis. It was noted that performance s scores on work samples reveal skills, abilities, and potentialities but it is the concurrent observational data that provides the relater psychosocial data. Diagnostic data obtained from work sample evaluation, when integrated with other vocational evaluation data, provides the basis for future vocational planning. This would include the determination of vocational objectives, probability of success associated with alternatives (prognosis) and the objectives. It was noted that learning curves (based on repeated administration of work samples) and graded work samples could be used to predict occupational levels.

Work samples are more flexible than psychological tests. The administration procedures can be varied to allow for the adaptation of the work sample to a variety of disability groups. When work samples are adapted in this manner, the existing norms are no longer applicable and both the performance and observation data need to be handled using the norm data, the work sample instructions must be administered verbatim.

In the final section of this chapter work sample manuals were discussed. A format was provided which follows the MDC work sample manual format with some modifications. Discussion focused on the content that would be included under each section of the manual.

CHAPTER VI

SITUATIONAL ASSESSMENT

Situational assessment is a systematic method for observing, recording and interpreting work behavior. It is a primary tool of the vocational evaluation specialist. As originally conceptualized, situational assessment had to take place in real work situations, namely in the production unit of a sheltered workshop. Manipulation of the work environment to determine how the evaluee reacts to different work variables such as change in supervision was also part of the more as part of the original conception. Today, it is conceived more as being applicable in any work situation, even if the work is simulated as I the performances an a work sample or in a vocational training classroom or laboratory. Situational assessment is systematic in that the observations are scheduled and the observational technique is pre-determined. In most cases the recording method is standardized. In this respect situational assessment differs from behavioral observation per se.

The purpose of situational assessment is to acquire information about the evaluee that may not be assessable through other evaluation procedures. At other times it may be used to verify data obtained from other methods such as work samples and psychometric tests. Situational assessment provides data on how the task was completed and also provides clues as to the level of performance. The vocational evaluation specialist is concerned with both performance and work related behavior. Work behavior includes those behaviors associated with task performance and work related behavior encompasses those other behaviors that take place in work situations such as punching a time clock. Situational assessment may be global in order to determine the evaluee's overall vocational functioning or it may focus on a select number and type of work behaviors in order to answer specific questions.

EVOULUTION OF SITUATIONAL ASSESSMENT

It is assumed that since the beginning of time man has used behavior observation to size-up his environmental situation and its other inhabitants. In a sense, behavior division of labor in primitive society was most likely determined by the leader's appraisal based upon his observation of his people (Durkheim, 1969, Washburn and Howell, 1960).

Gideon was told by God to use this method in selecting his army to battle the Midianites:

And the Lord said unto Gideon, "The people are yet too many. Bring them down into the water and I will try them for thee there and it shall be, that of whom I say unto thee. This shall go with thee, the same shall go with thee and of whomsoever I say unto thee, this shall not go with thee, the same shall not go."

So he brought down the people unto the water and the Lord said unto Gideon, "Every one that lappeth of the water with his tongue as a dog lappeth, him shall thou set by himself. Likewise, every one that boweth down upon his knees to drink."

And the number of them that lapped, putting their hands to their mouth, was three hundred men. But all the rest of the people bowed down upon their knees to drink water.

And the Lord said unto Gideon: "By the three hundred men that lapped will I save you, and deliver the Midianites unto thine hand and let all the other people go every man unto his place." (pg. 247, Judges 7: 4-7).

To assess the emotional and physical status of his patient, Hippocrates is said to have used various work activities. Consequently, he may be considered a real pioneer in vocational

evaluation. However, since Hippocrates' purpose was to heal rather than provide vocational guidance, his methods would not be considered vocational evaluation. Also, Hippocrates may have been somewhat punitive in his practice of using work for this purpose since both the Greeks and Romans of that period perceived labor as a curse rather than a blessing. For them work was a painful, humiliating necessity (Wilensky, 1964).

Since the beginning of the industrial revolution, behavior observation during a job try-out period has been one method for selecting workers and screening out incompetents. In industry, government, comemerence and education, behavior observation is used for screening workers, setting wage rates, providing a basis for merit increases and promotion. Periodic ratings of employees, using observational techniques, are a common and widespread practice in most occupational areas at the present time. However, historically, behavioral observation has been an unsystematic, highly subjective, somewhat unreliable method for evaluating worker characteristics and temperaments.

Cronbach (1970), in reviewing the sources of error based on ratings of supervisors and professional observers, has noted some of the reasons that there has been a lack of consistency using the observational approach. The most predominant shortcomings result from unclear and ambiguous definitions of the traits to be rated. Secondly, Cronbach notes that there is a tendency upon the part of many raters that pile up at the favorable end of the scale do not reveal individual differences. Most raters would appear to use the middle and upper ranges often disagree due to the limited information or because of personal bias. Rater disagreement is a major reason for low reliability of the observational methods. (Cronbach, 1970).

In the personnel management field and within the counseling and guidance areas, attempts have been made to increase the reliability and validity of the information obtained through behavioral observation. This has bee accomplished by refinement of the rating scales. By making the rating scale items descriptive rather than interpretive and by allowing the rater the option of noting that the behavioral item was not observed rather than forcing a guess, the accuracy of the rating scales has been increased. Of equal importance is the increased awareness of the need for the training of rater (Cronbach, 1970). By using situational assessment data in combination with test results and other available data source may be evaluated. The probability of correct prediction should be increased when there is agreement between all available data.

One of the first attempts to use situational assessment in a highly systematic fashion was initiated by H.A. Murray and his fellow assessors during World War II. This assessment staff was charged with the responsibility of selecting individuals for highly critical underground activities overseas. They used situational assessment in combination with simulated work task, interviews, intelligence and personality tests and the case conference approach (O.S.S. Assessment Staff, 1948). Variations of this approach have been subsequently used in other military and civilian areas. Some examples are the Leaderless Group Discussion (Bass, 1954), Role Playing Situations (American Institutes for Research, 1957), Socigram (Freeman, 1962), Workshop Simulation Approach developed at Cornell University as a training method for workshop administrators (Wasmuth, 1979) and the In-Basket Situational Test (Frederiksen, 1967).

Since situational assessment is relatively inexpensive and requires no equipment, the technique was readily adopted by sheltered workshops when it became apparent that the traditional vocational guidance methods were ineffective with the majority of clients served by these facilities. Prior to the 1950s the goals of many sheltered workshops were different that they are at the present time. They were more likely to be considered charitable rather than

rehabilitation organizations. The 1954 Amendments to the Vocational Rehabilitation Act provided much needed financial help to workshops and they were directly responsible for the tremendous increase in the number of facilities serving people with disabilities. This in turn led to the utilization of more highly trained rehabilitation specialists and consequently the increased use of these facilities by vocational rehabilitation counselors employed by the state/federal programs. The major services being purchased were vocational evaluation and work adjustment. The vocational evaluation approach of situational assessment was found to be highly compatible with the subcontract production tasks of most workshops. There are probably many reasons why the workshops adopted this evaluation approach. Perhaps the predominant reason is that it is possible to evaluate an individual in a variety of work conditions that are very similar to those found in competitive employment. As Neff (1968) has noted, within this assessment situation it is possible to vary all the customary conditions of employment without the overriding concern for efficient production required in competitive employment, The fact that the evaluation period is considerably longer when situational assessment provides the facility with a more stable income form fees. In addition, since the evaluees are paid wages based on their productivity, there is more incentive for them to display maximum potential.

Basic Assumptions: There are a number of basic assumptions underlying the situational assessment method:

1. All behavior is purposeful.

Discussion: The fact that all behavior is purposeful has been a generally accepted concept in psychology since the birth of behaviorism (Boring, 1950). While it is not always apparent as to the propose of the behavior there is always a cause. For example, biting one's fingernails may seem to be unpurposeful behavior, but it does serve to reduce tension.

2. Behavior is meaningful to the degree made possible by the sensitivity and skill level of the observer.

Discussion: Observational sensitivity, as any other skill, is developed and improved through practice. This skill involves not only being aware of the behavior that is occurring but also the ability to utilize the observational data in a manner that provides answers to evaluation questions, The novice observer fails to take into account the style or timing of the act. The untrained observer may fail to relate the events of one social interaction to another and may take behavior too much at face value. The skilled observer on the other hand neglects fewer significant details. The trained observer is able to perceive relationships in what are apparently isolated behavioral instances. The skillful observer maintains objectivity and accuracy and does not allow the influence of personal bias to distort the data. Perhaps most importantly, the trained observer does not mix facts with interpretation but rather handles observing, recording, and interpretating as distinct steps in the total process.

3. Behavior is determined both by the person and the situation and any attempt to isolate one from the other or to neglect the context results in loss of data or in misinterpretation.

Discussion: Behavior is modifiable by the situation. Usually the more natural the situation, the more likely the behavior is to be characteristic of the individual. A person may behave totally different when taking a test than when performing a work task. In a similar manner there are many possible variations in behavior that are attributable to variations in the changing situational context of work tasks. These variations may be due to physical of psychosocial factors. At any point in time the observer may not be aware of how the situation is influencing the person being observed but if these variables are attended to and recorded, the significance of these variables may later be inferred.

Stein, et al. (1956) notes: "this environment provides a continual source of actual and potential stimulus demands and consequences. It consists of people, institutions, situations, tasks, rewards and penalties, as well as numerous factors of physical and biological significance. In the exchange between individuals and environments, both give to each other, and both are affected and to some degree altered by the exchange. For assessment purposes a major first task is to reduce the detail and complexity to manageable proportion." (pg. 36)

4. Behavior should be interpreted systematically and consistently in terms of theories of human behavior.

Discussion: While there are many theories of human behavior, those that are most useful are those that deal with the vocational aspects of behavior. For example, there are the prevailing career development theories that attempt to rationally explain developmental stages of childhood, adolescence, and adulthood as they relate to vocational choice. Closely related is the theory of "work personality" as developed by Gellman (1967). Since each of these theories is based on somewhat different assumptions, one's interpretations could become conflicting in one set of behavioral data was interpreted according to one theory and the next set of data using another theory.

5. Interpretation of behavior is valid to extent the observer is able to evaluate and compensate for the influence of personal bias, values and attitudes during the evaluation process.

Discussion: The vocational evaluation specialist who puts high value on sociality may misinterpret and underestimate the potential of an evaluee who is shy and introverted. However, if the evaluator is aware of her biases, she will be more likely to make allowances and compensate when working with and evaluee whose behaviors, mannerisms, and attitudes deviate from the evaluator's expectation.

Work Personality: When using situational assessment the focus is on work performance and work related behavior. While work sample assessment is better for measuring skills and aptitudes, situational assessment lends itself more tot the evaluation of those behaviors that enhance and hinder work performance. The vocational evaluation specialist is concerned not only with how the evaluee performs but with the evaluee's work personality. The term work personality has been defined by Gellman (1967) as: "…the characteristic pattern of situation. The work personality incorporates work attitudes, behavioral work patterns, value systems, incentives and abilities. It is the behavioral configuration regarded as necessary to function effectively in a work setting. It is a constellation distinguishing work roles form other societal roles" (pg.20). While Neff (1968) views the work sample approach as being used for the assessment of specific work skills, he sees the situational method as being directed toward work behavior in general. He points out that this approach attempts to answer such questions as: Can the potential worker work at all? Can he conform to customary work roles? Can he take supervision? How does he respond to demands to increase his productivity or to improve his quality? Does he work better alone or in the presence of others? Under what types of supervision does he work most effectively? Does he get so preoccupied with quality that he cannot produce at acceptable rates, or does he try to work so fast that his quality suffers? What are his strengths and weaknesses as a worker?

Roessler and Bolton (1985) have developed a rating scale to assess the work personality. The Work Personality Profile consists of 58 items. Each item is a behavioral description of a person in a work situation. The items are arranged in a random order and each item requiring a 4-piont judgment from employability strength to deficit. The items are scored and profiled on 11 dimensions of the work personality. The administration takes from 5-10 minutes to complete.

The authors recommend that the WPP be administered after the client has completed one week (20-30 hours) in a vocational setting. This instrument is recommended for use in the early stages of work adjustment planning, in Social Security evaluations and short-term evaluations done for vocational rehabilitation counselors.

Barton (1967) notes that it is "…impossible to know 'work personality' unless one observes the client functioning in an actual work situation or environment." The production workshop is apparently able to provide the necessary work environment in the following ways: the aim of the workshop is to emulate or simulate competitive industry as closely as possible, i.e., wages are paid, work is performed on products destined for sale, supervisors are present and they set standards for quality and quantity, regular working hours are maintained and a business-like atmosphere prevails, the physical setting is designed to resemble ordinary working conditions, and it is possible to vary all the customary conditions of employment without too much emphasis on efficient production (Neff, 1968).

Observable Behaviors: Certain aspects of the work personality are readily observable and other aspects need to be inferred from various types of behavior. For example, if an evaluee is observed working over a reasonable period of time, the characteristic patterns of work activity may be noted. The manner in which the evaluee approaches new work tasks, the way that new work tasks are learned, the pace the evaluee maintains; methods for organizing work and the use of tools, equipment and materials will provide data on the evaluee's typical work patterns.

Specific work skills can be determined by the quality and quantity of work performance when compared to available standards. This will provide the level of skill; the specific skills required can be determined through task/job analysis.

Work Attitudes and Values: While various aspects of the work personality can be directly observed, work attitudes and values may only be inferred from the evaluee's behavior. Positive and negative statements about the work task or work in general provide clues. Other clues may be obtained by observing the evaluee's non-verbal behavior. Facial expressions, posture, work pace and the willingness to stick to a task until completed can be other indicators of values and attitudes. Closely associated to these factors is the worker's self-image. How the evaluee approaches work tasks (either with confidence of uncertainty) may give some indication of how evaluees perceive themselves as workers.

The meaning of work varies with the individual and determines how the worker relates to the work environment. Work is often described as the essential activity that affords an individual the means for self-expression, self-realization and social acceptance, or as a means for gaining those materialistic items that are required and desirable according to personal values. Simon (1965) states that: "Work is of central concern to our society; a man's situation is described by his relationship to the activity of work whether he continues to work or has removed himself from it; the majority of American men (and women) look to work as this area within which to validate themselves." If the evaluees identify with their work, their feelings and awareness of their adequacy and self-worth increase and this should be reflected in various work behaviors. It is important to know whether the evaluees view themselves as superior, good, average, poor, or inadequate workers. It is also important to determine the reality of these self perceptions.

Work Intelligence: Psychological tests do not always provide an accurate picture of rehabilitation client's real potential. This could be due to test anxiety or some other factor. Even though I.Q. scores are available or obtainable on all evaluees, it is still necessary for the vocational evaluation specialist to determine how the evaluee is able to apply intelligence in a

work situation. Some factors that might be considered in determining the mental functioning ability in work situations are as follows:

1. the ability to comprehend and follow written and oral instructions
2. the length of time necessary to fully comprehend instructions
3. the number of errors made before the instructions are followed explicitly
4. the manner in which new tasks are learned, i.e. insight learning is qualitatively different from trial and error learning
5. the skill level of tasks performed
6. the success/failure ratio on tasks attempted
7. the variety of tasks the evaluee is able to perform
8. the evaluee's ability to innovated and to improve the procedure for performing a job
9. the ability to remember instructions and perform at an appropriate level form one day to the next.

Work Tolerance: In rehabilitation facilities, it is necessary to obtain a medical history for each evaluee. This usually includes the results of the most recent medical examination and may include supplementary reports from physical and/or occupational therapists. Very often these medical reports will contain data about the evaluee's physical capacities. However, these physical capacity reports will vary considerably in their usefulness to the vocational evaluator. Consequently, questions about physical capacity and work tolerance may need to be answered through the behavioral assessment of the evaluee.

In assessing physical capacity and work tolerance, there are a number of factors that are readily observable such as lifting, bending, stooping, standing, walking, reaching, grasping, climbing stairs, agility and stamina. It is also possible to make estimated about the evaluee's dexterity (both fine and gross, monomanual and bimanual), eye-hand coordination and other work tolerance factors. While this evaluation of work tolerance is not as objective as standardized physical capacity tests, much information about physical capacity can be gained by observing people at work. Also, the data obtained should be more valuable since it's related specifically to the questions posed by the referring source. For example, if trained to be a drill press operator, can the evaluee stand on his feet for eight hours per day? Does the evaluee have the hand strength to apply pressure in tightening screws and bolts with screwdrivers and open-end wrenches?

Situational Assessment Process

The situational assessment process can be conceptualized as having orderly steps or systematic phases.

Phase I:

Planning and Scheduling Observations: The vocational evaluation specialist reviews the referral data and the questions being asked by the referring person. Additional data will later be obatained from the intake interview. Additional questions will be generated during the intake process. A set schedule of observations planned in advance is the recommended method (Barton, 1967). Using numerous brief observations was found to be highly reliable (r=.80) according to Green (1944). The time periods may be scheduled randomly or systematically to assure that the evaluee is observed during many diverse work tasks and at varying times throughout the day. A number of brief, evenly distributed observations provide a more accurate picture of the evaluee than does an equal amount of time spent on fewer but longer observations (Barton, 1967). The

information derived from brief observations is also easier to recall brief observations are also easier to recall since obviously less would be observed.

Phase II:

Observing, Describing, and Recording: The vocational evaluation specialist should focus his observations with specific questions in mind. These questions may come from several sources, i.e., referring person, intake interview, work foreman or other facility personnel. The questions may also be generated by prior observation of the evaluee. The evaluator should be aware that data obtained during one observational period may be typical of the evaluee. Therefore, the evaluator should look for behavioral trends and typical work behavior patterns.

In describing behavior, the vocational evaluator should specify what the evaluee did and note the situation in which the behavior occurred. Behavioral terms should be used to record the behavior. The behavior should be described in concise terms but with enough detail so that it is clear what happened. Observation records should always show date and time since the reason for the behavior may not always be obvious. An incident may have occurred prior to the observation period that triggered the incident and the evaluator may not be aware of this fact at the time. In talking with supervisor or other evaluees, evaluator uses behavior rating scales, unusual ratings should be discussed in the remarks section.

Phase III:

Organization, Analysis, and Interpretation: In organizing the data, the evaluator should bring together all information pertaining to a specific topic or category. For example, all data pertaining to the evaluee's work tolerance and physical capacity should be grouped together. Likewise, all information that relates to the evaluee's relationships with co-workers and supervisors should be grouped. The specific categories used may be determined by the referral questions or by the style of the facility's evaluation reports.

The analysis will deal with the resolution of conflicting data and the ordering of the information according to its relevance. Conflicting information can often be related to the situation in which it occurred and may or may not be typical behavior for the evaluee. Not all behavioral data is of equal significance. Therefore, the evaluator will order the data according to its relevance to the referring questions and the evaluee's vocational problems. The final concern is how this information will be used to help the evaluee function effectively in work situations. Behavioral data that coincides with similar data to show typical patterns or trends is of greater importance than isolated instances of atypical behavior. However, until the data is organized, the evaluator may not know what is typical and what is atypical. The interpretation of the behavioral data should always relate to the evaluee's future vocational functioning. A subsequent chapter will deal with the interpretation of vocational evaluation data.

Phase IV:

Synthesis of Data: After completing Phase III, the task of the evaluator is to synthesize the behavioral observation data with data from other sources. This may include performance ratings of supervisors, work sample, and psychometric test results, feedback from other professional members of the facility, and possibility, information form residential advisers. This phase would culminate in the writing of the evaluation report. The case staffing could proceed or follow the writing of the report.

Situational Assessment Sites

Situational assessment may take place in a variety of work settings, i.e., subcontract units of workshops, supportive work sites in the community, work sample area of a school setting or in

institutional job sites. The following is a discussion of the most common sites for situational assessment.

Workshops: Within workshops situational assessment can be done within the subcontract area of the facility, the evaluation unit or in skill training areas. Workshops vary in size and sophistication and also vary in staff allocations, programs, and organizational objectives. What they have in common is the use of work for evaluation, training and employment.

Even though it is difficult to generalize about situational assessment in workshops, there are several possible ways the method is used. In vocational adjustment workshops, the focus will be upon the "work personality" of the evaluee. The observations will tend to answer questions about employability, vocational development, strengths and weaknesses in work situations, work habits, developmental and change possibilities, and training capacity. If the facility's objective is to determine which if any skill training the evaluee should enter, the focus will be on capacity for training, learning styles and the ability to benefit from training in various areas. Workshops that are part of comprehensive rehabilitation centers or hospitals may focus on the physical capacity and work tolerance of the evaluees, consequently, situational assessment will then focus upon these factors.

Institutional Job Stations: In the institutional setting, the job stations often serve as sites for vocational evaluation. Here the situational assessment approach is used quite extensively but may be supplemented with psychological tests, work samples and training tasks. In this setting the scope of the evaluation is limited to the number of job stations such as laundry, kitchen, barn, maintained department, etc., and the capability to switch evaluees from one job station to the next. Often the institutional needs take precedence over the needs of the individual. The institution may be a training school and residence for the mentally retarded, a part of a public school complex used for special education students, a mental hospital or a correctional center. In institutional settings the tendency is to have untrained or partially trained work supervisors conduct the behavioral assessment. In using work supervisors the practice is usually to focus on punctuality, ability to follow instructions and productivity. The psychosocial factors are frequently neglected unless they are associated with disrupted behaviors. The vocational evaluator who must depend on work supervisors for evaluative data should supplement the supervisor's observations with their own observations. Also, if possible, the evaluator should provide in-service training in observational techniques to these work supervisors and attempt to standardize the observations by using appropriate rating scales.

Community Evaluation Sites: Innovative service delivery systems such as supportive work programs, transition from school to work programs, and projects with industry have rapidly expanded the use of work sites in industry for evaluation and training. While the practice of using work sites in industry for this purpose is not new it has grown with the infusion of federal funds to support the concept. This approach necessitates the cooperation of employers to reserve certain evaluees on these jobs, sometimes with the prospect of becoming permanent employees of the firm. Employers are rewarded for their cooperation with tax credits or wage subsidies. In the past the major amount of the evaluation was conducted by work supervisors who were regular employees of the industrial firms. More recently, the responsibility has shifted to a specialist known as a job coach. The job coach may be a trained vocational evaluator or a partially trained paraprofessional. Many evaluees will have undergone formal evaluation prior to assignment in a community job site. Otherwise, the evaluation is quite narrow in focus. Specifically, it asks if the evaluee can function effectively in this one job. There are May positive factors inherent in community job sites not always found in other situations. Perhaps the most

important factor is the realistic work conditions that can only be simulated in workshops and institutions. On the negative side, the cost of conducting job site evaluations is usually higher than those evaluations conducted in a workshop or an evaluation center.

Post Secondary School Sites: There has been a trend in the past decade for community colleges and vocational/technical schools to offer vocational evaluation services to the special needs student. These schools may or may not have a regular vocational evaluation unit on the premises. If not they will rely on the training areas and limit the evaluation to situations assessment. The focus of the evaluation is on answering the question: does the evaluee have the capacity to be trained in specific jobs or occupational area?

Work Sample Unit: To varying degrees situational assessment is concurrent with work sample evaluation. While the data from work samples gives and indication of aptitudes and abilities, the simultaneous observations provide data on manifest interest, physical tolerance, intellectual functioning and work personality factors. Some work samples systems provide behavior observation forms. Frequently vocational evaluation units for task observations. Work sample manuals often suggest specific behaviors for the evaluator to focus on. These behaviors may or may not be the critical factors essential for effective performance in the actual jobs on which they are based.

Summary: This chapter has dealt with the principles and process of the situational assessment approach of vocational evaluation. A brief historical overview was presented and a special note was made of the contributions of H.A. Murray and his associates during World War II. This work led to the adoption of this approach by may rehabilitation workshops.

The basic assumptions underlying the situational assessment approach were listed and discussed. The concept of the work personality was discussed and related to situational assessment in workshops. It was noted that certain aspects of the work personality were readily observable, while other aspects may be inferred from work behavior.

The situational assessment process was conceptualized as having four systematic phases. Each phase was defined and briefly discussed. Consideration was given to the application and utility of the situational assessment approach in a variety of commonly used vocational evaluation sites.

Situational assessment is a variable and dynamic approach in vocational evaluation. Its effective utilization depends in the sensitivity, training and skill level of the vocational evaluator. Unlike work sample evaluation and psychometric testing, it does not require a lot of equipment, materials or special physical space configurations. It can be utilized in any work situation. It is a flexible approach and its limitations are set, for the most part, by the innovativeness of the evaluator.

Despite its long history, situational assessment is not a perfect tool and it does have many limitations. It depends on perceptual ability and perceptions are always selective and sometimes fallible. Subjectively is always involved in the interpretation of behavioral data. There is still a need for technique improvement and a need to increase the reliability of this approach. The type of subcontract may influence the evaluee. Low level, repetitive tasks may lead to atypical behavior such as looking around, daydreaming or leaving the work station. Atypical behavior may also occur if the work task is too difficult or the quality standards are too stringent. If there is a conflict between the need for production and rehabilitation, the evaluation may be less than adequate. If productivity is underemphasized, the evaluator may never know how the evaluee will function under the demands for greater productivity. However, situational assessment can be

an effective approach in vocational evaluation and the validity of the observational data can and should be cross checked with other vocational evaluation data.

CHAPTER VII

VOCATIONAL EVALUATION RESOURCES

Vocational evaluation specialists have a number of resources that are used in the performance of their jobs. This would include but not be limited to job analysis and the various publications dealing with occupational information. Because the ability to analyze jobs is essential performance are for vocational evaluators, this resource will be considered first.

Job Analysis: One of the more useful publications for developing the skill necessary for job analysis is A Guide to Job Analysis: A "How-To" Publication for Occupational Analysts (U.S. Department of Labor, 1982, printed and distributed by the Materials Development Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout.) It was developed to assist individuals to conduct systematic job analyses.

Job analysis technique was developed by industrial engineers and psychologists for the purpose of classifying jobs. Most of the jobs defined in the Dictionary of Occupational Titles were classified through job analysis techniques. Vocational evaluation has adopted this methodology and uses it for several purposes. Job analysis provides essential information about the requirements of jobs. It is also a basis for work sample development and a way for relating evaluee attributes to the tasks performed by workers. Job analysis also provides a wealth of information about the artifacts or work.

The skills involved in job analysis would include interviewing techniques, observation and recording ability, the ability to break down a job into specific tasks, and the ability to write up the analysis in the appropriate format. The purpose of job analysis is to gain an understanding of what the worker does in performing a job, why the job is performed in a certain manner, how it is performed and where the job is performed. The analysis also involves determining what tools and work aids are used, machinery and equipment operated and the material that are used. The analyst determines the physical requirements necessary for job performance and the environmental conditions under which the work is performed. In addition, the analyst need to ascertain the education and special vocational preparation needed to be employed observing the worker perform the job and by supervisor to obtain data not readily apparent through observation.

Jobs either follow a chronological order or a functional order. In the first instance, there is a regular cycle or a step-by-step procedure for performing the job. Assembly and packaging jobs follow a step-by-step procedure. When the operation is completed the cycle is repeated. Jobs that follow a functional order do not have a set procedure even though workers may establish a set routine. A hotel maid may begin my making the bed, vacuuming the carpet, or by scrubbing the bathtub. None of these tasks need to be performed before on other. For jobs at follow a chronological order, the tasks will be listed in the order in which they are performed. Jobs that follow a functional order will be listed in the order of their importance to the total job.

The job analysis in describing the tasks performed will begin each task statement with an action verb. "Joins two lengths of pipe with metal coupling and tightens with a pipe-wrench." "Files documents in alphabetical order." "Plans activities of work crew." "Interviews job applicant to determine if the applicant has the qualifications to be employed for the job." After the tasks are described and listed in the appropriate order, the analyst will list the tools, work aids, machines, equipment and materials used in performing the job. The analyst may then

interview the worker to determine that what was observer is correct and that not task or step has been overlooked. The analysis will provide the information necessary to determine the worker's involvement with Data, People and Things (DPT). The content of the job in conjunction with the DPT levels will help to correctly classify the job according to a D.O.T. coder and title.

In observing the being performed, the analyst will determine the physical requirements of the job. The analyst will determine if the job is performed while sitting or standing, what the maximum weight the worker must lift and/or carry is and how far. The analyst will determine if the job requires reaching and grasping, stooping, kneeling, climbing or bending. The analyst will further determine if the job requires hearing, seeing and/or color discrimination. The analyst will also note if the job is performed inside, outside, or both. The analyst will note the environmental conditions and will list those factors such as noise, obnoxious fumes or odors, hazards and the safety considerations that are employed, such as the use of protective clothing or devices such as safety glasses or protective masks.

In interviewing the worker and/or the supervisor, the analyst will determine the educational requirements for the job including special vocational preparation. If applicable, the analyst will note both the preparation. The analyst must determine the general educational development (language, math and reasoning) required for job performance even if the educational requirement is not specified as a qualification for employment. If entry into the occupation is through an apprenticeship program, the type and length should be required, this also will be noted.

Finally, the analyst will estimate the aptitude, interest and worker temperaments that would be needed. The aptitude patterns would be those tested by the General Aptitude Test Battery (GATB). The estimated aptitude, interest and temperament ratings would later be compared to those of comparable jobs listed in the Dictionary or Occupational Titles.

Job analysis is the technique used for obtaining and presenting factual job information. The procedures and techniques of job analysis were developed to fill occupational information needs to the public employment service. However, they are applicable to many programs regardless of the intended use of the data. Some of the other applications are:

1. Classification of jobs
2. Job Matching
3. Job Placement
4. Vocational counseling
5. Curriculum planning
6. Vocational rehabilitation
7. Job restructuring
8. Preparing job specifications and job descriptions
9. Alien certification studies
10. Skill comparability studies

Occupational Information Resources

One of the most widely used occupational information resources is the Dictionary of Occupational Title (1977), Fourth Edition. It is published by the U.S. Department of Labor, Employment and Training Administration. Previous editions of the D.O.T. were published in 1939, 1949, and 1965.

The D.O.T. is designed as a job placement tool to facilitate matching job requirements to worker skills. The D.O.T. is an outgrowth of the needs of the public employment service system for a comprehensive body of standardized occupational information for purposes of job

placement, employment counseling and occupational and career guidance, and for labor market information services. In order to implement effectually its primary assignment of matching jobs and workers, the public employment service system requires a uniform occupational language for use in all of its offices. This is needed to compare and match the specifications of employer job openings and qualifications of applicants who are seeking jobs through its facilities. The content of the D.O.T.:

* focuses on occupational classification and definitions
* includes standardized and comprehensive descriptions of job duties and related information for 20,000 occupations
* covers nearly all jobs in the U.S. economy
* groups' occupations into systematic occupational classification structure based on interrelationships of job tasks and requirements
* designed as a job placement tool to facilitate matching job requirements to worker skills.

The types of information included in the occupational definition are:

1. Occupational code number
2. Occupational title
3. Industry designation
4. Alternate titles (if any)
5. The body of the definition
   a. Lead statement
   b. Task element statements
   c. "May" items
6. Undefined related titles (if any)

The D.O.T. coder identifies specific information:
First 3 digits identify the occupational group
Middle 3 identify worker functions
Last 3 identify alphabetical order of titles within the 6-digit coder groups.
The D.O.T. is organized in a manner that allows specific information to be assessed. The organization of the Fourth Edition is as follows:

*Masters titles and definitions
* Term titles and definitions
* Occupational group arrangement
* Glossary
* Alphabetical index of occupational titles
* Occupational titles arranged by industry
* Industry index
* Appendix: Explanation of Data, People, and Things

The user of the D.O.T. can gain information about:
* what tasks workers are required to perform
* what the purpose of the work is
* what materials, products, subject matter (academic disciplines), or services are involved
* how the worker receives instructions and the amount of independent judgment that must be exercised in the performance of the job
* where the work is located (outdoors: on a farm, the road, a mine, a forest tract, in water, etc., indoors: in an office, assembly area, the maintenance department, etc.

Work Samples and Visually Impaired Persons (Rehabilitation Research and Training Center in Blindness and Low Vision, Mississippi State University, Micheal Peterson, Charles Capp, Mike Moore, 1984) is a manual designed to provide a review and analysis of the present state-of-the-art in using work samples in the vocational assessment of visually impaired people. It draws together ideas, concepts and resources that have implications for the development and use of work samples with visually impaired people and develops recommendations for the improvement of the use of work samples with them.

The manual provides a comprehensive review of vocational evaluation including tools, techniques and resources. It provides discussion of the various approaches to the vocational assessment of visually impaired people. It focuses on the use of work samples with the visually impaired population including information on developing and modifying work samples for this group. It also discusses the use of two commercial work sample systems with this client population.

Assessment of Hearing Impaired People: A Guide for Selecting Psychological, Educational and Vocational Tests (Gallaudet College Press, Frank R. Zieuila, Editors, 1982) focuses on four major questions that should be considered when choosing a test for a hearing impaired person:

*Does the test consist of verbal items or performance items?

* Do instructions for the test require verbal communication?

* Do any test items discriminate against an individual with an auditory impairment?

* Are hearing impaired people included in the normative sample provided by the test developer?

A wide range of psychometric tests are reviewed in the following areas: academic achievement, communication, intelligence, personality, visual perception, vocational aptitude, vocational interests and four commercial work sample systems.

Information included in each review are: test, name, author, publisher, price, date or edition, general purpose, description, administration, special administration procedures for hearing impaired people, age level, reliability, validity, norms, norms for hearing impaired people, range of scores, interpretation, summary or Burros Institute publications, general references and references related to hearing impaired people.

The Issue Papers: National Forum on Issues in Vocational Assessment (Materials Development Center, Stout Vocational Rehabilitation Institute, University of Wisconsin-Stout; Christopher Smith and Ron Fry, Editors, 1985) contains the issue papers presented in a forum with speakers representing six national organizations. The Counseling Association; Vocational Evaluation and Work Adjustment Association, National Private Sector; Council of Exceptional Children, Division of Career Development; National Association of Vocational Rehabilitation Personnel in Private Sector; Council of Exceptional Children, Division of Career Development; National Association of Vocational Education Special Needs Personnel; and National Association of School Psychologists.

The papers presented span a broad spectrum of issues in vocational assessment ranging from pre-vocational evaluation to the use of computers in vocational evaluation. Many papers deal with the application of vocational assessment to specific disability groups and other papers reflect issues specific to the work setting. Other papers are of general interest regardless of work setting or disability groups involved. While in nature, several papers were based on specific research studies.

The Guide for Occupational Exploration (1979) is another publication of the U.S. Department of Labor. It was designed to help people see themselves realistically in regard to their ability to meet job requirements. It provides information about interests, attitudes, adaptabilities and other requisites to occupational groups. The Guide makes possible a comparison of these requirements with what the individual knows about himself of herself. It is also a tool for counseling/assisting individuals in self assessment and occupational choice.

Interest Areas: The interest factors represent the broad interest requirements of occupations as well as the vocational interest of individuals. Both the factors and the areas are identified by a two digit code.

Work Groups: Within each interest area are work groups—jobs suitable for exploration by those who have a particular interest. Each work group contains descriptive information and a listing of jobs. Jobs within each group are of the same adaptabilities and capabilities of the worker. Each group has its own unique four-digit code and title.

Subgroups: Within each work group, jobs are sub grouped to make it easier for the reader to distinguish among jobs. Each subgroup has a six-digit code and title. Because of the number of jobs within some subgroups, a further clustering of these jobs by industry is made. Occupations are listed in alphabetical order within the same industry designation and within each subgroup. If an occupation has more than one industry designation, it is listed under that which occurs first alphabetically. Descriptive information for each group gives the kinds of job activities performed, the requirements made on the worker, clues for relating individuals to the types of work, preparation for entry into jobs and other pertinent items.

A related publication to the D.O.T. is the Classification of Jobs (an addendum to the 4th edition of the Dictionary of Occupational Titles) published by VDARE Service Bureau, Inc. (1984). The Classification of Jobs (Revised COJ) is an addendum to the 1977 D.O.T. and its companion publications.

Subgroups represent a refinement of the major Work Groups in terms of such criteria as industry activity, machines and equipment operated, materials and products processed and/or produced subject matter areas or disciplined, craft technology and services rendered. Each of the 348 Subgroups is identified by a six-digit code and title, occupations compromising the Subgroup.

Five columns are used to present the individual selected characteristics peculiar to the occupations clustered in each Subgroup and are described as:

1. Column 1 (D.O.T. Code) is the nine-digit code assigned the title appearing in column 2

2. Column 2 (D.O.T. Title and Industry Designation) identifies the occupational title and industry designation(s) assigned to each job defined in the Dictionary. Though there are other types of titles in the D.O.T., they are not included here because they (1) represent specializations of base occupations, (2) may share common job tasks having a variety of job variables as well as a wide variety of job titles. The accompanying listing of one or more industry designations serves to indicate the type(s) of economic activity with which the job is usually associated as will as to differentiate among identical titles.

3. Column 3 (Physical Demands) represents the occupational significant physical demand factor(s) generally required of an individual in the performance of a specific job-worker situation.

4. Column 4 (Environmental Conditions) are the physical surroundings of an individual in a specific job –worker situation as reflected in the job description found in the Dictionary, when appropriate.

5. Column 5 (Training Time) is the amount of Mathematical Development (M), Language (L) and Specific Vocational Preparation (SVP) required of a worker to perform the duties of a particular occupation. Listings for these occupations and the SVP for each occupation within the Subgroups appear here.

B. Index of Titles by Dictionary of Occupational Titles Code. This part lists occupations according to the Dictionary nine-digit coding system. These code numbers are used by the public employment service for classifying applicants and jobs, for selection and referral of job applications, for statistical reporting and for other operating purposes. The Index provides information that will be used for locating the D.O.T. job titles in Part A of this publication. The four columns comprising this part are described as:

1. Column 1 (D.O.T. Code) is the nine-digit code of the job title listed in column 4.

2. Column 2 (GOE Code) is the six-digit code assigned the GOE Subgroup in which the job in column 4 is clustered.

3. Column 3 (Strength Factors) is the occupationally significant physical strength rating estimated for the job-worker relationship. Job definitions in the Dictionary generally reflect the physical strength that may be considered critical to the successful performance of jobs.

4. Column 4 (D.O.T. Titles and Industry Designation) lists the title of the job as it appears in the Dictionary, accompanied by the industry designation(s) indicating the economic activity usually associated with the job.

Occupational Outlook Quarterly (U.S. Department of Labor, Bureau of Labor Statistics) provides updated occupational information. It also organizes and synthesized information printed elsewhere for use by counselors or clients as well as information that does not fit elsewhere. Finally, the Quarterly reviews new techniques and counseling aids. To fulfill these purposes, this publication presents short articles on a wide range of topics related to occupations.

The publication is designed for use by both counselors of clients. To this end, the both counselors and clients. To this end, the use or pictures and graphics is unusually effective in maintaining attention. Another positive feature is that presentations are characteristically straightforward and to the point. Care has been taken to simplify the reading level, although some difficulty may be experienced by those reading at a level much below the average high school graduate.

The range of content included in the Occupational Outlook Quarterly during the last several years includes job activities, job characteristics, preparation for work, advancements, employment outlook and earnings.

Occupational Projections and Training Data (U.S. Department of Labor, Bureau of Labor Statistics) provide information on occupational employment prospects and related them to the needed training requirements. To gauge future prospects for employment accurately, it is helpful to know not only the occupational demand for a specific occupation of occupational group, but also the supply of people trained for such jobs entering the labor market.

This publication presents detailed statistics of future demand for more than 185 occupations as well as supply information such as enrollment and completion date from current training programs. It also presents a comprehensive demand-supply analysis for college graduates as a whole. It provides a chapter with general descriptions of current occupational training programs for each occupation covered in the publication, giving both the preferred and alternate methods, where applicable.

U.S. Industrial Outlook (U.S. Department of Labor, Bureau of Industrial Economics) is published annually and provides a compact survey of U.S. business. The core of every volume is

a narrative section that discusses current developments in each industry and explains the factors that produced statistics shown in the Trends Table and Profile. The narrative also contains long range forecasts developed by analysts on the basis of their knowledge of materials and energy supply conditions, technological developments and overall customer demand trends that will affect the industry over the decade to come.

A summary paragraph at the beginning of each chapter that reviews key elements of the sector or its component industries is useful for the reader who only wants the highlights of an industry sector. Industry Profiles provide a statistical capsule of the industry for the preceding year. For most industries it shows size in terms of shipments, employment and number of establishments, competitive trade positions, including export as a percentage of products shipped and imports as a percentage of apparent consumption, and growth history in key areas (shipments, trade, and employment) as an annual rate over the past nine years.

The Trends and Projection Table in each chapter draws together frequently used industry and product statistics in an annual time series format. Actual export and import values are given so that the trade balance in an industry can be easily derived. Value added data are given both on an aggregate and production-worker basis. This reflects in dollar terms an industry's contribution through processing to the final value of its end products. The Wholesale Price Index (WPI) series shown in most tables reflects the extent of price changes since 1967 and a quick comparison between the rate of change in the WPI and that of value of shipments yields a rough measure of the actual change in the amount of goods shipped by an industry. The Trends and Projects Table also shows quantity-shipped data when such data are meaningful for a given industry.

BLS Wage Surveys (U.S. Department of Labor, Bureau of Labor Statistics) is an annual publication that provides data for occupations common to a wider variety of industries in the area surveyed. Seventy-six occupational category studies include office clerical, 17 electronic data processing, drafting, and industrial nurses; and 30 maintenance tool rooms, pre-plant and custodial, material movement jobs. Thus they provide a representation of the range of duties and responsibilities associated with white collar, skilled maintenance trades, and other indirect manual jobs. Weekly salaries listed are those paid for standard work weeks, and average hourly earnings for maintenance and other manual jobs relate to first-shift hourly rates.

Industry divisions included are: 1) manufacturing; 2) transportation, communication, and other public utilities; 3) wholesale trades; 4) retail trade; 5) finance, insurance, and real estate; 6) selected service industries. Establishments employing fewer than 50 workers are excluded but companies listed are limited to those with 100 or more workers in manufacturing, transportation, communication, other public utilities and to retail trade in the 13 largest communities.

Industrial Wage Surveys provide employment data for selected occupations in the industry surveyed. BLS surveys 50 manufacturing and 20 non-manufacturing industries, accounting for more than 22 million employees on regular basis. Most are surveyed on a five-year cycle.

The National Survey of Professional, Administrative, Technical and Clerical Pay provides data on the salary levels of people in private employment in 72 occupational work levels selected from accounting, legal service, personnel management, engineering, chemistry, buying, clerical supervisory, drafting and clerical job areas. This data can be translated to apply to the compensation of Federal employees.

Multiple Government Wage Surveys provide data for 50 occupations common to many municipal governments. The surveys are designed to be comparable to the Area Wage Surveys of private industry.

Union Wage Rate studies on wage rates and hours are conducted in four industries: building construction, local transit, local trucking and printing. The program also includes a biannual study of union wage rates for grocery store employees. The rates and hours are based on the collective bargaining agreements between employers and the various trade unions. The studies are designed to include all local union representing industries in the selected cities.

County Business Patterns (U.S. Department of Commerce, Bureau of the Census) presents first quarter employment and payroll statistics by county and industry for every county, metropolitan survey area (MSA) and state. County Business Patterns is a series of publications, including one for the U.S. Summary, one for MSAs and one for each state. Summary data are provided on number of employees for the mid-March payroll period, first quarter total payroll, total number of establishments, and the number of establishments by employer-size. Data are tabulated by detailed kinds of business based on the Standard Industrial Classification (SIC).

Data for the firms are obtained monthly from administrative records of Internal Revenue Service and the Social Security Administration. The data represents the following types of employment covered by the Federal Insurance Contributions Act: all covered wage and salary employment or private non-farm organizations. Data not counted are farm workers, domestic service workers and railroad or foreign country employment.

CBP provides estimates of payroll employment by industry for every county in each of the 50 states. It is useful to show the industrial composition by SIC and by firm size for industrial identification or analysis, using the CBP to locate potential industries with expanding firms or payroll by county. By comparing county information to state or national information, one can readily identify potential industries for occupational analysis, possible job training and placement.

An industry-occupation matrix is a table depicting the occupational employment structure of industries. For each industry included, it presents the proportion of total employment accounted for by each detailed occupation. By transposing the industry-occupation matrix table (i.e. by transposing rows and columns), it is possible to identify how total employment in a specific occupation is distributed by industry. Both the industry-occupation matrix and the transposed matrix show the relationship between occupations and industry and at once show where people work (industry) and what they do (occupation). The National Industry-Occupation Employment Matrix contains both an industry-occupation matrix and a transposed occupation-industry matrix.

The matrices are presented in two volumes: Volume I contains the industry-occupation matrix and Volume II presents the transposed occupation-industry matrix. Each matrix divides U.S. employment into 425 occupations and 260 industries. Industrial and occupational distributions are provided for 1970 and 1978 and are projected for 1990.

The matrices have two important uses: 1) the industry-occupation matrix illustrates the occupational composition of employment with each industry and 2) the transposed occupation-industry matrix illustrates the industrial location of employment for various occupations. If a client is interested in a particular industry, the evaluator can use the county. Conversely, if a client is interested in a particular occupation, the evaluator can identity the different industries where that occupation might be employed.

Health Resource Center (Higher Education and the Handicapped, National Clearinghouse on Postsecondary Education for Handicapped Individuals, 1985-1986 resource Directory) provides information about educational support services, policies, procedures, adaptations and opportunities on American campuses, vocational-technical schools, adult education programs,

independent living centers and other training entities after high school. The Center gathers and disseminates this information so that people with disabilities can develop their full potential through postsecondary education and training if they so choose.

This 1985/1986 Health Resource Directory has been compiled to respond to questions about postsecondary education for people with disabilities. It is intended to provide a selection of resources touching the major areas of interest within this field. One section is specific to particular disabilities such as hearing impairment, mobility impairment, learning disability, visual impairment and others. Other sections focus on such subjects as architectural living and legal resources. Sections new to this edition include career preparation, technological devices, directories and a list of toll-free telephone resources that are described more fully elsewhere in the Directory.

Worker Trait Group Guide (McKnight Publishing Co., 1978, Appalachian Educational Laboratory) was designed as a basic reference for use in the Career Decision-Making Program. The Guide contains descriptive information about 12 broad areas and 66 groups of occupations. The 12 areas are related to the general work interests of people.

The 66 groups are divisions of the 12 areas and represent clusters of occupations requiring similar worker characteristics. Because of this, these groups are called Worker Trait Groups.

The Worker Trait Groups are based on the following types of worker qualifications:

1. Level (s) of general educational development
2. Amount of specific training and experience
3. Types of activities preferred by workers
4. Ability to adjust to different types of working conditions
5. Level (s) of aptitudes (ability to learn)
6. Physical capacities
7. Level (s) of complexity at which the worker is involved with data (working with information), people (working with people), and things (working with tools, machinery, or materials)

The Guide is designed to assist with career planning by:

1. providing a better understanding about the world of work
2. identifying Worker Trait Groups that relate to what the readers know about themselves, such as special interest and abilities, or the type of work they want to do
3. offering an opportunity to study and explore groups of occupations so the readers become familiar with the qualifications required and the training and experience needed
4. provide a means to learn more about specific occupations in interest areas
5. offering a source to learn about other occupations that may be similar to occupations that may interest the reader.

Career Information System Guide (Appalachia Educational Laboratory, Inc., McKnight Publishing Co.,) is designed to help in the use of other Career Information System materials. The Guide is divided into the following sections:

- Touring the Career Information System
- Worker Trait Group Digest
- Work Activity Descriptions
- Work Activity-Worker Trait Group Index
- Work Situation Descriptions
- Work Situation-Worker Trait Group Index

- School Subjects
- Aptitudes
- Aptitudes-Work Trait Group Index
- Work Trait Group Keysort Deck

Instructions.

The Career Information System Guide is designed to be used in conjunction with the Worker Trait Group Guide.

Military-Civilian Occupational Source Book (United States Military Enlistment Processing Command, 2nd. Edition, 1978) was created to serve as a single reference document for enlisted military occupational information, and, whenever possible, equates these occupations to their civilian counterparts as identified in the Dictionary of Occupational Titles. These occupations are also identified under the fifteen career clusters developed by the Department of Health, Education and Welfare.

The book was an effort to formulate composite job statements for the five military services in those occupational areas where commonality of job tasks existed. Those occupations that were unique to one or more of the military services and/or for which there was no identified counterpart in the civilian job market are also identified.

Summary: This chapter focused on published resources for vocational evaluation specialists. It is not all-inclusive. Publications described are those thought to be most useful in assisting evaluators and evaluees to make realistic vocational decisions. The government publications may be obtained by writing to the U.S. Government Printing Office. Other publications may be obtained from the publishers designated or ordered from a local bookstore. Evaluators may become acquainted with other occupational information resources available through public or college libraries.

CHAPTER VIII

INTERPRETATION OF VOCATIONAL EVALUATION DATA

Introduction: According to the standard dictionary, to interpret means to explain the meaning of, or to conceive in the light of individual belief, judgment or circumstances (Author, 1970). English and English (1958) indicate that interpretation involves describing, formulating, or reformulation something in familiar terms. A second definition is that of finding or explaining the meaning or significance of the raw data. The process takes varied forms. It may consist of observing or stating the surrounding circumstances or context that gives meaning to a datum, i.e., a child's scowling face interpreted as a response to a just-given rebuke. Or it may involve placing the datum in an intricate theoretical system, e.g., when a certain behavior is interpreted as expressing the Oedipus compiles, full understanding on this interpretation requires an understanding of the entire Freudian theory (English and English, 1958).

Interpretations made by vocational evaluation specialists may be clinical or mechanical/ statistical. Clinical interpretations are usually based on some theory dealing with human behavior. Clinical interpretation involves observing and inferring meaning or significance according to some set of some set of theoretical constructs. Mechanical interpretations are often referred to as "cook-book" interpretations. Mechanical interpretations become statistical interpretations when criterion groups have been established and appropriate probability levels have been set. With certain type of vocational evaluation data (such as work samples for psychometric test scores) mechanical/statistical interpretation appears to be most appropriate. While observational data can be quantified (by counting and/or timing) and handled statistically in general, this type of data lends itself more to clinical interpretation. Regardless of whether the data is interpretated in a mechanical/statistical or clinical manner, the final interpretation needs to be translated into vocational terminology.

Goldman (1961) has noted that in addition to being classified as mechanical or clinical, interpretations may also be: (1) descriptive, (2) genetic, (3) predictive, or (4) evaluative. They may also be further differentiated by specifying whether or not the interpretation is based on test or non-test data. He also noted that each of the four types of interpretations is defined in terms of the kind of questions asked.

The following examples illustrate the types of interpretations that might be made according to level and source of data:

Q. "Does John have an aptitude for mechanical work"?

A. "John performs well on mechanical assembly applicant norm" (descriptive, non-test, clinical).

"John has good aptitude for mechanical work. He scored within the top quartile on the Small Engine work sample using the Evaluation Center norms" (descriptive, test, mechanical).

Descriptive interpretations involve making inferences or hypotheses about the evaluee's current functioning. A referring counselor may have a question about how an evaluee reacts to supervision. A clinical interpretation at the descriptive level based on observational (non-test) data is illustrated as follows:

"Bob resents taking directions from his supervisor."

If there were a psychological test designed to measure attitudes toward supervisors, it would be possible to provide a similar interpretation at the descriptive level, using the test score to make a mechanical interpretation.

Genetic interpretations relate to questions as to how the individual got that way. For example:

"Has John's vocational interests provided any work related skills?"

Answer: "John's hobby of repairing clocks has helped him to develop good mechanical comprehension." (genetic, non-test, clinical). Or, "John received A's in his high school shop classes. This educational experience has helped him to develop a good comprehension of mechanical principles" (genetic, non-test, mechanical).

The evaluator may have questions about why Bob has difficulty in getting along with his supervisor. Interview data may reveal that he had a very strict father who set high unrealistic goals for him. Consequently, the evaluator makes the following interpretation:

"Bob inability to accept supervision results from attitudes developed toward his father who was an authoritarian who set unrealistic goals for his son" (genetic, non-test, clinical).

Predictive interpretations deal with future performance and adjustment:

"What are John's chances for success in an automotive training course?"

Answer: "John's performance on a number of work samples and psychometric tests, including the GATB, indicates that he meets the Occupational Aptitude Pattern of automotive trainee" (predictive, test, mechanical).

"What are Bob's chances for retraining employment if he is placed in a hospital laundry?"

Answer: "It depends on the gender and personality of the supervisor. He resents taking orders from men and would have adjustment problems if his supervisor were male but would function well under a supportive, female supervisor" (predictive, non-test, clinical).

Evaluative interpretation involves value judgment. It entails giving advice, suggesting courses of action, and making recommendations:

"What type of training situation would be best for John?"

Answer: "Due to past failure experiences in academic settings, John should be placed in an on-the-job training situation rather than taking the auto mechanic training at the vocational school" (evaluative, non-test, clinical).

"If a training program in practical nursing is recommended for Bob, what type of school would be best for him?"

Answer: "Due to his need for external control and his difficulty in relating to male authority figures, a vocational school is recommended" (evaluative, non-test, clinical).

As was noted earlier, the type of question asked determines the level of interpretation. However, many vocational evaluation questions can be answered both mechanically and clinically. Likewise, it is possible to make interpretations based on a combination of test and non-test data. For example, both observational data and work sample data may lead to the interpretation that:

"John has high potential for automotive training (predictive, test and non-test, mechanical, clinical).

Goldman (1961) points out that as one goes down the list from descriptive to evaluative; the interpretation is moving further away from the data. It should also be noted that each succeeding level of interpretation requires a high level of competency in order to achieve accurate interpretation. Vocational evaluators are required to interpret at all four levels but less

emphasis seems to be given to genetic interpretation. Since vocational evaluation is future oriented, the focus is usually on predictive and evaluative interpretation.

Mechanical Interpretation

Norms and Standards: In the use of work samples in vocational evaluation, performance scores are raw data that must be compared to some standard in order to be of value. If an evaluee can disassemble and assemble a small gasoline engine in one hour and ten minutes, had zero errors and expressed an interest in working in this area, this score may be interpreted after comparing it to some norm group. If the e valuator compares it to an evaluee norm group and finds that this score is at the 85^{th} percentile, the evaluator may conclude that seventy minutes is a pretty good performance rate. If the evaluator has administered the work sample to a group of trainees in the service department of a local snowmobile dealer and found that the average time was 65 minutes, the evaluator may interpret this to mean that the evaluee has a good chance for success, if the evaluee enters this training area.

There are several types of norms of standards used by vocational evaluator, i.e., evaluee norms, industrial worker norms, vocational trainee norms and entry-level job applicant norms. Time and motion studies and standard motion-time data are sometimes used as standards. There are advantages and disadvantages to each. Evaluee norms are easy to collect but performance levels are usually lower for evaluees than for industrial workers. Industrial norms are difficult to obtain and performance scores not only reflect aptitude but also many years of experience on the job. Vocational trainee norms may be very useful for predicting success in training but have questionable value if used for predicting job success after training. Time and motion studies can be useful for work samples that require assembly or packaging but may have a little value for work samples that measure much more than body movements.

Norm groups may be homogenous or heterogeneous according to some identifiable standard. For example, one evaluee norm group may be made up of mentally retarded individuals. While another evaluee norm group may contain people of varied disabilities. It may be noted that while a norm group might be homogeneous according to one characteristic it may be heterogeneous on other characteristics. For example, a high school drop-out norm group may range in I.Q. from 60 to 140. The high school drop-out with an I.Q. of 60 should not be compared to this norm group if the performance standard requires mental ability above this level. Rather the comparison should be with a norm group made up of mentally retarded individuals.

The type of norms used will depend to a large extent on the king of questions to be answered or the type of prediction to be made. If an evaluee is being considered for an occupational area that requires formal vocational training, a vocational trainee norm group would be more appropriate than either evaluee norms or industrial worker norms. However, if one wishes to predict an evaluee's ability to function in the sub-contract area of a rehabilitation facility, a norm group of clients currently working in that situation would be most appropriate.

Prior to considering other ways of making mechanical interpretations, it may be well to note that norms may consist of raw scores or the scores, i.e., percentiles, deciles, quartiles, standard deviation units, or standard scores. The raw scores may be a combination of quantity-quality scores. If scores from a number of work samples are to be combined to make a prediction (such as is done when using expectancy tables) there are advantages to converting the raw scores to standard scores.

Industrial Standards: If a work sample has been developed to predict performance on an actual job in industry (job sample) the industrial rate may be used as a substitute of industrial

norms. The industrial rate is based on time and motion studies of workers within an industry. It is the expected performance rate that must be approximated following the probationary period. In order to establish and industrial norm group, workers or job applicants within the industry would be administered to the job sample. Their performance scores would then serve as the criterion measure for later comparisons of evaluee performance. Industrial rates have been established for many production jobs in industry. In the automotive repair industry, flat rates have been established for specific tasks such as tire changing, engine tune-up, or replacing a fan belt. Vocational evaluation units having automotive work samples should obtain the latest flat-rate manual. For jobs requiring manual operations, the industrial rates are usually determined through time and motion studies. The time and motion studies take into consideration the fluctuations in work cycles and make allowances for some non-productive time as might occur when equipment breaks down.

Industrial standards provide reliable data about performance rates for specific jobs or closely related jobs within an industrial grouping. Through the use of learning curves derived by administering the work sample several times to the evaluee and extrapolating, an estimate may be made of the evaluee's potential to eventually achieving the industrial standard. Work performance is a function of training and experience. Therefore, vocational evaluators are cautioned not to automatically assume low evaluee potential when there is a difference between work sample scores and the industrial standards. For each evaluee, the vocational evaluator should make an estimate of performance improvement that might be gained through training and experience. Such factors as evaluee interest and motivation along with current performance should be considered in making this determination. The primary disadvantage in using industrial standards is that within an industry, the industrial rates may vary form one locale to the next. For example, the Ace Box Company may require typists to have a minimum typing speed of 55 works per minute while the Acme Box Company across town may require 85 words per minute. Differences in rate may be related differences in equipment or work methods. One company may use electric typewriter while the other may use electronic machines.

Trait and Factor Matching: The traditional vocational guidance approach involves assessing the attributes of individuals, determining the requirements of jobs, and recommending job possibilities in those areas where individual attributes match job requirements. To the extent that job requirements are known and attributes have been assessed objectively, the interpretations are mechanical rather than clinical. The job requirements may be obtained through job analysis, through industrial job descriptions, and by the use of the Dictionary of Occupational Titles (D.O.T.). Performance scores on work samples and psychometric tests provide the major objective data in evaluee attributes. Other objective data frequently used would include age, medical reports, years of schooling, special training and work experience.

The most obvious advantage of mechanical interpretation is that the matching requires little independent judgment. A skilled clerk would be just as able to make these interpretations as would a skilled vocational evaluator (Meehl, 1954). Goldman (1961) suggests that the mechanical methods seem to organize efficiently the relationship that exists between test and other data on the one hand and the criteria for success on the other. He also notes that mechanical methods tell how much weight should be assigned to each valid predictor. In vocational evaluation there is a need to use both objective and subjective data. There are a minimal number of work samples or psychometric tests that will assess the interpersonal relationship factor as it relates to job requirements. Therefore, we rely on situational assessment data that requires clinical interpretation.

Clinical Interpretation: The clinical interpretation of vocational evaluation data can be described as an inductive-deductive process for assigning meaning to the raw data. The vocational evaluator observes, makes inferences about the meaning of observational data and then attempts to validate these inferences with additional data. For example, the vocational evaluator may observe that the evlauee seems to both enjoy and perform well on work sample tasks that are repetitive in nature. The vocational evaluator infers that the evaluee has the temperament for repetitive work. With the knowledge that the Dictionary of Occupational Titles defines temperaments, the vocational evaluator checks his inference against the D.O.T.'s definition of this temperament and verifies his inference. In certain respects clinical interpretation is nor too different from mechanical interpretation. If a floor supervisor in a production speed is too slow to qualify for a similar job in industry, the supervisor is using experiential norms. These subjective norms are based on either his experience in industry or on his knowledge of other evaluees who have failed or succeeded in this type of work. In a similar manner, the vocational evaluator who infers that an evaluee does not have the personality traits necessary for sales work is using subjective norms based on his previous experience and knowledge about job requirements.

The Vocational Expert: The vocational evaluation specialist is required to be a vocational expert. The evaluator must have a comprehensive knowledge about the requirements of jobs. This knowledge may be gained in a variety of ways, i.e., job analysis, Dictionary of Occupational Titles, job surveys, computerized job matching systems, and those publications providing current occupational information. The evaluator needs occupational information. The evaluator needs to be knowledgeable about the handicapping conditions of disabilities. The evaluator must be able to interpret, integrate, and synthesize data in order to maximize the vocational opportunities of the evaluee. Since all data are not of equal value, the evaluator must be capable of assigning the proper weight to each bit of information. Sometimes the evaluator must make good decisions with minimal data. Finally, the evaluator must be able to communicate the results of the evaluation to others in a clear and concise manner.

The vocational evaluation specialist has good tools but they are not perfect tools. In interpreting the results of work samples and psychometric tests, the evaluator must take this into account. The relationship between work sample or test performance and future work performance can only be an estimate and not a certainty. Therefore, the evaluator must know how to select and use those tools that will answer the evaluation questions. This is the necessary first step. The next step involves translating test work sample data into vocational building blocks. Building blocks that fit together make for a firm structure. If the blocks do no fit together very well, the structure may be flimsy and later collapse.

At this point it might be worthwhile to look at some examples of the types of interpretations vocational evaluation specialists are required to make. An evaluee has expressed an interest in getting a job doing alternations on suits and coats. She has prior experience using power sewing equipment. She had worked for a company that made tents and other camping equipment. She left this job when she developed mild arthritis in her hands and it was painful to manipulate the heavy canvas used in making tents. The first interpretation the evaluator must make has to do with the transfer of work skills. The evaluator knows that individuals who do clothing alternations do both hand sewing and power machine sewing. The evaluator also knows that alterations work requires more precise sewing techniques than were required in the evaluee's former job. Another question that might arise is whether or not this evaluee has a disability that

is progressive. While this is a medical concern, the evaluator still may need to interpret the physician's opinion on this question.

Many of the "nitty gritty" problems of interpretation have to do with work related behaviors and with the demands of competitive employment. Such questions as: "Can the evaluee handle the stress of meeting production quotas?" "Will and evaluee are able to learn to use public transportation so she may get back and forth to the job each day?" "Will the evaluee's poor self-image and self-depreciating remarks prevent her from being considered for jobs for which she is otherwise qualified?" These and other work related problems require clinical interpretation.

When vocational evaluators and other professionals make interpretations about behavior, they are usually based on some theoretical assumptions concerning personality and/.or human behavior. The theory may be ill-defined or scientifically elaborate. A professional who believes that certain types of behaviors are caused by genetic predisposition will make different interpretations about behavior than another professional who believes that all behavior is learned. If a behavior is assumed to be inherent, the assumption follows that it cannot be changed. But if the behavior is learned, it can always be unlearned or extinguished.

Learning Theory Approach: Vocational evaluators who would use the learning theory in interpretating behavior would do so at the descriptive level. In making inferences or hypotheses about the evaluee's behavior or even labeling behavior, they are operating under some theoretical constructs. Basic to the learning theory is that behavior is learned and maintained because the behavior is reinforced. Rather than acknowledging internal causes of behavior, the learning theorist is concerned with the tenure of the behavior, baselines, and the rein forcers of the behavior. If an evaluee has behaviors that inhibit work performance, the evaluator will chart the frequency, determine contingencies and rein forcers and develop a plan for extinguishing them through the application of behavior modification or other learning theory techniques.

Trait and Factor Approach: The vocational evaluator who follows this approach will be concerned about the measurable traits and attributes possessed by the evaluee. Focus abilities, personality traits and achievement matched against the factors required for success in specific jobs or occupations using mechanical interpretation.

Psychoanalytic Approach: According to psychoanalytic theory, vocational choice results from unconscious motivation to gratify sublimated wishes and impulses (Osipow, 1968). A number of theorists and researchers have attempted to demonstrate the applicability of psychoanalytical theory to career choice. For example, Brill (1949) suggests that sadistic impulses may be gratified in such occupations as butcher or surgeon. Bordin, Nachmann, and Segal (1963) attempted to show the relationship between certain psychic dimensions and the potential for gratification within the work areas of accounting, social work and plumbing. In an earlier study by Segal (1961), he researched the relationship between personality development and the career choice of creative writing and accounting. White (1963) tested and verified the psychoanalytic based idea that bank clerks are compulsive. Using the psychoanalytic framework, Nachmann (1960) assessed the personality differences of lawyers, social workers and dentists. The attitude toward aggressive behavior was one factor that was able to differentiate the three occupational groups.

Despite the fact that the research findings in this area are far from conclusive, there is some evidence to suggest that psychoanalytic theory has some application to vocational choice. Interpretations that are psychoanalytically based will be primarily at the genetic level. Concern is with the early developmental factors that determine current functioning. Behavioral data is used

to identify the dynamics (needs, drives, motives) of the evaluee's personality functioning. Focus will be on such interpretive factors as: ego strength, stability of ego defenses, fixations at prudential levels of personality development, contact with reality, the degree to which the evaluee's symptoms interfere with work activity, whether the evaluee's psychic energy is sufficient to sustain normal work activities, and relating personality characteristics to the personality prerequisites of occupations.

One of the most legitimate criticisms of the psychoanalytic approach is that it neglects the role of aptitudes as they relate to work performance and adjustment (Osipow, 1968). It would appear that psychoanalytic interpretations are of more value in understanding the evaluee and determining genetic development factors than in predicting considerable research in determining the prerequisite personality traits for a few select occupations, little is known about the personality determines for most entry-level jobs in industry.

Vocational Development Theory: There are a number of vocational development theories that could provide the basis for interpreting vocational evaluation data. In this section a brief overview will be presented of two of these developmental theories.

Ginsberg, et al., (1951) are credited with formulating the first comprehensive developmental theory of career choice. The theory states that vocational choice is an irreversible process characterized by a series of compromises the person makes between his wishes and his possibilities (Osipow, 1968). The process is divided into three major stages that are further divided into a number of sub stages:

I. Fantasy Period
II. Tentative Period
    A. Interest
    B. Capacity
    C. Value
    D. Transition
III. Realistic Period
    A. Exploration
    B. Crystallization
    C. Specification

According to Ginsberg et al., (1951), children are able to state clear vocational preferences by age 4 and 5. However, the choices made during the fantasy period lack the reality orientation of preferences in the later two periods. By the time children reach 11 and 12, most have entered the interest stage of the tentative period. Adolescents pass from the tentative period into the realistic period at about age 18 and for the most part have processed through to the specification stage by age 22.

Of special significance are the conclusions of Ginsberg and his associates about deviant vocational patterns. They concluded that four important ingredients contributed to the adequacy of a person's occupational choice during adolescence: (1) reality testing, (2) development of a suitable time perspective, (3) the ability to defer gratification, and (4) the ability to accept and implement compromises in his or her vocational plans. They further concluded that there is a definite relationship between emotional stability and vocational deviancy.

In developing his "Developmental Self-Concept" theory of vocational development, Super (1957) follows Buehler's life stages, i.e., growth stage, birth to age 14; exploratory stage, 15-25 years of age; and the maintenance stage extending up to age 65 (Osipow, 1968). In addition, Super's theory incorporates many concepts form differential psychology, self-concept

theory, and the psychology of occupations. He later expanded Buelher's life stages to include and establishment stages and a decline stage. The exploratory stage was further divided into fanatasy, tentative, and realistic phases. The establishment stage includes a trial and a stable phase. Super and his associates have been able to identify a number of specific career patterns: (1) stable, (2) conventional, (3) unstable, and (4) multiple trails.

Of special significance is Super's conceptualization of vocational developmental tasks that are associated with specific attitudes and behaviors during the specific stages. Mastering these developmental tasks is essential to progress to the higher stages.

Individuals referred to rehabilitation facilities often have a problems related to inadequate vocational development. Interpretations following these theoretical models will deal primarily with the evaluee's developmental level and the developmental experiences necessary for promotion mature vocational development theory have pragmatic value in that they both note the vocational deficiencies and suggest remedial action to deal with these deficiencies.

Work Adjustment Theory: While there are a number of work adjustment theories, the most well developed is one by Lofquist and Dawis (1969). This theory is concerned with the satisfactoriness of the employee's work behavior as determined by the quality and quantity of task performance and/or other performance outcomes and concurrently with the satisfactions derived by the employee from the work environment and the extent to which the work environment contains rein forcers that fulfill the worker's vocational needs. Satisfactoriness is dependent on the correspondence between the employee's abilities and the requirements of the job. Satisfaction is dependent on the correspondence of the needs of the employee and the reinforcer system inherent in the work environment. The employee's work adjustment at any point in time is defined by his concurrent levels of satisfactoriness and satisfaction. Work adjustment theory incorporates the concept of the work personality. This theory is closely related to Trait and Factor personality theory, learning theory and dynamic personality theory. An instrument that appears that appears feasible for estimating worker needs is the Minnesota Interests Questionnaire. The General Aptitude Test Battery would be useful in estimation worker abilities. Interpretation using this theory would focus on the abilities and needs of the evaluee and on the job requirements and job reinforcers. While the interpretation may relate to any one of these specific factors, the vocational evaluator should consider all four factors prior to making vocational decisions and recommendations.

Sociology-of-Work Theories: Of the numerous theories associated with the sociology of work, the career decision model can be used to illustrate how this type of theory would generate certain types of interpretations. Hilton (1952) refers to this theoretical model as the "Social Structure Model." It assumes that vocational careers are determined by the structure of the social system in which people live and by the accident of their birth. The theory emphasized the mobility provided and the limits imposed by the social structure. The sociologist assumes that given certain pathways, alternations, or careers, the probability of certain outcomes are very high, so high in fact that they can be regarded as certainties. Research has shown that many children do follow in their parents' footsteps, i.e., the successful doctor is usually the son or daughter of a successful doctor and the same can be said about successful farmers (Caplow, 1954). Generally, the results of studies comparing occupations, or occupational levels of fathers and sons, show that children often follow careers that resemble those of their fathers but have the possibility of some upward mobility (Hollingshead, 1949; Miller and Form, 1951; Clark, 1967).

The vocational evaluator who uses sociological theory to make interpretations will be sensitive to sociometric data, the rules of the game, and the power of social pressures. The

evaluator will be aware that most people gain the most job satisfaction in occupations that are on the same level as family or friends. However, the evaluator will also be sensitive to the upward striving in American society and the effect education has on upward mobility. Finally, the evaluator will be cognizant of the power of advocacy to assist the process of increasing work opportunities for rehabilitation clients.

Lay or Folk Lore Interpretation: Lay interpretation could also be referred to as non-theoretical interpretation. Often this type of interpretation is base on stereotype thinking and is strongly influenced by the values system of the interpreter. At other times these interpretations are based on the gut-level intuition of sensitive but unsophisticated lay people. Unfortunately, well-educated professionals are often also conscious or unconscious bias to color their thinking. As an example, Gilberts (1984) did a study to determine if the gender of the evaluee would influence the recommendations made by the evaluator. The subjects were graduate students training to be vocational evaluators and employed vocational evaluators. Evaluation data was presented to these subjects and they were asked to make vocational recommendations. The results showed that the recommendations were totally different if the evaluee data was labeled "female" or "male." The subjects would recommend traditionally male jobs for men and traditionally female occupations for women. The naïve reader might wonder if this is necessarily wrong. It is, because traditional jobs for women pay less than 60 percent of what men earn in their traditional occupations. The Wisconsin Women's Initiative Study (1985) compared male and female clients on a variety of factors. These DVR clients were all closed status 26 (employed). The most significant outcome of this study was that female clients were earning only about 56 percent of their male counterparts. If the goal of vocational rehabilitation is to rehabilitate clients to their optimal level then all occupations need to be considered when evaluation individuals and when placing them in competitive employment.

Utility in Interpreting Vocational Evaluation Data: When interpreting vocational evaluation data (whether or not the interpretation is based on gut-level feelings or sophisticated theory) the utility of these interpretations depends on both their empirical verification and their applicability to real work situations. If an evaluee's percentile rating on a test of finger dexterity is interpreted as being excellent, it must also be further interpreted in terms of jobs requiring this trait. In interpreting vocational evaluation data there are two major concerns. The initial concern is with the accuracy of the interpretation. The accuracy of the interpretation is totally dependent on the sensitivity and skill level of the evaluator. The evaluator needs to be sensitive to behaviors manifested by the evaluee, sensitive to the situational context, and skillful in relating these behaviors to the criteria of work performance and work adjustment. The accuracy of interpretation can be validated in a number of ways, i.e., checking against other observational data, test/work sample data, interviews, and through follow-up studies after evaluation. The second concern is with the usefulness and relevancy of the interpretation. Interpretations that relate to current and future work performance and adjustment. The accuracy of interpretation can be validated in a number of ways, i.e., checking against other observational data, test/work sample data, interviews, and through follow-up studies after evaluation. The relevancy of the interpretation. Interpretations that relate to current and future work performance and adjustment are the most relevant. Interpretations that are abstract, ambiguous, or relate to aspects of the evaluee's non-work life are the least relevant.

Summary: The focus of this chapter was on the interpretation of vocational evaluation data. It was noted that objective, quantifiable data lends itself more to mechanical interpretation. On the other hand, behavioral data is usually interpreted in a clinical manner. In vocational

evaluation, interpretation may be made on several levels. It may be interpreted at the descriptive genetic, predictive, or evaluative levels. In considering mechanical/statistical interpretation, the types of norms and standards appropriate to vocational evaluation were discussed. It was noted that the trait and factor approach was the traditional vocational guidance interpretive method. Some of the advantages and disadvantages of mechanical interpretation were noted. Observational data lends itself more to clinical interpretation and interpretation is based on some theoretical model. The vocational development theories and the work adjustment theory may be especially useful to vocational evaluators. Under the category of lay interpretation, research was cited to show that even vocational evaluators and rehabilitation counselors can allow bias to influence their interpretations. Finally, it was stressed that interpretations must be relevant and useful of they have little value in vocational evaluation.

CHAPTER IX

VOCATIONAL EVALUATION REPORTS

A vocational evaluation report is a systematic way of communicating the results of an evaluee's performance and related data to another professional. The other professional is usually the referring agent or rehabilitation counselor. There is a need to communicate this information in a clear, concise manner. While there is not a standardized format for vocational evaluation reports, there are at least three general formats, i.e., long narrative report, short narrative report and check-list with narrative comments. Long narrative reports are useful in helping beginning vocational evaluation specialists develop their writing skills but most referral agents prefer shorter reports. Once a vocational evaluation specialist has gained sufficient experience in writing reports, the length of the report will diminish to the point where only essential information is communicated. The check-list with short narrative comments is usually written for in-house purposes where the referring person is employed by the same organization. However, the type and general format of a vocational evaluation report may be dictated by the rules of the work setting. One might expect that a report written for an insurance carrier on an industrially injured worker might differ somewhat from a report written within a school setting. In this chapter consideration will be five to the general format and content of the vocational evaluation report followed by a discussion of some principles of report writing.

It is not uncommon for reports to begin with information identifying the evaluee. The date of report, name, address, and social security number of the evaluee would probably be the minimum amount of identification data provided in this section of the report. The evaluee's phone number, date of referral, referring agency or person, evaluee's disability and/or problem, and the name, address and phone number of the vocational evaluation specialist could also be included in this section of the report.

Background Information: In this section of the report, the vocational evaluator should summarize the relevant information obtained from the referral data, interviews with the other sources. The type of information would include education and work history, specialized training, nature and extent of disability, referral questions and/or problems. Information about the evaluee's family situation or living arrangements may be included in this section if relevant to future vocational plans.

Evaluation Results: There are a number of possible ways the evaluation results can be presented. One method is to divide the section into subsections such as Interest and Achievement, Intellectual Functioning, Physical Capacitates and Vocational, and enumerate the results under each subsection. Another method is to take the evaluation questions or hypotheses and critical factors stated in the evaluation plan and relate these to the requirements of specific jobs or occupational areas using the evaluation results to answer questions of validate hypotheses. Still another method is to report only the evaluation results that are supportive of the vocational evaluator's recommendations and answer the referral question(s) and report the other evaluation data in the appendix of the report. Regardless of the manner in which the evaluation results are reported, they should be stated in clear, concise terms with the vocational implication specified. If the vocational evaluator has used a computer job matching system to obtain a list of jobs for which the evaluee may qualify, only those jobs that are available in the community and/or for which training is available locally should be recommended. Also, since some

computer job matching systems provide job matches with limited input of data, other evaluation data should substantiate the job matches or they should not be recommended. Observational data as well as data obtained from work samples, psychometric tests, and physical capacities evaluation should be reported in this section. It the evaluee has had the opportunity to be evaluated in industrial job sites, performance data should be compared to that of regular employees performing the same job. The observations of the industrial job site supervisor are also relevant and should be included in this section.

Summary and Recommendations: In this section the vocational evaluator should state the explicit recommendations and provide a good rationale based on the evaluation results. The recommendations may include both short and long term objectives. It the recommendations are for formal training, a listing of schools providing this type of training should be noted in this section and the list, if lengthy, included in the appendix. If the recommendations are for direct job placement or on-the-job training, examples of possible employers could be noted here. If remedial training, work adjustment services or other professional services would enhance the evaluee's vocational objectives, this recommendation should be reported along with a rationale.

In summarizing the evaluation findings, it is appropriate to relate the results in terms of the evaluee's strengths and limitations. Insights acquired by the vocational evaluator during the evaluation period that are relevant to the evaluee's current or future vocational functioning may be included in this section even though not noted elsewhere in the report.

Appendix: The evaluation report should include an appendix only if absolutely necessary. Some referring agents like to receive the scores on all evaluation instruments even if they are not relevant to the evaluee's vocational objectives and/or the vocational evaluator's recommendations. Other types of data that could be included in the appendix are a listing of the job matches obtained using a computer job matching system, names and addresses of companies providing job site evaluation, lists of training schools, lists of potential employers, and evaluation observation records.

The following is an example of a vocational evaluation narrative report:

Vocational Evaluation Report

Eva Evaluee
Date: July 21, 1985
SS#: 245-34-1123
Address: 2178 Main Street, Podunk, NE
Referral by: Carl Counselor

I. Referral Reason:

Eva Evaluee, a 39-year-old female, was referred to the Evaluation Center by Carl Counselor, Division of Vocational Rehabilitation. No specific referral question were asked so the evaluation focused on possible employment opportunities and training programs. The referral information indicated that the evaluee had a knee injury and rheumatoid arthritis.

II. General Description:

Initial Impressions were those of a heavy set, enthusiastic woman who appeared her stated age of 39 years. During the initial interview she seemed very comfortable and willing to give any requested information. She said that she was interested in secretarial training. She indicated that she thought she would like to be a legal or medical secretary and that she would also like to learn word processing. Her vocational activities were sewing and singing in the church choir.

Eva completed the twelfth grade and graduated from Podunk High School in June, 1964. She also ad training as a nurse's Aid and as an emergency medical technician while attending high school. She expressed an interest in attending the vocational/technical school and getting an associate degree in secretarial science.

Past work experience included jobs as nurse's aid, bartender, owner of a campground, veterinarian assistant, and hostess/waitress. Reasons given for leaving previous jobs were relocation or an opportunity to get a better job. She said that she terminated the nurse's aid job when she received a knee injury while driving the ambulance. She reported that she had undergone several surgeries on her knee and later developed rheumatoid arthritis. At the time of the evaluation, Eva was residing in Podunk, Nebraska but indicated she would be willing to relocate if the secretarial training were a possibility.

III. Evaluation Outcome:

Assessment of vocational potential included evaluation of entry-level jobs and other fundamental tasks. Evaluation techniques included work samples, specially adapted activities and psychometrics. Evaluation Center Norms were used unless otherwise noted.

Ability to coordinate eyes, hands and foot were demonstrated on the Valpar Mesa IV. Other physical capacity assessment tasks included the Whole Body Range Of Motion and the Upper Extremity Range Of Motion. Eva was able to work for a period of 3 minutes and 30 seconds before requesting to stop due to stabling pains in both shoulders. At the completion of the Upper Extremity Range Of Motion a "pulling in the shoulder" was also indicated. However, she did say that the pulling feeling was not due to the work sample. These physical observations along with noticeable limping and reported tiredness after the evaluation day led to the question of whether Eva would be able to complete an 8-hour work day.

Work samples in the Machine Trades occupational area included Mechanical Assembly in which the ability to follow a pattern and correctly assemble a unit was required. Good attention to details along with bi-manual coordination were demonstrated.

An above average work pace and quality were demonstrated on bench work tasks. Color discrimination and the ability to follow a schematic patter were indicated by the score. A complete system was used to chart work speed and quality on a six-step assembly task where she achieved a score of 88.87 percent using the industrial norms.

Because of her expressed interest and reported need for freedom of movement, many work samples in the clerical area were administed. These tasks included Record Keeping, Accounting, Ward Clerk, Mail Sorting, Proofreading, Filing and a special typing project. Good work pace and average to above average quality were consistently noted. However, below average work speed was observed when Eva was required to correct an error. Close attention to detail, ability to work independently and concern for quality were demonstrated throughout the evaluation.

After an orientation to the computer, Eva was able to follow the written instructions from the computer screen. This was followed by a word processing task in which she attempted to move and delete words or paragraphs. Though she stated that she liked operating the computer she later mentioned that it could get boring if that was all one had to do.

The Wide Range Achievement Test (WRAT) showed a grade equivalency of 11.5 in reading, 10.7 in spelling and 6.6 in arithmetic. Although Eva could benefit from remedial work in the arithmetic area, she generally has a good foundation for an academic program. It was interesting to note that although her arithmetic performance was low, she has average potential to improve based on the results of the General Aptitude Test Battery (GATB). When compared

with other technical training students in Arithmetic Computation, she ranked only at the 25th percentile on the Adult Basic Learning Exam (ABLE III, B). This again suggested that "brush-up" in basic arithmetic was needed.

The interest profile on the California Occupational Preference Survey (COPS,A) revealed high scores on the Business Professional, Clerical, Communication, and Science Professional scales. These results were consistent with her expressed interests.

During the evaluation, Eva approached all work tasks and discussions in a positive manner. She stated that she had been thinking about things for a long time and really wanted to do something. She realized also that when; if possible, she returned to fulltime work that she would lose her Social Security Disability Income. She appeared motivated and got along will with other evaluees and staff throughout the evaluation.

Vocational Assets Include:

Attendance
Punctuality
Attempts all assigned tasks
Show concern for quality
Has driver's license
Willing to relocate
Attention to detail
Ability to meet industrial norms (87.87 percent) on assembly tasks
Ability to follow written and oral instructions
Ability to work independently
Realistic vocational goals
Better than average frustration tolerance
Achievement/Aptitude results (except arithmetic)
Motivation

Vocational Limitations

Knee Injury
Rheumatoid Arthritis
Currently classified as severely disabled

The percent classification of severely disabled is seen as a special consideration to the following recommendations. Eva may also need a release to work. All recommendations will depend on the physician's medical results.

Immediate Recommendations:

1. Referral for Physical Assessment

Rationale: Due to the lack of medical information at the time of the evaluation a Physical Capacities Evaluation is need to provide more information regarding Eva's physical status.

Services Needed: Contact physician

2. Employment Readiness Training

Rationale: This training would provide instructions in resume development, interviewing skills and job search strategy. This would be useful for immediate placement of if possible, at the completion of a training program.

3. Job Employment Training –JET or OHT site

Rationale: Since Eva has not worked for approximately 3 years there is a question as to her maintaining work tolerance for an 8-hour day. A JET or OJT in the clerical are would provide more information on this issue as will as providing a more recent work reference.

Services Needed: Contact JET representative.

4. Further career Exploration and remedial work in the arithmetic are through Goal Oriented Adult Learning.

Rationale: Testes and expressed interest along with achievement and aptitude results (except arithmetic) suggested this as a possibility. Further exploration into short term (1-2 year) programs in the clerical area along with brush-up in the arithmetical area is needed before a final choice is made.

Service Needed: Contact CITI student service and advisement, registration and financial aids office.

Long Term Recommendations:

1. Full- time employment

Bookkeeper (clerical) (210.382-018)
Secretary (clerical) (201.362-030)
Receptionist (clerical) (237.367-038)
File Clerk (clerical) (206.362-010)

Rationale: Pending physician evaluation recommendations and results of JET-OJT site, placement in the above clerical areas may be a possibility. Clerical areas would accommodate Eva's reported need for light work and a situation that allows freedom of movement. Other clerical jobs could also be considered.

Services Needed: Contact Projects with Industry or Job Service.

2. Pursue short-term school program.

Secretarial Science
Legal Secretary
Medical Secretary
Ward Clerk
Word Processing

Rationale: Following brush-up in arithmetic and career exploration, this type of training is a possibility. Achievement and aptitude results along with transferable skills and demonstrated skill support this as a feasible option.

Service Needed: Contact CITI or other school advisement.

3. Homecraft Program

Rationale: Pending results from physician and JET/OJT, Homecraft may be an option. Eva reported that she possessed sewing and crocheting skills.

Services Needed: Arrange Homcraft evaluation

<u>Principles of Report Writing:</u> There are some general principles of report writing that should be followed regardless of the report format or content:

1. Information should be presented in a logical manner.
2. Information is most easily understood by the reader if the language is concrete, unambiguous, and devoid of jargon.
3. The report should communicate facts of data that answer questions about the evaluee and her vocational functioning. Irrelevant information should be omitted.
4. Since the vocational evaluation report is a permanent record it should be totally accurate.
5. The report should be totally objective and not written in a manner that reflects the vocational evaluator's values or biases.

6. Reports should be economical, only long enough to communicate essential information.
7. Reports should be written in positive terms emphasizing the evaluee's strengths even though noting limitations.
8. Evaluation reports should be carefully proofread by the evaluator. Typing mistakes can result in erroneous information.

CHAPTER X

COMPTER TECHNLOGY IN VOCATIONAL EVALUATION

The 1970s gave birth to the microcomputer, also know as a personal computer, a family computer and a desktop computer. While computers are essentially a post World War II development, it was not until the invention of the silicon microchip, integrated circuit board and miniaturization that the microcomputer became feasible. Prior to the development of the microcomputer, only the government and large industries could afford the large main frame computers. In the 1980s, the microcomputers is commonplace. Most rehabilitation facilities have one or more and they are used in a variety or ways. There are several dozen companies that manufacture microcomputers in this country and Japan's companies are also exporting to us its respective brands.

According to a 1983 survey of computer use in rehabilitation facilities, Apples and IBM-PCs are the models used the most (McGray 1985). In rehabilitation facilities, the common practice is to purchase microcomputers for administrative use such as fiscal management and the storage and retrieval of information (Data Base Management). Later, and sometimes much later, microcomputers are purchased to be used for providing client services.

When microcomputers are introduced into vocational evaluation units, it becomes necessary for vocational evaluators to become computer literate. There are a number of definitions for computer literacy and sometimes they are contradictory. However, most definitions include the idea that the ability to use microcomputers, peripheral hardware and commercial software applications programs are necessary components of computer literacy. The ability to evaluate commercial software programs in relation to the needs of clients and the user's own needs would be a second prerequisite.

Professionals who are people oriented frequently are resistant to learning how to use microcomputers. There are probably some good reasons for this resistance but there are also a lot of rationalizations that are offered. However, once the initial resistance is overcome and these professionals begin using microcomputers, they frequently are the most ardent advocates. Spence (1984) proposes that the use of microcomputers will decrease burn-out of professionals by allowing them more time to work with clients and by allowing the computer to handle most of the "paper-work". The author discusses six custom software packages designed for workshop use. She noted that most pre-packaged software is designed for users with minimum knowledge of computer language and computer experience.

The microcomputer is a useful tool and, like most tools and, like most tools that are used correctly, makes job easier to perform. Microcomputers perform routine and repetitive task without complaint, manipulate works and numbers rapidly and extend the capabilities of the

user. If used appropriately, microcomputers can free up vocational evaluators from the routine aspects of their jobs so more time can be spent in the creative and more rewarding tasks for which they have been trained.

APPLICATIONS IN VOCATIONAL EVALUATION

Computer Assisted Vocational Evaluation

(CAVE): Valpar Mesa Part IV is a software/firmative program used with Apple II and Atari microcomputers. The exercises are self-administering, self-scoring and require only minimal instructions from the evaluator. The program does not require the use of the computer keyboard but rather uses a control stick to answer questions or move images on the video screen. The microcomputer exercises include:

1. Basic academic skill: reading, math, spelling
2. Visual acuity and comparison of size, shape, and color
3. Recognition and retention
4. Visual and motor control
5. Auditory recall and perception
6. Thinking skills

Microcomputer Administered Work Samples: In contrast to work samples that are self-contained within the computer program, microcomputer administered work samples use a computer program in place of an evaluee manual. These work samples provide a hands-on simulation of an actual part of a job performed in some career area. Each task is broken down into the steps that are required to perform the task. A graphic picture is presented along with printed instructions. The Physical work sample will include the actual tools, equipment and expendable materials and an administrator's manual. A microcomputer, monitor and at least one disk drive are required. The type of microcomputer and memory required to run the software will vary within the system. Some systems use a cassette recorder as a substitute for the printed instructions in order to accommodate non-readers. A cassette control device synchronized the recording the graphic display.

The microcomputer administered work samples may have some advantages over a printed evaluee manual. There is a saving of vocational evaluator time and the evaluee interaction, which the microcomputer is usually reinforcing. Other reinforcements such as sound and color may be built into the computer program. However, if the system costs several hundred dollars for each work sample, it may not be cost effective.

It is expected that other work sample system developers will be marketing microcomputer software or firmative and that these programs will provide computer assisted evaluation specialists with a flair for samples to meet their own needs and the needs of their evaluees.

The types of evaluee attributes that readily lend themselves to computer assisted evaluation (CAVE) are those that in the past have been assessed by isolated trait work samples, e.g., perceptual abilities, coordination, cognitive abilities, etc. However, the greatest advantage of CAVE may be for those programs that simulate work environments. Work environments that involve expensive or potentially dangerous equipment or processes could be simulated for a small part of the cost of purchasing this equipment. This type of CAVE could involve interactive videos. Interactive video uses a microcomputer to control the video program either through the keyboard of by the use of a hand-held device. A simple example of how this type of CAVE program using interactive video might work is as follows:

The operation of a job is video taped. Using job analysis techniques, the job is broken down into the key tasks. A computer program would then be developed to provide detailed instructions for performing each task and would include information on the use tools, equipment or machines and the material used in the task performance. Following a video presentation of a task being performed, the computer program would provide a simulation of that task and the evaluee, using the control device, would manipulate the tools and equipment and perform the simulated task. When the task is performed correctly, a performance or time score would be recorded in the program memory and the evaluee would proceed to the next task. With the evaluee controlling the interactive program, the video presentation of the task could be repeated until each step required for task performance was understood and performed. If mistakes are made in the simulation, the task simulation could be repeated until done correctly. The task performance evaluation could be the time score of a score related to the number of trials required for task mastery. Even though the process for developing this type of CAVE interactive video program is complicated and requires sophisticated programming skills, it would provide a work sample that would require a minimum of evaluator time to use. The cost of employing a computer programmer to develop the program could offset by the marketing of the software program and video tape of disk to other rehabilitation facilities.

Performance Learning Evaluation: One of the more serious criticisms of work sample evaluation has been that they consistently underestimate the performance potential of evaluees when they are being compared to industrial norms or norms based on methods-time-measurement. Work samples are usually administered to an evaluee once. However, there is considerable learning that takes place if the work sample is administered a number of times. The effect of practice will usually increase performance. The number of trials required for performance to equal the industrial standard varies both for the individual evaluee and the specific task.

The UW-Stout Research and Training Center has developed a microcomputer program for learning/performance analysis. The software program incorporates three concepts; learning curve analysis, feedback and pacing of performance. The recording of the time it takes for an evaluee to complete each repetition of the task is required. The computer provides the timer but the task must include a switch to stop the start the timer. When the task is interfaced with the computer, the software program can be utilized. While prediction of future performance can be made based on any number of trails, the best of 20 methods is recommended. The performance analyzer program can be utilized with any developed task. The software program was developed for the Commodore 64 with disk drive but may become available for other types of microcomputers in the future (McCray and Blakmore, 1985).

Word Processing: There are many microcomputer word processing programs available at the present time. Some are highly sophisticated and quite expensive. Others are simple and inexpensive. The more sophisticated programs may have manuals that provide several hundred pages of instruction. The simple word processor manuals tell you all you need to know in a dozen or so pages. Most of the programs allow the user to edit documents in a variety of ways, to justify margins, to center section titles, indent lines or paragraphs, save and retrieve documents on disks and print documents. The more sophisticated programs may provide for changing print styles, underlining words, moving words, lines or paragraphs from one part to another part of a document, handle mailing lists, etc. Word processing is a boon to vocational evaluators who are required to write numerous vocational evaluation reports.

It is not uncommon for vocational evaluation units to use a standard format for their evaluation reports. Word processing programs allow for the storage of the standard format. When retrieved into computer memory, it is only necessary to enter the specific data about the evaluee for whom a report is being prepared. Editorial changes can be made prior to the printing of the report. Word processing conserves the time of both the vocational evaluator and the secretary.

Data Base Management: Vocational evaluators generate a great deal of information about their evaluees. Referral sources usually provide demographic data about the evaluee such as name, address, phone number, age, date-of-birth, social security number, type and extent of disability and the reason for referral. The referral source might also provide information about the evaluee's education, special vocational preparation and work experience. If not this data would be obtained by the vocational evaluator during the intake interview. Additional information would be gained when interviewing the evaluee, such as expressed vocational interests, family make-up, living leisure time, job seeking and job holding skills, perceived limitations related to the disability, motivation for evaluation and acceptance of the disability. During the evaluation process, considerable data about the evaluee's assets and limitations is generated in the form of scores from psychometric tests and work samples, behavioral observations and incidental data derived from other people having contact with the evaluee. Following the accumulation of the data, it is integrated, synthesized, and communicated to others through staff conferences and vocational evaluation reports and subsequently stored in case folders.

Using one of the many computerized data base management (DBM) systems, all the evaluee data can be stored on computer disk and manipulated for a variety of purposes. DBM systems used in combination with work processing programs can be used to generate vocational evaluation reports. Rehabilitation facilities and other service organizations are usually required to submit various types of statistical reports. If the type of data requested is located in hundreds of case folders, an unnecessary amount of clerical time is required to retrieve the data. If on computer disk, the data can be retrieved on minutes and printed out in the format used by the requestors. In addition to storing huge amounts of evaluee data, the DEM systems allow the data to be sorted in almost any type of configuration. For example, the vocational evaluator may be asked to submit lists of minimal input, the DBM program will provide a printed list within a couple of minutes.

DBM programs can be helpful in developing grant proposals. Funding sources usually request similar types of information but normally require different formats for documenting the data.

People administering vocational evaluation units and supervising vocational evaluation personnel can quickly determine if vocational recommendations are sustained by evaluation results. DBM systems can also be used for program evaluation. Achievement of the evaluation unit's goals and objectives can be ascertained at any point in time. Finally, DBM programs provide a wealth of information for research. An organization may wish to know if there are qualitive differences between evaluations conducted over one week and two week periods. The methods for making a statistical comparison of this type is readily available. Another organization might wish to research the hypothesis that vocational evaluation recommendations were sex gender biased. Most jobs can be classified as traditionally male or female. A comparison of evaluee recommendations for traditional versus non-traditional jobs would provide a measurement of the bias, if any, that prevails within the vocational evaluation unit.

While there are many obvious advantages of using a DBM system as opposed to filing evaluee data in case folders, the ease of retrieving data selectively and quickly is the greatest. The space required for disk storage is small compared to the file cabinet space required for case folders. As the amount of evaluee data accumulates over time, there is a point where it is more efficient to go with hard disk system rather than continually inserting and removing floppy disks from the disk drive. At that point the organization may also want to explore the purchase of a multiple user super microcomputer.

Microcomputers as Adaptive Aids: After surveying the literature and viewing demonstrations of a variety of microcomputer adaptations for disabled people, it seems apparent that anyone with the capacity to move an eyebrow can access a computer. In the development stage is a computer that operates by "thought control". The fact that anyone con use microcomputers has a number of implications for vocational evaluation. Irons (1985) describes microcomputers usage for the person with disability. He discusses the use in communication, education, environment control, recreation and in vocational areas. In reference to the vocational area, the author concludes that the use of a microcomputer can greatly enhance the employability of a person with disability. He concludes by listing eleven precautions about computer usage. Microcomputer technology is expanding employment opportunities for people with disability. For the severely disabled, there are opportunities to perform many jobs from the confines of their home environment. Computer programming, accounting, bookkeeping, authoring and word processing are a few such jobs. Through the use of telephone modems, the homebound individual can interface the computer with compatible equipment thousands of miles from home. Distance is no barrier. With communication satellites, this type of interface is possible anywhere in this world.

In the past, it was necessary to use special evaluation systems (work samples and specially developed psychometric tests) to evaluate individuals from specific disability groups such as the hearing, visually and speech impaired. If using standard evaluation systems, it was necessary to modify the way the instruction was provided. Now, many of those modifications are no longer necessary or are made easier with the use of microcomputers.

People with coordination or motor control problems who would have difficulty using a standard computer keyboard can still use microcomputers with special keyboards. One example is the commercially available oversized keyboard. It is also possible to bypass the keyboard entirely and use special control devices similar the control paddles used in many game programs. One can also install a variety of switches activated by a hand or finger to switches controlled by movements of the head, body or breath.

For the blind and visually impaired there are available computer programs that magnify the visual display, enable computers to talk, and output devices that will print Braille. Most of the talking programs will sound out the letter, number or punctuation mark as each character is typed. Some programs are limited to the built-in vocabulary, while other programs allow the user to develop unlimited vocabularies with phonetic speech. The technology exists to provide a variety of voices, male and female; the less expensive programs may sound like robots.

One of the most promising breakthroughs in microcomputer technology has been the development of voice input/voice recognition programs for controlling the computer. The voice recognition emulates the keyboard. This means that any keyboard function can be performed with voice input. Any commercial software program that is compatible with the computer can be used with voice commands. This technology can also serve to enhance communication. For example, a person with slurred speech can teach the computer to recognize specific sounds that

can be spoken in understandable language. The speech synthesizer of the talking computer program can also be used to enhance communication.

The advancement of microcomputer technology has reduced the size of computers form those weighing tons to those the size of a typewriter, and the reduction size continues. Portable computers can be carried in a case no larger than a briefcase and others can be held in the hand. Portable computers have the potential to enable disabled students to more adequately compete with non-disabled students. Portability, when combined with other microcomputer aids, allows the disabled student to perform in many areas that in the past were difficult or impossible. A portable computer with voice input would overcome the difficulty of a student who is unable to take notes rapidly. Likewise, a microcomputer that was portable and talked could provide valuable help to the speech impaired student needing to communicate his ideas clearly to teacher and other students. The portable microcomputer is not a panacea for all disabled students. However, many students with disability will be able to function more effectively in the future through the use of this technology.

Job Matching Systems: A development of this decade has been the introduction of computer programs to match the attributes of evaluees with the requirement of jobs. Most of these job matching programs utilize all or part of the 12,000 plus jobs found in the Dictionary of Occupational Titles (D.O.T.) The user is required to input evaluee attribute data of the following kind:

General educational development in the areas of reasoning, mathematics, and language.
Aptitude scores from the General Aptitude Battery (GATB).
Physical demands that the evaluee can meet.
Environmental conditions under which the evaluee is capable of working.
Work Interests
Work Temperaments
Significant Vocational Preparation
Worker Trait Groups—Data, People, and Things

The job matches usually appear on the computer monitor screen and the user has option of obtaining a hard copy print-out.

If used appropriately, job matching systems provide an additional vocational evaluation tool. The time required to perform this job matching without the use of a computer would almost make the task prohibitive. However, if the job matching was used as the only evaluation data, an erroneous picture may be provided about the potential of the evaluee. The type of data that is inputted about evaluee attributes is extremely limited and is in part based on subjective opinion. One also has to realize that jobs in the D.O.T. are composites and do not reflect the specific requirements of any one job. Consequently, a job analysis would be needed in order to compare the requirements of the job within the community to those specified in the D.O.T. Nevertheless, the job matching systems are valuable in narrowing the scope of job families to explore further early in the evaluation process.

Test Scoring: Psychologists have been using microcomputers and special software packages for scoring tests and diagnosing mental illness for several years. The practice of using computerized test scoring is not widespread in vocational evaluation. However, a few evaluators have become aware of the cost effectiveness of this practice. Shainline (1985) discusses the use of microcomputers in vocational evaluation in the Albuquerque Public Schools. The author notes that they have used both commercial and custom developed software for scoring such tests as the GATB, McCarron-Dial Work Evaluation System and the McCarron Assessment of Neurological

Development. Other systems in use are the McCarron-Dial Computer Assessment Program and the Occupational exploration System.

In addition to software programs that score tests and work samples, there are programs that will convert raw scores to percentiles or standard scores and allow the user to compare the evaluee score to different norm bases.

Summary: This past decade has witnessed the introduction of computer technology into vocational evaluation. This fact is motivation and in some instances pressuring vocational evaluation specialists to become computer literate. In this chapter a number of specific applications of computer technology were discussed, i.e., computer assisted vocational evaluation, performance/learning analysis, word processing, and data based management. The final section of this chapter looked at some of the ways that the microcomputer serves as adaptive aids to people with disability.

Microcomputer technology is doing a great deal to compensate for the vocational handicapping of disability. Unlike the auto industry where new cars are often last year's models with a face lift, each year the new microcomputers reflect advancement in technology. The next generation of microcomputers may be able to interface with our brains and magnify our thought processes a hundredfold, making us capable of solving all the problems within vocational rehabilitation.

CHAPTER XI

COMMERICAL WORK SAMPLE SYSTEMS

Introduction: Commercial work sample systems and variable component work samples have been around long enough so that it is possible to evaluate them against a number of criteria. In the earlier edition of this book, Karl Botterbusch made a comparison of seven vocational evaluation systems (Pruitt, 1977). Since new commercial evaluation systems are introduced almost every year and other are no longer available, in this edition rather than comparing the evaluation systems the focus will be on the criteria for evaluating these systems.

Work samples systems are very similar to multi-aptitude test batteries. Their purpose is to access the evaluee's potential for a range of occupational areas. Neither the aptitude test batteries nor the work sample systems cover the full range of occupations. However, the General Aptitude Test Battery (GATB) is probably the most comprehensive. None of the current work sample systems could be considered comprehensive and probably none make this claim. Walk (1985) reviewed the performance of mentally retarded, neurologically impaired, orthopedically impaired and visually impaired on fourteen work sample systems. The author concluded that not one of the fourteen commercial systems was without fault nor could any be said to function as a complete assessment tool for the reviewed disability groups. The author further suggests modification of any system to meet the specialized needs of any client. It is noted that because none of the evaluation systems contain special instructions for modifications when evaluation specific disability groups with varying needs, the adjustments require the skill of experienced vocational instances, the vocational evaluation specialist will need to use other work samples or evaluation methods in order to provide a comprehensive evaluation of the evaluee.

EVALUATION CRITERIA

Target Population: In considering criteria to be used in evaluating work sample systems, perhaps the most important is the target population for which the system was developed. Systems developed for a general population of disabled and/or disadvantaged people may not be usable with specific disability groups such as the retarded, haring impaired or visually impaired. Conversely, work sample systems targeted toward specific disabilities may or may not be usable with people from other disability groups.

Let us assume that you are evaluating a system for possible use within your organization, a system that is advertised for lower functioning mentally retarded evaluees. Some specific factors to be considered are as follows:

1. How are the work samples administered?
2. Are the norms applicable when the work samples are administered several times?
3. What are the levels of the work sample tasks?
4. Are there practice exercises included as part of the administration procedures?
5. Are the mentally retarded represented in the norm group?
6. Do the work sample tasks progress from simple to complex?
7. Do the work samples represent community jobs for which your evaluees could be placed if their performance met industrial standards?

While many of these factors could be important regardless of the target population, some are more important with the mentally retarded. To amplify on these factors, let us first look at the administration methods.

Administration methods could include written instructions, demonstrations, oral or taped instructions or graphic or pictorial instructions. Any of these methods may be used alone or in combination. With the mentally retarded, we could expect low reading skills and a large proportion of non-readers. For a work sample system to be useable, the administration procedures should allow the vocational evaluation specialist to provide oral instructions if the evaluee is lacking in reading ability. A combination of oral instruction and demonstration is desirable in most instances.

Research confirms that considerable learning takes place during the administration of most work samples. There is also data indicating that the learning process is slower with the retarded than with the non-retarded. Task performance can be increased through repetitive practice so that the performance of the retarded may eventually be comparable to that of the non-retarded.

If the norming procedures do not allow for the multiple administration of the work sample system, it is important that practice exercises be part of the administration procedures. This will allow the evaluee to become oriented to the work sample tasks, to establish the proper mental set and to utilize the skills required to perform these tasks.

When evaluating work sample systems, a primary consideration is the level of the work sample tasks. If the tasks are too simple, the evaluee may not be able to sustain interest and concentration required for good performance. If the tasks are too complex, the evaluee will experience failure quickly and this may decrease motivation to continue with other evaluation tasks.

Ideally, the tasks within a work sample should progress from simple to complex. The initial tasks should be both challenging and achievable by most evaluees. Some jobs which work samples are based follow a cycle. In some cases the first task might be more difficult than the task that follow. For example, in a work sample that involves setting up and operating a machine, the task of setting up the machine is more difficult than the tasks involved in operating the machine. This problem could be overcome in the development of the work sample by having the machine all set up in the first phase and then having the evaluee set up the machine in the second phase. In this way, if the evaluee is unable to set up the machine correctly, the evaluee's ability to operate the machine has still been evaluated. With cycle type work samples, the task performed in operating the machine may not be of equal difficulty throughout the operation. It's easier to develop samples that follow this principle for jobs that do not follow a cycle. A janitor work sample might behind with emptying wastes baskets or dusting furniture, and these are fairly simple tasks. The final task might involve the operation of an industrial-type floor buffer and this is much more difficult task.

The final consideration relating to the target population would be the availability within the community of jobs corresponding to the work samples. Work samples systems would have limited value if they were not related to actual jobs within the community. There are work sample systems that are designed to evaluate isolated traits or physical capacities, but these are used more for screening proposes rather than for comprehensive evaluations.

For the purpose of illustration, the mentally retarded were used as the target group in this section. Similar considerations would apply with other disability groups.

Theoretical Base of Work Sample Systems: While not all work sample system developers specify the theoretical basis for their system, that basis can be inferred if it is not explicitly explained. It is not uncommon for the theory base to be related to the Dictionary of Occupational Titles (D.O.T.), job analysis or some similar work measures. Those systems not related to specific jobs or job composites may be based on physical capacities or a number of isolated traits. There are some advantages and disadvantages to each theoretical base.

The Dictionary of Occupational Titles represents most of the jobs within our economy. As noted earlier, the D.O.T. jobs are composites based on job analysis on many jobs same or similar titles. Since the D.O.T. provides such a wealth of information about jobs, work samples that accurately reflect the requirements of these jobs should be valid. In work sample development there is a rule of thumb that if a work sample contains 70 percent of the tasks of the actual job, the work sample performance should be a valid indicator of future job performance.

Work sample systems based on job analysis have about the same advantages and limitations as those based on the D.O.T. To the extent that the local jobs do not differ significantly from the analyzed job, the work samples should have reasonably good predictive validity.

Isolated trait work samples are based on the theory that there are traits command to many jobs and that each job or job family has a unique combination of these traits. For example, good eye-hand coordination is required in many jobs such as auto mechanic, machine operator, and assembler. The trait-factor theory of job matching has been around for many decades and it is a viable theory. The primary principle of this theory is that it is possible to measure people's traits and determine the factors necessary for good job performance and use this data for matching people to jobs. Performance tests such as the Purdue Pegboard and various finger dexterity tests are based on the trait-factor theory. The major criticism of performance tests is that they lack face validity. Their predictive validity is not very high either. Work samples that measure a single trait probably won't resemble work. Work samples that look like job tasks are usually measuring more than a single trait.

Most jobs require varying degrees of physical capacity. Standing, walking, lifting, reaching, bending, feeling and grasping are some of the types of physical capacities that are measured by work samples systems that are based on the theory that it is possible to measure a person's physical capacities and match this data against the physical requirements of jobs. Physical capacity tests used by occupational therapists have the same theoretical base. The major difference is that the work sample systems use work tasks to make this determination and the physical capacity evaluations usually do not. Work sample systems that measure the full range of capacities provide much useful information for the vocational evaluation specialist. But again, this data must be supplemented with other work sample and observational data in a comprehensive evaluation.

Work Sample Developer and Manufacturers: Work sample systems are not indestructible. They do break down and wear out. There are a number of factors that should be considered on evaluation this aspect when considering the purchase of the system.

1. Is the manufacturer reliable and likely to be in this type of business five years from now? If the work sample system is sold through a dealer or a manufacturers representative, the same question should be asked.
2. The quality of construction of the system is one indication of how long the system will last.
3. What is the cost of replacing parts of the system? Is it necessary to order from the manufacturer or can the parts be purchased locally? If the work sample breaks down, is it

necessary to ship the work sample back to the manufacturer of dealer or only the broken part? What is the length of the warranty? If the work sample system uses expendable materials, can these materials be purchased locally? Does the cost of expendable materials make it costly to administer the system?

4. Is training in administration of the system provided by the manufacturer of dealer? Will the training be provided locally or is it necessary to travel to some distant site for this training? Is the cost of training an extra expense?

5. How is the work sample system packaged? Is it difficult to set up?

6. Are work sample manuals provided? Is the manual will written and easy to follow? Does the manual provide sufficient detail to administer and score the work samples? Is the purpose of each work sample clearly stated? Does the manual specify the material needed? If an evaluee manual is provided, does it provide enough instructions so that the evaluee knows what is expected? What assistance can the vocational evaluation specialists provide? Are the instructions provided orally, in written form, by audio tape, or in some other manner? Does the manual allow for demonstration and/or practice?

Work Sample Administration: Work sample systems that is relatively easy to use and provide useful information will be used on a regular basis and will be cost effective. Conversely, if they are difficult or expensive to administer and do not provide enough useful information, they will probably be stored in a closet to gather dust. Many of the questions raised about the work sample manuals above are administration of the system. The sequence for administering the work sample can be important. Some systems require that all the work samples be administered in a specific sequence while other systems provide for more flexibility. There are times when it is desirable to administer only one or two work samples to answer specific questions about the evaluee. If the work samples in the system do not have separate norms then it is necessary to administer the entire system. In some systems, adequate performance on one work sample is required before progressing to the next work sample.

The length of time needed to administer a work sample or the total system is an important consideration. The amount of time the evaluator must spend with the evaluee in providing instructions or observing the performance also can be a critical factor. Considering the fact that an evaluator will usually be working with four or five evaluees at a time, work sample systems that require too much evaluator time may not be cost effective. However, there does need to be some involvement with the evaluee and some time spent observing the performance. It is important that the evaluee be provided feedback on his/her performance periodically during the evaluation.

Frequently there are prerequisites for administering the work sample system. If there are prerequisites they should be stated in the manual. Sometimes these prerequisite relate to the ability to see, hear, or speak. Other times they relate to reading level, ability to use both hands or some skill or attribute as determined by a score on a performance test. It should be taken into consideration if there is extensive pre-screening needed to determine if an evaluee should be administered a work sample or the total system. Also, the prerequisite for the work sample should be no more stringent than required for job performance if the work sample is related to a real job.

Does the administration of the work sample system require a special setting? For example, clerical or microcomputer work samples may require a setting free of noise and dust. Others may recommend a setting that simulates an industrial environment where dirt and noise

are customary. Required work sample settings that resemble a classroom or a formal testing situation may detract from the face validity of the system.

Information should be provided about the work performance factors that are measured on each work sample. This type of information will provide a focus for observation during the administration of each work sample. This type of information will enable the vocational evaluation specialist to relate overall performance to specific factors. For example, it may be apparent from observing the evaluee that a good performance was due to good finger dexterity or that another person's low score was due to difficulty in following directions. In addition to the work performance factors, the evaluator will also be concerned about many work sample system's manual provides suggested behavior to look for during the administration. Are special forms for recording of work performance and behavioral ratings provided and /or required?

Scoring, Recording, and Interpretation: Work sample performance may be timed and the time becomes the work sample score. If the work samples are timed, the timing procedures should be stated. The instructions should also specify when timing is begun and when timing ends. A specified time limit may be set and the amount of performance is the score. For example, in a packaging work sample, the number of units packaged within a set time could provide the score. Or the evaluee may be given an unlimited amount of time to package 100 units, and the time required becomes the score. Either one of these scoring procedures is acceptable as long as it is specified. Frequently, quality scores are combined with time and quantity scores but sometimes time or quantity scores have different norms from those used for quality measures. At other times, errors are deducted from the time or quantity scores. For example, in a typing work sample, errors are deducted from the total number of words typed. The method for recording these scores should be specified in the manual. Raw scores may be converted to percentile scores or should be made to determine the ease of conversion. If scoring aids are used they should make the scoring job easier and/or increase accuracy. The method for interpreting these scores should also be spelled out. The interpretation will differ according to the theoretical basis of the work sample system. Scores on an isolated trait work sample that measure eye/hand coordination may be interpreted to jobs requiring a high degree of the attribute or they could be related to the distribution of this trait in the norm population. A work sample system that uses job analysis or the Dictionary of Occupational Titles for its theoretical base is more apt to relate the score to probable performance on a specific job or job family. If this type if interpretive information is lacking, it will detract from the value of the system.

Norms: The norm base for the work sample system should be specified in the manual. There are several possible ways that work samples can be normed, and there are advantages and drawbacks to each one. Industrial norms are based on averages of employed workers. Work sample performance can be compared to the job performance of worker performing comparable tasks. What may not be taken into account is the fact hat the industrial worker have both training and experience and the evaluee does not. The use of evaluee or student norm groups is fairly common. An evaluee's performance can be compared to the performance of peers. As a rule the performance levels of evaluee or student norms are usually much lower than the industrial norm groups. A third type of norm group is made up of samples from the general population. The rationale is that most human attribute is normally distributed in the general population and that this is a more reasonable method for comparison. If this is the type of norm base used with a work sample system, it is important to determine if the disabled are represented in the sample to the same extent as they are represented in the general population. Time and motion studies are another way of developing a norm base. Standard times for specific movements have been

established. If a time and motions study has been performed for each of the work samples within the system, the evaluee's time for performing a sequence of movements can be compared to these standards. One drawback to this type of norm base is that the standard movements have been developed with experienced workers who are non-disabled. Consequently, this method has the same type of bias as the industrial norms. Regardless of the norming procedures used by the work sample system, the norm group should be clearly defined.

Reliability and Validity: Reliability may not be an important consideration with work samples due to the amount of learning that takes place during the initial administration of a work sample. Here, reference is made to the consistency of the scores when determining the test-retest reliability. However, when a work sample is administered to a large group of subjects, if the administer rank orders their scores should be about the same, if the work sample is fairly reliable. It is worthwhile to note if the work sample system developer has provided any documentation about the reliability of the system.

In considering the validity of work samples there are three different types of validity that are important. Work samples should have good face validity. This means that the work sample resembles the job as it is performed in industry. Content validity is also important. An Inspection work sample should consist of a variety of inspection tasks. If 70 percent of the task of the actual job are contained within the work sample, the work sample can be considered to have content validity. Of the three types of validity, predictive validity is the most difficult to document. If a work sample has a good predictive validity, there should be a high correlation between job performance and work sample performance. Examine closely the documentation of validity provided by the work sample developer as it relates to the usefulness of the work sample system. Does the manufacturer relate work sample performance to job or training success, making food career choices, or what? Take with a grain of salt endorsements made by supposedly independent sources. Underwriter labs may endorse electrical appliances but there are no underwriter labs for work sample systems. Schools, rehabilitation facilities and universities may field test or assist in research projects using the systems, but most organizations will not endorse them.

Cost: The cost of purchasing a work sample system must be weighed against the utility of the system. Sometimes a relatively inexpensive system will provide more utility than a system costing thousands of dollars more. Note that equipment, materials and services are included in the purchase price. Training to use the system correctly may determine its utility. Be skeptical if the salesperson tells you that no training is required. A substantial part of the cost of the work sample system is the developer's investment in research and development. Documentation of the research, field-testing and norming will give some indication whether or not the price is within reason.

Summary: This chapter has focused on criteria for evaluating commercial work sample systems. These criteria include:

1. Target population
2. Theoretical base of work sample system
3. The system developer/manufacturer
4. Work sample administration
5. Scoring and recording
6. Norms
7. Reliability and validity
8. Cost

These criteria should be considered when exploring the possibility of purchasing a commercial work sample system. Work sample systems are relatively expensive and thoughtful evaluation should precede the decision to make this type of investment.

CHAPTER XII

ROLE AND FUNCTION

There are a number of factors determining the role and function of vocational evaluation specialists, such as education and formal training, type and length or work experience, type and size of facility or agency where employed, disability groups served and vocational evaluation methods used. Over the years there have been several studies conducted to determine the role and function of vocational evaluation specialists. These studies will be examined to determine the role and function, competencies, and demographics of this professional. Discrepancies between earlier and more recent studies may be indicative of the changing roles and function of this specialist.

The terms role and function are not mutually exclusive. A job function is made up of a number of related tasks such as administering work samples and tests, conducting situational assessment and matching an evaluee's performance to job requirements. These tasks could be grouped under the function of evaluation. The role refers to the behavior that is characteristic and expected of an occupant of a defined position in a group. The role is dependent on the personality of the individual and the expectations of others. Therefore, the functions performed by a vocational evaluation specialist are dependent on the role played within an organization.

A number of years ago, this writer conducted a task analysis to determine the function of vocational evaluation specialist (Pruitt, 1972). As a result of this task analysis, 67 tasks were grouped into seven distinct functions:

1. Evaluation, i.e. work sample evaluation, psychometric testing, and situational assessment
2. Counseling and interviewing
3. Training
4. Administration
5. Occupational analysis
6. Communicating and relating
7. Research and development

In 1969 a national study of rehabilitation facilities offering vocational evaluation was made to determine the "state-of-the-art" within the profession (University of Pittsburgh, Research and Training Center in Vocational Rehabilitation, 1969). This study considered such factors as the emphasis of the facility, types of services provided, whether the facility was private, non-profit or governmental, geographic location, staffing patterns, number of vocational evaluation staff, educational level of the evaluator, educational major of evaluator, previous work experience, types of disabilities served by the facility, length of evaluation period and average number of clients evaluated within specified time periods, average amount of time spent on specified vocational functions, type and number of work samples used, job tryout utilization, ranking of evaluation methods and where if work adjustment services were provided. The most significant finding was that differences in vocational evaluation services are a function of the emphasis, location and staffing patterns of the facilities studied.

In a similar study by Egerman and Gilbert (1969), the variables of educational background, employment history, work activities, salary, job knowledge and satisfaction, professional affiliation, and the personal characteristics of the respondent were surveyed. Of

special relevance were the findings pertaining to their work activities. The most frequently mentioned functions included:

1. Attending and participating in regularly scheduled meeting to staff and discuss specified clients (73 percent)
2. Observing clients at works (70 percent)
3. Helping clients adjust to work environment (68 percent)
4. Writing periodic reports on client progress (66 percent)
5. Administering work samples or performance measures (61 percent)
6. Developing recommendations for training, placement. etc., based in part on test scores (61 percent).

Also of relevance was the data pertaining to the evaluator's knowledge of the specific functions. The following is a list of those functions about which they were most knowledgeable:

1. Administering work samples or performance tests (25 percent)
2. Interpreting work samples or performance tests (18 percent)
3. Helping individuals adjust to work environment (14 percent)
4. The job skills necessary to succeed in specific jobs (12 percent)

The three areas they knew the least about were:

1. Interpreting psychological tests (26.5 percent)
2. Selecting psychological tests (26.5 percent)
3. Administering psychological tests (20.5 percent).

Sankovsky (1969) studied the patterns of services in vocational evaluation. While this study did not consider the percentages of time that evaluators spend performing the various work evaluation functions, the results did indicate the number of facilities offering these services and the time that was spent on several of the functions. However, of most relevance was the ranking of evaluation approaches that were considered useful:

1. Job sample (26 percent)
2. Situational approach (24 percent)
3. Job tryout (20 percent)
4. Psychological testing (18 percent)
5. Job analysis (1 percent).

In a later study, Sankovsky (1971) looked at the characteristics of the members of the Vocational Evaluation and Work Adjustment Association. Of special significance was a replication of the self-ratings on areas of competency within the study of Egerman and Gilbert (1969). Although the rating approaches used in the two studies were different, the overall findings were identical.

Psychologists interested in the concept of "self" have theorized that part of the human psych is composed of three components: (1) the self as other people perceive us, (2) out self-perception, and (3) the real self. The closer congruence of these three components, the closer contact with reality or the better mental health the person enjoys, according to the theory. Since the roles that individuals assume in an organization are in part determined by self-perception and expectations of others, studies focusing on this aspect of the role of the vocational evaluation specialist may be of interest.

Sawyer, et al. (1980) conducted a study to determine the professional status of vocational evaluators, using as subjects 65 individuals involved in graduate study in human service professions at Southern Illinois University at Carbondale. None of the subjects were studying in the area of vocational evaluation. The subjects were asked to rank 22 occupational titles in the

general area of human services from most professional to least professional. The results of the study showed physicians were ranked first and vocational evaluators were ranked 18th. The conclusion reached by the researchers was that the low ranking of the vocational evaluator was due to the low knowledge participants had about the purpose and role of vocational evaluation as profession.

Make and Riggar (1981) randomly surveyed 1000 Vocational Evaluation and Work Adjustment Association (VEWAA) members to determine the characteristics of the membership. Personal, educational, employment and professional characteristics were identified. The results of the survey were based on an effective response rate of 63 percent.

In reference to the personal characteristics, 51 percent were male and 49 percent female. The age range was from 22-70 years with an average of 36 years. Twelve percent of the respondents were either members of minority groups or disabled. Eight percent of the respondents had a master's degree and 1 percent had a doctoral degree. A bachelors degree was held by 61 percent, 1 percent had an associate degree and 2 percent a high school degree. Other degrees of certificates from continuing education programs were held by 1 percent. Rehabilitation majors were reported by 47 percent of those with a master's degree and 20 percent of those held a bachelors degree. Social science majors were reported by 46 percent of those with a bachelor's degree and 31 percent of those with a master's degree.

The following is a summary of the employment characteristics:

1. Fulltime employment status 80 percent as:
   a. Vocational evaluator 26 percent
   b. Administrator 17 percent
   c. Generalist 7 percent
   d. Counselor 7 percent
   e. Other 6 percent
   f. Teacher 5 percent
   g. Adjustment specialist 5 percent
   h. Case manager 3 percent
2. Average length of work experience 8 years
3. Place of employment:
   a. Rehabilitation facility 48 percent
   b. State agency 16 percent
   c. University 10 percent
   d. Private consultant 7 percent
   e. School 5 percent
4. The salary range was from $5,000 to $90,000 with a mean average of $18,085.

In reference to level of function, 34 percent reported working as a supervisor, 61 percent as professional, and 2 percent as paraprofessionals. Job satisfaction was reported by 73 percent and dissatisfaction by 14 percent.

Professional association other than VEWAA was as follows:

1. National Rehabilitation Counseling Association 8 percent
2. American Personnel and Guidance Association 5 percent
3. Job Development and Placement Division 4 percent
4. American Psychological Association 4 percent
5. American Association of Mental Deficiency 3 percent.

Seventy-nine percent indicated they had attended a professional conference in the past year at the local level (39 percent), state level (53 percent), regional level (28 percent), and/or the national level (23 percent).

The author compared the result of their study toward their studies by Egerman and Gilbert (1969), Skankovsky (1971) and Nodolsky (1971). Of significance was a reversal of the predominance of males to females in the VEWAA membership. Nadolsky (1971) reported 71 percent of the VEWAA members were males and 29 percent females. Egerman and Gilbert (1969) identified 72 percent male and 26 percent female. On the other hand Maki and Riggar (1981) reported 57 percent of the vocational evaluators were female and 43 percent male. Sankovsky (1971) reported 60 percent of the vocational evaluators have formal training as compared to Maki and Riggar's (1981) in which 76 percent had such training. In reference to educational attainment, Sankovsky (1971) reported 50 percent had advanced degrees, Egerman and Gilbert (1969) reported 27 percent while Maki and Riggar (1981) study showed that 20 percent of the members with bachelor's degree and 47 percent of the members with a master's degree majored in rehabilitation. In comparison, Egerman and Gilbert (1969) indicated that only 22 percent of the advanced degrees held vocational evaluators were from rehabilitation programs. In the Maki and Riggar (1981) study respondents reported an average of 8 years work experience in rehabilitation. Egerman and Gilbert (1969) held their jobs for five or more years and the average work experience was two and one-half years.

The conclusions that can be arrived at from these studies are that vocational evaluation has grown as a profession, the work force has become more stabilized and better educated, and like other human service professions, the membership is now dominated by women. Part of the increase in salaries is due to inflation but vocational rehabilitation is also a much better paying profession than it was in the 1960s and 1970s.

There has not been much written about the role and function of the vocational evaluation specialist in school settings. However, a position paper developed by the Division of Career Development (DCD) deals in part with this topic (Sitlington, et al., 1985). "DCD advocates that the personnel responsible for conducting and coordinating career assessment should be certified in special education when working at the elementary level and be certified in secondary special education or vocational special needs education when working at the secondary level. Vocational special needs and rehabilitation personnel should assume primary responsibility at the post-secondary level" (p.5). DCD also advocates that the professionals responsible for coordinating the career assessment process at the elementary level should have background in career development and informal assessment. The professionals responsible for conducting the career assessment at the secondary and postsecondary levels should demonstrate background/training that meets the minimal standards or preparation in the area of vocational evaluation. DCD recommends that competency or successful completion of training or successful completion of training in competencies such as the following:

1. Analysis of entry-level competencies needed in career development programs
2. Implementation of job analysis procedures
3. Identification and selection of assessment procedures appropriate for students at various age and functioning levels
4. Selection and administration of appropriate assessment instruments
5. Construction of rating instruments for situational assessment and other behavior observations related to all career roles
6. Integration and interpretation of assessment data

7. Application of assessment data to instructional programs within the school setting (p.5).

Due to a difference in terminology, it may not be clear that school evaluators are performing the same functions as those employed in rehabilitation. However, this is clarified in an earlier study by Ellsworth (1977). In studying the role and function of vocational evaluators employed in vocational education, the researcher developed a survey instrument with questions relating to the following areas:

1. Evaluation/Testing
2. Interviewing/Counseling
3. Teaching
4. Administration
5. Occupational Analysis
6. Communication and Relating
7. Research and Development

Questions were in the format of task statements relating to these broad work areas. Respondents were asked to indicate the amount of time spent on each task.

The following task statements are an example of the items from the Evaluation-Testing area:

1. Select and administer dexterity tests and work samples.
2. Select and administer achievement tests, personality surveys and interest inventories.
3. Score and interpret work samples, inventories and tests.
4. Develop an evaluation plan using tentative hypotheses.
5. Adopt standardized instruments for special disability groups.

The results of the study indicate that school-based vocational evaluators are performing the same tasks as vocational evaluators in rehabilitation. The author concludes that despite the similarity of asks performed, there was a great deal of variation in the amount of time spent on each task and that there is no formalized model followed by school-based vocational evaluators. Several reasons were provided to explain this variability:

1. School vocational evaluators come from diverse backgrounds and training experiences.
2. The activities most frequently performed may be more representative of the "evaluators' skills" than of the predefined role of "vocational evaluator" or "vocational evaluation".
3. There is no consistent, predetermined knowledge base as a prerequisite to becoming a school vocational evaluator.
4. On the national level, vocational evaluation in the schools is relatively recent development.

Gannaway and Sink (1979) reported on a study to identify rehabilitation counselor and vocational evaluator competencies. The study's review of the literature resulted in more than 1,00 competencies for the two groups. In eliminating ambiguity and redundancy, the list was reduced t 359 competency statements by the project director and Seminar Planning Committee. Subsequently at the Atlanta Seminar, the list was reduced to 298 competencies. At the seminar groups of judges studied each competency and decided if the competency was need (1) equally by either the counselor or evaluator, (2) by the counselor alone, (3) by the evaluator

alone, (4) by both the counselor and the evaluator but more by the counselor (counselor plus, or (5) by both the counselor and the evaluator but more by the evaluator (evaluator plus).

The most significant findings of the study were reported as follows:

1. Fifty-five of the 298 competencies were needed equally by the rehabilitation counselor and the vocational evaluator.
2. Two hundred forty-one or 88 percent of the 298 competencies were judged to be essential.
3. Twelve or 5 percent of the essential competencies were rated as being needed by the evaluator.
4. Fourteen or 6 percent of the essential competencies were rated as being need only by the counselor.
5. Seventy-five or 31 percent of the essential competencies were common to both the counselor and the evaluator but more significant for the counselor.
6. Thirty or 12 percent of the essential competencies were common to both the evaluator and counselor but were more significant for the evaluator.
7. Universities were judged to have high to moderate training responsibilities for 83 percent of the 298 competencies.
8. On-the-job training was judged to have high or moderate training responsibility for 24 percent of the 298 competencies.
9. In-service training was judged to have high or moderate training responsibility for 12 percent of the 298 competencies.
10. The university was seen as the significant location for training in eleven of the thirteen categories.
11. The largest number of competencies were included in three categories: (a) Counseling/Interviewing, Theory and Practice (N=48); (b) Analysis, Synthesis, and Interpretation of client information (n=43); and Job Development, Analysis, and Placement (N=41).
12. Of the 298 competencies only 9 percent were judged as being essential for only one rehabilitation worker. Ninety-one percent were considered needed equally or shared by the evaluator and counselor.

The authors note a number of biases that make the results of the study and later seminar group judgments questionable:

1. The research literature used to identify competencies was related to the rehabilitation counselor field.
2. There were fewer vocational evaluation oriented participants than rehabilitation oriented participants in the Atlanta Seminar. The weighing of participants toward counseling could certainly have introduced a bias in the relative rating assigned each competency statement.
3. There is a need to include additional vocational evaluation competency statements.

Studies of this nature tend to lead the reader to conclude that there is little difference between the role and function of vocational evaluation specialists and rehabilitation counselors. While there is a basic core of competencies shared by all rehabilitation professionals, the unique competencies of each specialty are probably greater than the shared competencies of each specialty are probably greater than the shared competencies within each specialty. If a similar study were conducted by nurses comparing the competencies of nurses and doctors, the findings would probably suggest there is little difference between these two medical specialties.

Program Evaluation: Since 1967 the graduate program in vocational rehabilitation at UW-Stout has conducted a follow-up study of the graduate and their employers on an actual basis. The purpose of the study is to make the program relevant to the job requirements of the field of vocational evaluation and also to determine technological advances and incorporate theses changes into the curriculum. While studies are made for both the work adjustment specialty and the vocational evaluation specialty, only the latter will be discussed in this section. The most recent study was conducted on the 1983 program graduates. The results of this study are as follows:

Thirty-four questionnaires were sent to the 1983 graduates and 25 were returned. This represents and effective return rate of 73 percent. Three of the returns were not useable. Twenty-five questionnaires were sent to the employers. Twenty-two were returned for an effective response rate of 88 percent. The following is a summary of the following study results:

Salaries: The range of beginning salaries was from $14,000 to $ 27,000 and the mean salary was $ 20,772.

Job Titles: The most common job title was Vocational Evaluator. The other job titles are as follows:

1. Occupational Therapist
2. Interviewing Supervisor
3. Vocational Counselor
4. Evaluation Team Leader
5. Chief Evaluator
6. Work Evaluator
7. Vocational Rehabilitation Counselor
8. Vocational Rehabilitation Service Coordinator
9. Qualified Rehabilitation Consultant, International
10. Supervisor/ Evaluator, Bilingual
11. Rehabilitation Specialist

Types of Work Setting: The predominant types of work settings where the graduates are employed are comprehensive rehabilitation centers, evaluation centers and sheltered workshops. The other settings include:

1. Special education departments of high schools
2. Medical hospitals
3. Division of Vocational Rehabilitation
4. Special education—entire district
5. Private placement services
6. Private rehabilitation organizations
7. Vocational technical schools

Task Analysis Results: For reader clarification, the following definitions of terms were provided:

1. A task is what a worker does in performing the job.
2. Similar tasks grouped together constitute a worker function.
3. Competencies are those knowledge's, skills and abilities, which are required for task performance.

The following is a summary of the graduate survey results:

For the tasks listed under each function respondents were asked to rate their own level of competency. They were also asked to indicate the amount of time spent on each function. From

73 to 82 percent rated the five tasks listed under the function of Work sample evaluation as "very important". From 16 to 30 percent of the respondents rated the tasks to be of "moderate importance", and only 5 to 30 percent rated them as having "minimal importance". In reference to the respondent's level of competency, 57 to 95 percent rated themselves as having a "high" level of competency for this function. The percent of time spent on this function ranged from 0 to 60 percent.

Under the function of Situational Assessment, five tasks were rated as being respondents; 18 to 47 percent of the respondents; 18 to 35 percent rate task as being of "moderate importance" while 11 to 35 percent rated them as having "minimal importance." From 37 to 72 percent of the respondents rated themselves as having a "high" level of competency on this function. Those seeing themselves with "medium" competency made up 16 to 62 percent of the group and from 0 to 11 percent gave themselves "low" ratings. The percent of time spent on this function ranged from 0 to 28 percent.

Under the function of Counseling and interviewing four tasks were listed. From 70 to 85 percent of the respondents rated these tasks as being "very important." From 10 to 25 percent rated them as having "moderate importance," and from 5 to 25 percent rated them as being of "minimal importance." From 52 to 80 percent rated their level of competency under this function as "high;" from 20 to 48 percent viewed themselves as having "medium" competency, and none of the respondents rated themselves as having "low" competency. The percentage of time spent on this function ranged from 1 to 100 percent.

The Training function was subdivided between adjustment training and skill training. However, since the ratings were similar, they are not analyzed separately. From 7 to 35 percent of the respondents rated the five tasks as being "very important." From 23 to 41 percent gave them "moderate importance," and 18 to 60 percent rated them as having "minimal importance." From 6 to 50 percent rated themselves as having "high" competency on this function, while 30 to 60 percent rated themselves as having "medium" competency. From 13 to 46 percent rated themselves as being of "low" competency. Respondents indicated that they spend from 0 to 25 percent on these tasks.

Seven tasks were listed under the Administration function. From 13 to 75 percent of the respondents rated these tasks as being "very important" for them. From 13 to 36 percent rated the tasks as being of "moderate importance," and 13 to 60 percent rate the task as having "minimal" importance. From 7 to 50 percent of the respondents rated themselves as having "high" competency on this function. From 46 to 70 percent rated themselves as having "medium" competency and from 6 to 25 percent rated themselves as having "low" competency. Respondents reported spending from 10 to 40 percent of their time on these tasks.

Ten tasks were listed under the function of Occupational Analysis. From 47 to 63 percent rated these tasks as being "very important;" from 15 to 39 percent rated the tasks as having "moderate importance" and from9 to 44 percent said they were of "minimal importance." From 56 to 81 percent claimed "high" competency on the tasks, while 14 to 63 percent rated themselves as having "medium" competency and from 5 to 27 percent rated themselves as having "low" competencies. Respondents reported spending from 0 to 25 percent of their time on these tasks.

Four tasks were listed under the function of Communication and Relating. From 73 to 90 percent of the respondents rated these tasks as being "very important," from 9 to 18 percent assigned them "moderate" ratings and from 5 to 14 percent said the tasks were of "minimal importance." From 57 to 95 percent of the respondents viewed themselves as having "high"

competency in this function, while from 5 to 40 percent rated themselves as having "medium" competency and from 0 to 8 percent, "low" competency. Respondents indicated they spent for 1 to 40 percent of their time on these tasks.

Under the function of Research and Development there were ten tasks. From 23 to 61 percent of the respondents rated this function as "very important," from 12 to 56 percent assigned this function "moderate importance" and 13 to 46 percent said it was of "minimal importance." From 40 to 55 percent of the respondents viewed themselves as having "high" competency in this area, while 40 to 73 percent claimed "medium" competency and from 0 to 35 percent "low" competency. The respondents reported spending from 0 to 15 percent of their time on this function (Modahl, 1984).

These studies on the role and function of vocational evaluation specialists span fifteen years. Since the purpose of each study was somewhat different and because each researcher used different survey instruments, it is difficult to make direct comparisons. However, it is possible to note some commonalties and trends. The functions performed by vocational evaluation specialists are similar over the time period. However, there does appear to be a shift in reference to the percent of time spent on these functions. For example, there seems to be an increase for the functions of work sample and psychometric test evaluation, administration, and research development. There appears to be a decrease in situational assessment and the training functions. The time spent on counseling and interviewing, occupational analysis, and communicating and relating seems to be at the same level. However, there is considerable variability and the work setting and other factors could account this for.

In reference to the role of the vocational evaluation specialist, the practitioner appears to be better educated and more likely to have majored in vocational rehabilitation and to be better paid than the counterpart respondent in the earlier studies. In a ranking of professional disciplines, the vocational evaluation specialist would still be much lower on the list than the highly visible professions such as physical, psychologist, etc.

CCWAVES PERFORMANCE AREAS

The Commission for Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES) has identified eleven performance areas for vocational evaluation specialists. In order to become certified, the practitioner must document education, training and/or work experience in seven of the eleven areas. The following is a list of this performance area and their definition:

Job Analysis: Job analysis is a systematic procedure for gathering information about what workers do in performing jobs. The procedure involves identifying the work tasks and other relevant information, such as physical demands, environmental conditions, aptitudes, temperaments and training. It also includes analyzing vocational training areas to determine skills needed to succeed, and to identify potential training adaptations. The primary skills are those of observation, interviewing and recording.

Functional Limitations of Disability: Functional limitations of disability refers to a body of knowledge about disabilities and the effects of disability upon work-related functions.

Occupational Information: The types of information involved include job codes, definitions, industrial classifications, worker functions, work traits, physical demands and working conditions as found in the Dictionary of Occupational Titles, which is the standard source. The related sources of occupational information deal with demand for workers, trends, training, career ladders, geographical and industrial areas where jobs are located, and prevailing wage rates.

Work Samples: This area includes knowledge about the theory and practical application of work samples in vocational evaluation. The skills involved include selection, proper norms, to use established normative data and to develop work samples.

Psychometric Testing: General knowledge of testing using standardized instruments (paper and pencil tests and performance tests) to provide a quantified assessment of cognitive, psychomotor, and affective traits of individuals is required. The skills include selection, administration and interpretation.

Individualized Vocational Planning: This is a process for developing and writing a plan to structure the evaluation process. It presupposes knowledge about the total vocational evaluation process. The specific skills include planning and writing abilities and the integration of information from client, referral source and other relevant data.

Situational Assessment: This is the systematic procedure for observing, recording and interpreting job performance and work related behaviors. Included is knowledge about various observational/recording techniques, work requirements and performance standards, and sources of error, which might influence the interpretation of the data. Skills include the ability to schedule, observe record and interpret performance and work related behaviors.

Learning Style: Knowledge about learning theories, skills used in assessing individual learning style and the methods under which the individual most effectively learns is required.

Report Development: Knowledge about the process of developing vocational evaluation reports, including formatting and writing is included. The skills include the ability to integrate and synthesize evaluation and other relevant data and to provide useful recommendations to the client and to the referral source.

Functional Living Skills: Knowledge of assessing an individual's ability to function independently in various life situations is required. The functional skills include, but are not limited to, activities of daily living, money management, community mobility and the ability to use community resources.

Interviewing: This is the method for obtaining and providing information about an individual's vocational, educational and social background primarily for the purpose of vocational evaluation planning and vocational exploration. Attitudes, values, and interests pertaining to these areas are also considered relevant information. The knowledge involved includes the interviewing process and techniques and a general understanding of personality and human development (CCWAVES Standards Manual, 1985).

Over a number of years, the VEWAA Standards Committee has developed and refined performance standards for vocational evaluation specialists. These standards became the basis for the CCWAVES essential performance areas. While the writers of the performance areas use different descriptive titles than those used to describe the functions of the vocational evaluation specialist, the overlap is readily apparent.

The eleven directors of the Commission represent eight national professional organizations and consumer groups. These directors serve a three-year term and may be re-appointed for an additional three years. Certification under the grand fathering phase began in 1981. Beginning in 1985, certification was still based upon documented education, training, and/or work experience in seven of the eleven performance areas but in addition, applicants are required to participate in a written examination. During the years 1985 and 1986, the test development committee would be validating the certification exam items. In 1987, applicants would here need to meet a critical score on this exam as well as meeting the other criteria.

There are a number of criteria that help to define a profession such as a broad knowledge base documented in the professional literature, theory and ongoing research, professional schools, ethics and standards required of members, and a formal professional organization. The vocational evaluation profession has met these criteria for many years. Licensure and certification are the capstones of a profession and the process allows for self regulation. Certification means that the minimum standards of the profession have been met by those whom the profession certifies. Certification lets consumers and referring agents know that the service providers are qualified and this leads to an improvement in services. Certification increases the status of the practitioner and this in turn modifies the role of the professional.

CHAPTER XIII

VOCATIONAL EVALUATION UNIT

Introduction: Occasionally, vocational evaluators will accept a position with an organization that has no existing vocational evaluation unit. At other times, evaluators may be asked to upgrade an existing unit. In either case the charge can be an exciting challenge or a traumatic experience. This chapter will provide some guidelines so that a competent vocational evaluator can take on this task with only mild trepidation.

The ideal vocational evaluation unit would have more than ample space, contain every conceivable work sample, have a wide range of metal and woodworking equipment, and offer a layout would expedite the evaluation process. Yet the ideal vocational evaluation unit might not meet the specific needs of any single rehabilitation facility. Therefore, this chapter will focus on those factors that should be considered when establishing a new unit or when upgrading an existing one. If within the local community there are other organizations providing vocational evaluation services and they are meeting the needs of the community, there is no need to duplicate those services.

The type and scope of a vocational evaluation unit will be determined in part by the geographic area to be served. For example, a mobile evaluation unit might best meet the needs of rural areas where the potential evaluees are thinly spread over several counties. The type and number of potential evaluees within various disability groups is another factor for consideration. Likewise, the nature of the parent or sponsoring agency will in many cases have an influence of the type of vocational evaluation unit that will be developed. Community industry and the type of entry-level jobs available will directly affect the type of available will directly affect the type of work samples and/or work tasks that will be utilized in the evaluation process. Not only should the focus be on the entry-level jobs within the community, consideration should also be given to the types of formal and informal training that are available. There are many time and financial factors that should be considered when developing a vocational evaluation unit. For example, the length of time available to set up the unit may determine whether commercial work sample systems will be purchased. Likewise, the amount of funds available to purchase work samples may determine the specific system(s) selected. Available space will determine the number and type of work samples and other equipment that can be utilized. Since it would be unwise to have clerical work samples next to those that create noise, dust or fumes, the layout of the unit is very important. Finally, consideration should be given to the number a d type of personnel who will be employed in the unit. Even though vocational evaluators do not spend a lot of time sitting at a desk, they still need offices where they can interview and counsel evaluees, write reports, confer with other staff and meet with visitors.

Prior to discussing these factors, it may be worthwhile to consider the historical antecedents of the current vocational evaluation unit. Back in the days when vocational evaluation units were called “pre-vocational” units and were likely to be found in medical settings, Redkey and White (1956) provided guidelines for the establishment of these units. In their publications, the authors discuss the minimum requirements of these units. In their publications, the authors discuss the minimum requirements for space, equipment and personnel. For example, the authors suggest a minimum of one thousand square feet of floor for every one to twelve persons working that area at one time. They also suggest that one fulltime supervisor in

a pre-vocational unit can supervise the work of 10-12 patients per day. Since there were no formal training programs for vocational evaluators at that time, the authors recommend that supervisors of pre-vocational evaluation units be recruited from three sources: industrial arts, occupational therapy, and rehabilitation counseling. In reference to equipment, the authors note that what is required will vary in different areas of the country. The authors point out that the first consideration should be given to the individual needs of the patient and the placement opportunities in the area served by the center. In considering the minimal equipment needs for any pre-vocational unit, the authors deal with the following occupational areas: clerical and sub-professional occupations, service occupations and skilled and unskilled occupations. In addition to discussing these factors, the authors also touch lightly on safety measures, the special needs of the disabled homemaker, records and reports and the use of an advisory council. Finally, the authors recommend that the evaluation period be no shorter than three weeks and that the patients be involved for the full day.

In a later article, Redkey (1957) stresses that the pre-vocational unit should be more like a factory than a clinic. In order to realistically simulate actual working conditions, the author recommends both noise and dirt in moderation.

Hiten (1970) discusses some factors for consideration when establishing a vocational evaluation unit. In reference to the space requirements, he suggests 33 square feet per client for simulated work stations. He also provides a general discussion of equipment requirements. He suggests researching community jobs and conducting of job analysis for those jobs in which clients might be placed, and construction of obtaining the necessary equipment for these work samples. The author suggests that standard testing equipment be obtained to evaluate the following physical demands: neuromuscular coordination, eye-hand coordination and finger and hand dexterity. He further suggests devices for testing the results of stooping, bending, sitting, crouching, lifting, working overhead, close tolerance for work and gross manipulative ability. He recommends the following type of tests: crude muscular skills, fine discrimination, achievement level, sales ability, administrative ability and serving the public in service jobs. He also recommends tests to evaluate personality traits such as frustration tolerance, patience, agreeability, leadership, follow ship and attitudes. Finally, he suggests equipment for trade level experiences such as wood working, mechanics, upholstery, welding, electronics, jewelry and watch repair, needle trades an soft-goods work. While the author does not make specific recommendations on vocational evaluation personnel, he did make the following observation: “the larger the unit and the more evaluators, the better the chance of having a variety of talents, which is good in any evaluation situation.”

The Mobilization for youth, Inc. in its 1970 report provides some detailed specifications for the physical layout of an evaluation unit (The Experimental Manpower Laboratory, 1970). First of all the authors suggest that the unit be housed in an industrial type building with concrete floors. They suggest that the upper walls and ceilings be painted a light color and the lower walls be painted a darker color to avoid discomfort from glare. In reference to machinery, they recommend paints that reflect light, gray for body and spotlight buff for highlighting working areas. They further recommend the use of orange paint for arrows and triangles to indicate points of risk from cutting, culling, etc. They suggest that removable machine guards be painted orange so they will be guards be painted orange so they will be conspicuous if left off the machinery. Red squares or band painted on the walls should be used to mark the location of fire extinguishers, hose reels and sand buckets. The authors suggest that windows and skylights should be no less than 30 percent of the floor area. In reference to the electrical wiring and

illumination, the authors recommend three phase, sixty cycle and 220 volt, if available. The wiring of machines and the installation of electrical equipment should conform to the National Electrical Code and the National Electrical Safety Code. The amount and type of illumination for all types of rooms and activities have bee established by the Illumination Engineering Society. In reference to safety, the authors recommend goggles, shields, and face masks for all operations where needed. Machinery with moving parts should be enclosed with guards. Those parts that are subject to wear and need periodic adjustment or lubrication should be made conveniently and safely accessible. Control levers, buttons and switches should be located at places o machinery where they are readily accessible to the operator.

In reference to the layout and space requirement, the authors recommend that the principles of work simplification should apply, i.e., tools and materials and instruction sheets should be stored in the area utilized. In considering the layout of the vocation evaluation unit the following factors are important: work flow process, will progress, number and size of machines and the volume of the clients to be evaluated.

In 1966 the Fourth Institute on Rehabilitation Services prepared guidelines for organizing vocational evaluation units (Fourth Institute of Rehabilitation Services, 1966). The guidelines are comprehensive and are based on sound logical principles. A list of these principles is as follows:

1. The Evaluation Unit or Facility shall have established goals to guide the direction and scope of its program of services. The operation of the Unit of Facility shall be designed to contribute effectively to the implentation of its goals.
2. The organizational structure of the Evaluation Unit of Facility shall be designed to contribute effectively to the implentation of its goals.
3. The Evaluation Unit or Facility shall provide a program for services essential to accomplishing the established goals. Services must be of such quality and so applied that they constitute an effective functioning program.
4. The staff of the Evaluation Unit of Facility shall be competent, professional, ethical and qualified in the skills necessary to the achievements of the Unit's stated goals. Written personnel policies that contribute to the efficient functioning of the staff shall be in active operation and made known to all staff.
5. The Evaluation Unit of Faculty shall maintain accurate and complete records and prepare and distribute reports necessary to the achievement of its goals.
6. The fiscal affairs of the Evaluation unit or Facility shall be managed in a sound and legally proper manner.

In summary it might be noted that the different authors who have provided guidelines for establishing vocational evaluation units have focused of specific aspects of the problem. None of the articles and monographs provided specific and detailed guidelines dealing with all factors related to the establishing of vocational evaluation settings, generalizations rather than specificity may be necessary.

There are a number of factors that should be considered prior to establishing a new an existing one. Since those factors are the same regardless of whether a new unit is contemplated or modification in an existing unit is considered, the discussion will focus on the establishment of a new unit and program.

Need: Prior to making a decision to develop a vocational evaluation unit, it should be ascertained that a real need exists and that this need in not being met through existing community resources. Determination of need may be made through a community survey. Community in this context could vary from an intercity ghetto to a multi-county rural area. As part of this study,

potential referral sources should be contacted. This may include the State Division of Vocational Rehabilitation, psychiatric and medical hospitals, the public schools, training schools for the retarded, schools for the visual and hearing impaired, correctional facilities, human resource boards, mental health centers, state employment services, veterans organizations, worker's compensation carriers and local manpower programs. This type of survey, if comprehensive, will no only determine need but will also provide data on the number and types of individuals who could benefit from evaluation services, fee structures of comparable services, available transportation and/or the need to provide transportation service and community attitudes toward its disabled population.

Geographic Area to be Served: Will the proposed vocational evaluation unit serve individuals from an urban, suburban or rural area or a combination of these areas? It the unit is to serve a multi-county rural area, a number of other factors should be considered. Is the facility centrally located according to the potential client population? Would smaller satellite units or mobile units be preferable to one large comprehensive unit? Is transportation available or would the evaluees be dependent on family or other service organizations to meet their transportation needs? Will it be necessary for the rehabilitation facility to provide bus service for the evaluees? While the transportation problems are more prevalent in rural and suburban areas, inadequate transportation may also limit participation of the disabled in urban areas.

Consideration should also be given to the rehabilitation support services that are available within the geographic area. The community survey should identify the health care services that will be available to provide services when needed. Liaison and coordination should be maintained with the local and state offices of the Division of Vocational Rehabilitation. Most rehabilitation facilities depend in part on referral and fees from this government agency. Input from the local rehabilitation counselors as to their caseloads, geographic area served, type and format of evaluation reports preferred can be most helpful in shaping the scope of the proposed vocational evaluation unit. The developers of the unit should be aware of placement services available through the public employment service, social and welfare support services, and finical and legal services within the geographical area.

Nature of the Population: The comprehensive community study to determine need should also provide information about the number, type and severity of disability of the potential evaluees to be served. In some housing the evaluation unit of the source of funding may restrict the evaluation population to certain disability groups. The types of work samples and/or other evaluation tasks will vary somewhat according to the population to be served. If the evaluation unit is to serve only the developmentally disabled, the number and type of evaluation task will be limited and be representative of the kinds of tasks the evaluees can be expected to perform on jobs in the local community. On the other hand, if an evaluation unit is developed to serve a broad spectrum of vocationally handicapped individuals, the evaluation tasks will need to be comprehensive and representative of jobs within the community job market.

Other examples of how the nature of the disability group(s) to be served can affect the scope and function of the evaluation unit are as follows: If the potential population will include the visually impaired, adaptive devices or methods should be employed for the administration of work samples and psychometric tests. Microcomputer technology provides many such aids such as talking computers, Braille printers, monitors that enlarge print and devices that translate print to voice. If work samples administration requires the reading of charts, blueprints, graphs or 3-D drawings, the lines and print will need to be raised through embossing or a visually impaired.

Work benches and enough to accommodate a wheelchair but not so high as to restrict the evaluees range of motion or to induce fatigue.

Type of Parent Organization: Vocational evaluation units may be free-standing or be a part of a larger organization. The following are the types of organizations in which vocational evaluation units might be found:

Comprehensive rehabilitation facilities, medical and psychiatric hospitals, sheltered workshops, work activity centers, secondary and post-secondary schools, correctional facilities, schools for the deaf, blind and retarded, churches and industrial plants. These organizations may be funded by national, state or local tax funds or from charitable contributions or they may be totally self-sufficient. The mission of the parent or sponsoring organization will not only determine the client population but will also structure the objectives of the vocational evaluation unit. For example, when the evaluation unit is located in a vocational school, the evaluation objective is to screen potential students into appropriate training areas rather than community jobs. Workshops for the blind will probably limit their population to the visually impaired. Evaluation tasks will be geared toward jobs within the facility and/or jobs within the community in which the evaluees can be placed. A mock-up of a vending stand could be one type of work sample used for this population.

Community Industry: Vocational evaluation units should not limit the evaluation tasks to jobs within the immediate community because rehabilitation clients have some degree of geographic mobility. However, because the majority of the evaluees will seek employment within the community, work samples and other evaluation tasks should be representative of the jobs within the immediate geographic area. The evaluation tasks and work samples should be geared toward entry-level jobs within the community. Therefore, before work sample systems are purchased or developed by the evaluation staff, a community job survey should be conducted. If work samples are to be developed for specific entry-level jobs, it will be necessary to conduct a job analysis for each job. Job analysis and work samples to be included within the evaluation unit. Because none of the existing commercial work sample systems provide for assessment in all occupational areas, a combination of locally developed work samples and one or more of the commercial systems should be considered.

In conducting a community job survey, all entry-level jobs within the community should be classified be D.O.T. code and title and any special job requirements listed. This can be accomplished without conducting a formal job analysis for each job. This type of information may be available through the local employment service or through the local employment services state agency computerized job bank. Other sources of information about community jobs can be obtained from personnel managers of local companies and by interviewing supervisory personnel in these businesses. Not only will the local job market influence the type of work samples to be developed and utilized but it will also influence the type of vocational training available (if any) through vocational schools in the area, a portion of the work samples should be related to those training areas the evaluees might later enter. It is desirable that these work samples have student norms and focus on predicting success in training.

Consideration should also be given to using community job sites for evaluation and training. Many employers are receptive to the idea of providing job stations for this purpose.

Space Requirement: Most vocational evaluation units will require between 100 and 125 square feet of floor space for each evaluee. If an evaluation unit would serve a maximum if 20 evaluees at any one time, 2000 to 2500 square feet of floor space would be required. This does not include the additional floor space that would be needed for storage or materials, supplies,

psychometric tests and work samples that would be stored when not in use. Nor would it include office space, testing and conference rooms and space for a client lounge. There is a tendency to be conservative in estimation space needs and to provide too little for growth.

The layout of the evaluation unit should be planned to make maximum use of space, staff, equipment and to minimize distracting environmental factors. The vocational evaluation unit should like a work environment and not like a school room or laboratory. Work samples that belong to the same occupational area or are technologically related should be place in close proximity. For example, automotive work samples should be arranged in a logical progression from simple to complex or grouped by special equipment needed for task performance.

If the evaluation unit is contained within one room, noisy shop equipment or work samples should be remote from other work samples that require relatively quiet conditions. Clerical work samples, work samples that require the use of a microcomputer and laboratory technician work samples all require clean, noise-free area. If this area is carpeted, anti-static mats or other anti-static devices should be used for the microcomputer area. It is recommended that in addition to one large room, there should be several smaller rooms that can be used for special purposes. Work samples such as welding and spray painting require special venting and fire proofing. Culinary work samples require an area where strict sanitary conditions may be maintained. Aisles should be wider enough to accommodate wheelchairs and any mechanical moving equipment that will be used. The vocational evaluator's station should be strategically placed so that most evaluees can be observed. Materials, tools and work aids should be stored in close proximity to the work samples where they are used. Work sample manuals should be maintained at the work sample station. Test files should be in the room or special area used for psychometric testing.

Personnel Requirements: Where work samples and psychometric tests are used extensively, the ratio of evaluators to evaluees should be no more than one-to-six. Factors determining this ratio are the variable administration time required for different work samples or tests. Time required for instruction, demonstration, practice and scoring and the time required for observation of each evaluee during each task should be taken into account when determining the optimal ratio. Other factors would include time for staffing each evlauee and the writing of the evaluation reports.

When vocational evaluation is primarily conducted in a subcontract unit, well-trained evaluators appear to be able to work within 15-20 evaluees at one time. In this type of evaluation system, evaluators rely heavily on observational reports from work supervisors. Situational assessment requires a longer time period than work sample/psychometric test evaluation.
The qualifications of vocational evaluation personnel vary somewhat from one organization to the next. Ideally, the individual who heads up the evaluation unit should have a graduate degree and be certified as a vocational evaluation specialist. Minimally, this chief evaluator should have at least a bachelor's degree and two years experience as an evaluator and be certified. At some point in the future, certification may be mandatory for employment as a vocational evaluator. Paraprofessionals may also be used to handle routine duties involved in the evaluation process.
Financial Considerations: How much money does it cost to equip a vocational evaluation unit? What will be the personnel costs? What will be the operating cost? There are no specific answers to these questions. The initial cost for purchasing commercial work sample systems and other equipment and staffing the unit will be substantial. Some developers of work sample systems claim that no formal training is required to use the system. Other developers require one to three weeks training, usually at some distant site. The training expense is in addition to the cost of the

work sample system. If the decision is made not to purchase commercial work samples but rather to have the evaluation staff develop work samples for entry-level jobs in the community, the expense will be less. However, the time required to develop a sufficient number of work samples may cancel out the savings. Time spent in work sample development decreases the amount of time that can be spent in providing vocational evaluation services.

Summary: There have not been many publications that provide helpful advice about establishing a vocational evaluation unit. What has been written tends to be general because there are so many factors that must be considered. It is the author's hope that the general guidelines discussed in this chapter will be of some value. If a well-trained vocational evaluation specialist is hired to administer the unit and that person is given ample space and a generous budget, that person can develop a unit that meets the specific needs of the organization and the community.

APPENDIX

GLOSSARY

The terms contained in this glossary are those within this book that relate to the professional practice of vocational evaluation. In formulating definitions for these terms, common usage has been the primary criteria. In some instances a standard dictionary became the secondary resource. In the event the dictionary definitions were congruent with common usage by vocational evaluators, standard definitions have been used.

Ability: The natural talent or acquired proficiency to perform a task. Frequently identified within a specific area such as mechanical ability or clerical ability.

Actual work sample: A sample of work from an actual job being performed (usually in the immediate community) involving the use of the same materials, equipment and/or tools and differing from the actual operation only in terms of the work setting. It is more frequently referred to as a job sample.

Adjective checklist: A list of adjectives that are a descriptive interpretation of human behavior. The list of adjectives is often categorized into sub-groups such as relationships with supervisors of the ability to follow instructions. Frequently, the adjectives are placed on a continuum such as: intimate, friendly, congenial, reserved and hostile. Adjective checklists are often used as aids to memory when observing an evaluee's behavior and performance on a work task, test or work sample.

Adjustment: (1) A relative condition of harmony between a person and the immediate environment; (2) the process of making changes needed in one's self or in one's environment to attain relative adjustment (English English, 1958).

Adjustment potential: The changes that the individual may make in the future determined by the conditions within the individual and inferred from behavioral or test data.

Adjustment program: Programs identified by emphasis such as work adjustment, personal adjustment and social adjustment. In actual practice the work adjustment programs offered by many rehabilitation facilities would include personal and social adjustment training. Adjustment programs are characterized by the objective of changing and improving behavior in order to make the individual more employable. The desired behavior changes may be brought about through training or behavior modification techniques. The term program implies that the adjustment procedures are prescriptive and applied systematically.

Adjustment services: Ongoing systematic and individualized rehabilitation services designed to enable the handicapped individual to cope with self and situations through acquisition of skills, behaviors, and concepts to achieve a functional level of personal, social, and/or vocational development in a measurable way (Sixth Institute on Rehabilitation Issues, 1979).

Appraisal: A judgement concerning the fact or facts, guided by theory, but limited essentially to the behavior at hand. It asserts that the acts observed belong in a certain category, but does not generalize concerning the habitual behavior nor compare it with standards, as in evaluation (English English, 1958).

Aptitude: The capacity to acquire proficiency in an activity with a given amount of formal or informal training. Aptitudes may be general, such as learning aptitude or special, such as mechanical aptitude. The terms aptitude and potential are frequently used interchangeably in vocational evaluation.

Assessment: A generic term for the process of measurement of an individual's level of functioning in one or more of the following areas: vocational, personal, social, medical, intellectual, etc. (Vocational Evaluation and Work Adjustment Association, 1975).

Attribute: Any quality or characteristic of an individual. An attribute has relative permanence and may be physical, psychological or social.

Background information: Relevant data about an individual's personal, social, educational, physical and vocational history.

Behavior: Any observable activity of an individual, frequently categorized as verbal or non-verbal.

Behavior modification: A behavior change approached based on specific learning theory principles to modify and improve an individual's way of responding to people, conditions or situations.

Behavior rating scale: An instrument used for assigning qualitative or quantitative ratings to designated behaviors. The scale usually provides specific questions about how the rate behaves in a variety of situations plus the criteria to be used by the rater in assigning ratings.

Capability: The quality or state of being capable. The capacity for an indicated use or development. The competence to perform to some standard or the potential to develop the competence. (See ability)

Capacity: Frequently used interchangeably with ability (See physical capacity and work tolerance).

Certified Vocational Specialist (CVE): A vocational evaluator sho has met the minimum standards of the profession through documentation of education, work experience and/or through acceptable performance on a standardized certification examination. The certification is provided by the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists.

Certified Work Adjustment Specialist (CWA): A work adjustment specialist who has met the minimum standards of the profession through documentation of education, work experience and/or through acceptable performance on a standardized certification examination. The

certification is provided by the Commission on the Certification of Work Adjustment and Vocational Evaluation Specialists.

Change potential: The capacity to modify one's behavior. It subsumes learning ability or that the substituted behaviors are within the individual's repertoire of behaviors. Change potential is determined in part by the tenure of the specific behavior and the potency of the reinforcing conditions.

Characteristic: Distinguishing trait, quality or mannerism of an individual.

Client: An individual receiving some form of aid or service from a helping agency and identified according to the primary service function of the agency, i.e., DVR client, welfare client, etc.

Clinical assessment: A subjective method for evaluating individuals using observational techniques or other methods that are not standardized and/or do not provide quantifiable data.

Clinical interpretation: An inductive-deductive method for assigning meaning to raw data. The interpretations are usually based on some theoretical assumptions concerning human behavior.

Commercial work sample system: A battery of work samples that are functionally related and sold as a system for use in vocational evaluation.

Commission on Certification of Work Adjustment and Vocational Evaluation Specialists: An independent group given responsibility for developing and implementing standards and procedures for the professional certification of Work Adjustment and Vocational Evaluation Specialists. The Commission members are appointed by professional organizations having special concerns for these services.

Competency: The knowledge or skill required for task performance, frequently related to a performance or behavioral standard.

Competitive employment: Employment in a community-based job with appropriate remuneration. The term implies that the worker's performance must conform to the established standards within the company, business or industry. The term is frequently used to differentiate sheltered employment from jobs in industry.

Computer assisted vocational evaluation: the method of using microcomputer systems and software as tools in the evaluation process (CAVE).

Computer job bank: A data-based management software program that provides information about available jobs in a designated geographical area.

Data-based management: Computer software programs designed to manipulate and sort data in a variety of configurations to meet user needs.

Data-People-Things: Identified by the next to the last three digits of the Dictionary of Occupational Titles code. The Data-People-Things concept is based on the premise that every job requires a worker to function in relation to these factors in varying degrees. The code ranges from zero to eight with zero indicating maximum relationship and eight indicating no significant relationship.

Dexterity: The ability to move fingers and/or hands easily and skillfully. Finger dexterity refers to the ability to manipulate small objects rapidly and accurately. Manual dexterity refers to the ability to work with hands in placing and turning motions.

Dexterity test: A performance test designed to assess the degree of dexterity (either finger and/or manual) possessed by an individual in comparison to a norm group.

Diagnosis: In medicine the term refers to the identification of a disease or injury. In vocational evaluation it more frequently refers to the overall identification of vocational strengths and limitations. The total process of vocational evaluation is diagnostic.

Dictionary of Occupational Titles: A standard source of occupational information about the 20,000-plus separate occupations in the U.S. economy. It is published by the U.S. Department of Labor.

Disability: An impairment in structure or function of an organ or bodily member resulting from disease, injury or congenital condition.

Disadvantaged: Those individuals within our society who are unable to function above a marginal level because of disability, or poverty, or age, or cultural, social or educational deprivation.

Electronic spreadsheets: Computer software programs that emulate various types of accounting forms and allow for inclusion of math formulas to make calculation automatic.

Employability: The ability to function in competitive employment. The term implies both the ability to physically perform job tasks and to adequately adjust to the psychosocial climate of the job.

Enclaves-in-industry: A unit or division of an industrial plant where the work force is composed of disabled individuals.

Entry-level job: A job within an occupational area that requires little or no special vocational preparation.

Evaluation: (See vocational evaluation)

Evaluator: (See vocational evaluator)

Evaluee: The individual being evaluated.

Facility: (See rehabilitation facility)

Feasibility: An estimate of a DVR client's chances of being employable following rehabilitation services.

Functional limitations: Physical or psychological limitations that hinder an individual's ability to perform in certain areas and are non-organic in nature.

Graded work samples: Work samples that include tasks ranging from simple to complex.

Guide to Occupational Exploration: A publication of the U.S. Department of Labor that provides information about interests, aptitudes, adaptabilities and other requisites to occupational groups.

Habilitation: The process of providing services to disabled or disadvantaged people to function more independently in all phases of life. The use of the term habilitation rather than rehabilitation implies that the individual was not in the labor force prior to the onset of the debilitating condition.

Handicap: A barrier that limits an individual from achieving a goal.

Industrial standards: Criteria established within an industry pertaining to quality and quantity of production.

Intake: The process of entering an individual into a service program.

Intake interview: The initial interview(s) with an individual during the intake process and prior to implementing services.

Interactive video: Interacting microcomputers with video equipment allowing the video program to be controlled by the computer.

Interview: Communication between two individuals for the purpose of giving and gaining information and/or to provide advice and direction to the one seeking services.

Isolated trait work samples: A work sample designed to access a single trait that might be required in a variety of occupations.

Job analysis: The systematic study of what a worker does in performing a specific job. It involves breaking the total job down into tasks and/or subtasks, determining how the job is performed, what is accomplished, where it is performed and why it is performed. It also involves determining the tools, equipment, machines, work aids and materials used in performing the job. The analysis also involves determining the physical requirements, environmental conditions and special vocational preparation required to perform the job.

Job bank: A computerized system of current job openings available through public local employment services operated by the Department of Labor.

Job clusters: Occupations grouped on the basis of similar requirements.

Job coach: A rehabilitation specialist who provides on-the-job training and supervision or lower functioning disabled individuals.

Job exploration: A process of exposing an individual to information about the nature and requirements of jobs through experiences and/or exposure to occupational information.

Job families: A grouping of closely related jobs requiring similar skills and knowledge or having similar worker requirements.

Job matching systems: Computer programs that allow for the input of attribute data that is matched against job requirements and provides a list of job/person matches.

Job performance: Refers to the manner in which a worker does a job. While qualitative and quantitative criteria are used for the measurement of job performance, such factors as work rhythm, work pace, planning and organization of work, and work relationships may affect the level of job performance.

Job placement: An activity for assisting individuals to become employed. Effective job placement requires knowledge about the individual's assets and limitations, job requirements and job market information.

Job readiness: The condition of being ready for job placement.

Job readiness training: An adjustment service offered by rehabilitation facilities. The process involves teaching clients to fill out employment applications, participate in role-playing job interviews, use public transportation, budget and manage income.

Job restructuring: Modification of a job to meet the needs of disabled individuals.

Job sample: Work samples that are used to evaluate potential for specific jobs within the community. Job samples may be the total job, the most important tasks of an actual job or a simulation of the actual job. (See work samples)

Job seeking skills: Those skills that enable an individual to locate job openings, make formal application and to participate in an employment interview.

Job site: The physical location within a community where an actual job is performed. Frequently designated as an industrial job site or an institutional job site.

Job site evaluation: The procedure for using vocational and evaluation techniques to evaluate an individual's performance on an actual job.

Job station: The physical area where all or most of the work tasks related to a specific job are performed.

Job task: A part of an actual job.

Job try-out: Temporary or probationary employment to determine if the evaluee can perform the job and meet quantity and quality standards.

Interest: A tendency to engage in an activity solely for the gratification therein (English and English, 1958). Interest may be one of three types: expressed, tested or manifest.

Interest check-list: A list of questions pertaining to objects or activities about which an individual may express likes or dislikes.

Interest test: A psychometric device for determining an individual's likes or preferences. While similar to interest check-lists, interest tests are normed and have indexes of reliability and validity.

Learning curve: A graphic representation of the measured changes in successive units of practice. Strictly speaking, it is a curve of performance rather than of learning.

Learning style: The method that individuals use to learn new skills or gain knowledge. The styles are visual, auditory, tactile or hands-on learning.

Learning theory: A set of principles or concepts to explain how learning occurs.

Man-work-matching: A system that classifies work skills into manual motions so that work potential can be assessed and matched to job requirements.

Mechanical interpretation: A method for interpreting test or work sample scores by comparing them to normative charts.

Methods-time-measurement: A system for measuring and analyzing the components of motion (work methods) in performing work tasks. The purpose is to improve the economy of motion, increase worker efficiency and reduces fatigue, and consequently improve work performance.

Microcomputer adaptive aids: Computer hardware, firmware or software that enable disabled individuals to use the system for the same purposes as nondisabled individuals.

Microcomputer administered work samples: Computer software programs that provide the evaluee instructions on the monitor screen using words and/or pictures to explain the step-by-step procedures.

Mobile evaluation unit: A vocational evaluation unit housed in a vehicle and moved to different locations.

Norms: A collection of scores that are used as a standard of achievement.

Occupation: A grouping of jobs having similar or related knowledge and skill requirements.

Occupational aptitude patterns: The grouping of occupations based on the aptitudes required for job performance.

Occupational group arrangement: The grouping of occupations according to similar technology.

Occupational information: Data pertaining to the requirements of jobs within occupational areas.

Orientation: An initial activity that introduces an individual to an agency or facility and provides information on rules and policies, procedures, physical layout and safety regulations, and may include an introduction to staff members.

Paper and pencil tests: A loosely defined term for standardized psychometric tests, inventories and schedules. Test performance is dependent on knowledge of subject area, verbal competency and reading ability. These tests can be administered individually or in a group setting. Psychometric tests are usually classified as paper and pencil tests or performance tests.

Paraprofessional: A non-degreed employee who aids or assists profe4ssional employees. A vocational evaluation aid is a paraprofessional.

Performance: A measurable variable associated with work activity. Performance may be measured by the time required for task completion, and/or units of production, and/or qualitatively by counting errors made or percentage of scrap produced.

Performance analyzer: A computer software program developed to provide a systematic analysis of performance/learning data.

Performance areas: A term used by the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists to designate functions performed by these specialists and areas in which they should be competent for purposes of certification.

Performance/learning evaluation: A method for measuring rate of learning a task through repeated practice until no further improvement appears possible.

Performance test: A standardized psychometric test requiring manipulation of tools and/or objects. Most performance tests are designed to assess isolated traits such as coordination or finger dexterity. Many performance tests are vocationally relevant but lack face validity.

Potential: A global term that encompasses specific and general abilities, aptitudes, interests, attitudes, needs, physical and mental attributes.

Predetermined motion time: An industrial engineering technique for assigning standard units of time to motion required in task performance. The technique eliminates most of the arduous observation and analysis required in time and motion studies.

Prevocational evaluation: An assessment process conducted prior to work or training to determine if an individual has the ability to develop work skills and related work behaviors. This assessment procedure is used primarily for individuals having no prior work experience and is associated more with educational and occupational therapy work settings.

Prognosis: An estimate of recovery or an estimate of future performance and adjustment.

Projects With Industry: A federally funded grant program to develop an alliance between business and rehabilitation organizations for the purpose of facilitating the job placement of disabled individuals.

Psychological tests: A set of standardized or controlled stimuli designed to elicit a representative sample of behavior.

Psychometric tests: An instrument designed to provide a quantitative assessment of an individual's psychological traits or attributes.

Rating scale: A device for recording an estimate of magnitude of traits or qualities specified.

Real work: Work performed that results in a product or service and for which some form of remuneration or compensation is normally provided.

Referral: A procedure for directing or sending an individual to another organization for some type of service.

Referral client: The individual who is directed or sent to another organization for service.

Referral data: Information about a client obtained from other people or agencies that will be helpful to the recipient agency in providing needed services.

Rehabilitation: The process of restoring an individual to the condition of good health and/or useful and constructive activity. (See vocational rehabilitation)

Rehabilitation counselor: A rehabilitation professional specializing in counseling and coordinating services to individuals in order to minimize the handicapping effect of disability and to assist individuals to realize their full vocational potential.

Rehabilitation facility: An organization that provides a variety of services to people with disability in order to prepare them to function in work situations.

Rehabilitation process: A planned, orderly sequence of services provided to persons with disability and designed to assist them to realize maximum potential for useful and productive activities.

Reliability: The consistency of assessment instruments.

Remedial: The process of correcting or changing faulty habits or overcoming learning deficiencies.

Response set: A mental frame of reference that biases individuals when rating others.

Sampling error: A type of error that results from inadequate sampling of behavior or performance or a bias resulting when the sampling is not random.

Satellite vocational unit: A vocational evaluation unit geographically distance from the parent organization.

Satisfactoriness: A term used in work adjustment theory to designate the reinforcing conditions of a job or work environment.

Screening: Preliminary process of determining appropriateness of available services.

Selective placement: A placement in a job where the conditions are predetermined to meet the client's needs and capabilities.

Sheltered workshop: A facility providing non-competitive employment to vocationally handicapping individuals.

Simulated work sample: A mock-up or a close simulation of an actual industrial operation, not different in its essentials from the kind of activity a worker would perform in an actual job.

Single trait work sample: A work sample designed to measure an isolated trait or characteristic common to a variety of jobs.

Situational assessment: A systematic method of using behavioral observation to assess performance and work related behavior in a controlled work situation. Situational factors in the work environment may be manipulated to determine the effect on performance and behavior of the evaluee.

Social adjustment training: A program designed to develop interpersonal relationship skills and/or modify maladaptive social behaviors.

Special vocational preparation: Any formal or informal training required to qualify for a job.

Staff conference: A meeting of involved professionals to review the vocational evaluation findings and recommendations and to determine what further services will be required to assist the evaluee in reaching vocational objectives.

Statistical interpretation: The method for interpreting test or work sample scores by comparing them to an index value based on normative data.

Supportive work: A method for providing job tenure to lower functioning individuals by providing them with supportive services such as job coaching.

Task analysis: A method of breaking down work tasks into their smallest components for the purpose of training individuals to perform work tasks in a step-by-step method.

Temperaments: The adaptability requirements made of a worker by specific types of job-worker situations (U.S. Department of Labor, 1972).

TOWER SYSTEM: The first commercial work sample system developed by the Institute for the Crippled and Disabled (ICD) during the 1930s.

Trait-factor theory: A theory developed to show that an individual's measured traits can be matched to the known requirements of jobs.

Transferable skills: Any work skills learned on previous jobs that can be used in other future jobs.

Transition from school to work: A process for providing supportibve services to lower functioning individuals to assist them to make a smooth adjustment from a school to a work environment.

Validity: The degree to which a test, work sample or other evaluative device measures what it purports to measure.

VEWAA: An acronym for the Vocational Evaluation and Work Adjustment Association, is a professional division of the National Rehabilitation Association. Its members are either practitioners or people having a professional interest in these two specialties.

Vocational assessment: A global term used to designate any and all types of evaluation or measurement of vocational functioning.

Vocational development: The development of work related interests, attitudes, abilities and capacities during the years of childhood, adolescence and adulthood.

Vocational development theories: Theories that attempt to explain the stages of vocational development as they occur in various life periods.

Vocational evaluation: A comprehensive and systematic process that uses work (real or simulated) to assess the vocational potential of individuals. The process also incorporates other data such as test scores, medical data, information on education and work experience and the needs and interests of the evaluee in setting vocational goals and service requirements.

Vocational evaluation specialist: (See vocational evaluator)

Vocational evaluation report: A formal structured document written by a vocational evaluator used to convey information on the findings and recommendations of an evaluation.

Vocational evaluation unit: The division of an organization with the mission of providing vocational evaluation services.

Vocational evaluator: The professional rehabilitation specialist who conducts evaluation.

Vocational handicap: Any barrier that impedes an individual from achieving a vocational objective. The barrier may be a physical or mental disability or may involve economic, educational or cultural deprivation.

Vocational rehabilitation: The process of providing restorative and rehabilitation services to disabled and disadvantaged individuals so they may attain their maximum vocational potential.

Work: A global term used to refer to all activities (mental and physical) where services are rendered or things are produced for sale, regardless of whether the activity is compensated monetarily or not.

Work adjustment: A treatment/training process utilizing work or work related activities to create an understanding and appreciation for the meaning, value and demands of work; to modify or develop appropriate attitudes, personal characteristics and work behavior, and to develop functional capacities as required to assist individuals toward their optimal level of vocational development.

Work adjustment theory: A theory developed to explain the interactive factors between a worker and the job that lead to job tenure.

Work environment: The setting and conditions under which an individual performs occupational duties. This environment includes such physical factors as lighting, equipment, noise, cleanliness and temperature. It also includes the human factors of supervisors and co-workers.

Worker functions: The functioning of a worker in reference to the Data, People and Things aspects of occupations. It also refers to all functions performed by a worker in any job role.

Worker model: A parent or other adult who provides a role model for a child or adolescent and assists in developing attitudes and values toward work.

Work evaluation: (See vocational evaluation)

Worker traits: The requirements made of a worker in terms of aptitudes, abilities, general educational development, vocational preparation, physical demands and adaptability to job conditions.

Worker trait group: The ratings of a job or occupation for the functions of Data, People, and Things.

Work habits: Acquired behaviors related to work performance and work adjustment.

Work history: A chronological ordering of past employment with specific reference to jobs held, skills acquired, level of responsibility, remuneration and reasons for termination of employment.

Work layout: The arrangement of tools and materials required to perform a job.

Work measurement: An assessment of increments or units of work performed. The measurement may be in terms of units produced, operations performed, errors made or time required for task completion.

Work personality: Habitual patterns and qualities of behavior expressed by physical and mental activities and attitudes in work situations.

Work sample: A generic term to describe all samples of work both real and simulated irrespective of the purpose or use made of the work sample.

Work sample evaluation: A vocational evaluation method in which work samples are the primary evaluation tools.

Work sample manual: A detailed guide for administering and scoring of a work sample.

Work sample norms: Standards of performance based on scores compiled on different groups, i.e., industrial workers, workshop clients, job applicants, etc.

Work setting: The physical site where work is performed.

Work station: The site within a production unit where work is performed.

Work tolerance: The ability to match the physical and/or emotional demands of work situations.

Work tolerance assessment: The process of assessing the ability to meet the demands of work situations. It assesses such factors as standing, sitting, walking, climbing, kneeling, reaching, feeling, fingering, grasping, turning, tolerating inherent job pressures, and working a normal work day.

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