VOCATIONAL EVALUATION: AN EXPERIMENTAL TREND IN VOCATIONAL ASSESSMENT

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ABSTRACT: The development of a concept often takes years, decades, or even generations before the practical application of that concept is fully recognized, accepted, and rendered operational. Furthermore, as a concept develops, several noteworthy, but isolated, attempts may be made to apply that concept in different settings prior to its acceptance and widespread application. Such was the case with the development of the concept that underlies the experiential, work-related approach to vocational assessment, which has become known as vocational evaluation.

Hugo Munsterberg is credited with initiating the experiential approach to vocational assessment in the early 1900's. In commenting on Munsterberg's concept of vocational assessment, Moskowitz (1977) related that:

> According to Munsterberg, there were two basic methods for the investigation of job requirements and the development of appropriate aptitude tests. The first method involves the analysis of the task into its psychological components and the creation of separate tests to assess each component. But this type of analysis is inappropriate or meaningless in many instances, and the appropriate method for those cases is to develop, in the laboratory, a "task-in-miniature" that combines the major elements of the job and then to assess the applicant's total performance on the task (p. 835).

Munsterberg applied the concept of work-related experiences in vocational assessment when he developed a miniature simulated task or laboratory game to select trolly car motormen for the Electric Railway Service of Boston.

In subsequent years, other isolated experiential tasks were developed for use in different settings to determine whether individuals displayed the type of talent or skill essential to the performance of specific industrial jobs, professional activities, military duties, and creative work. For example, Treat (1929) reported that the I.R.E. Trimming Test, a practical task that involved the use of scissors to cut between a pair of narrowing lines, correlated .69 with ratings of power-sewing machine trainees. The relationship between scores on a Metal Filing Work Sample, a practical task designed to measure one type of skill applied in dentistry, and grades in dentistry courses was described by Bellows (1940). According to Cronbach (1960), several tests that employed simulated experiential tasks (i.e., the Complex

Coordination Test, the Rotary Pursuit Test, the Two-Hand Coordination Test, the Pursuit Confusion Test, and the Rudder Control Test) were developed and used by Air Force psychologists to assist in the selection of pilots during World War II. In addition, a few applied tests of artistic creative ability, which involved drawing specific objects in perspective and following cue lines to independently create a freehand sketch, were developed during the 1930's. The majority of these early experiential work-related tasks or applied tests were developed for use in specific settings; most of them were not published and, therefore, had limited application.

Since the mid-1950's, several applied tests, which involve the application of knowledge or skill required in specific occupations or areas of work, have been developed and are currently available from various test publishers. These instruments include tests of computer programming, computer operating, musical talent, artistic ability, typing skill, and related occupational knowledge or skill. Many of these applied tests are of pencil-and-paper variety and do not require the use of tools, equipment, or materials that are commonly encountered in the occupations under consideration. Furthermore, these applied tests have not been extensively or systematically employed to select applicants or candidates for occupations or training programs that exist within industrial firms, business establishments, governmental agencies, the military services, or educational institutions. Nor have they become an integral component of traditional vocational assessment programs.

Rather, vocational assessment programs have traditionally placed emphasis on the use of tests to assess the degree to which individuals possess different levels or types of abstract traits or characteristics that are assumed to be predictive of vocational success. These programs rely heavily on tests of general intelligence, aptitude, achievement, interest, and personality to measure individual capacities. Once obtained, these measures are then related (either formally or informally) to the worker capacity requirements of various occupations.

This abstract exercise in logic, which provides the basis for the traditional approach to vocational assessment, was derived from Alfred Binet's concern with the measurement of "individual differences" among school-age children in the early 1900's. Due to its expedient and economical nature, this approach has not only persisted, but has become the most prevalent method of vocational assessment in our society. Thus, tests are currently used in most vocational assessment programs to measure isolated traits that individuals possess, a concept that Munsterberg felt was inappropriate or meaningless.

Although the concept underlying the use of work-related experiences in personnel selection was first developed and applied in the early 1900's, to date, that concept has failed to gain widespread acceptance within the mainstream of the vocational assessment movement. But during the past 25 years, increasing emphasis has been placed on the systematic use of work-related experiences to determine the vocational potential of individuals who have special needs and are handicapped for employment. An experiential trend in vocational assessment, which appears to have had a lasting effect on the vocational assessment movement, was initiated by the Institute for the Crippled and Disabled when it published the "TOWER" (Testing, Orientation, and Work Evaluation in Rehabilitation) System in 1957. Within a decade after the publication of the "TOWER" System, a new discipline emerged as an experiential extension of the vocational assessment movement. This discipline, known as vocational evaluation, relies heavily on the systematic application of practical

work experiences to assess vocational potential. Thus, after several decades and many isolated attempts at applying work-related experiences to vocational assessment, the concept proposed by Munsterberg has not only been recognized, accepted, and rendered operational, but has also provided the basis for the creation of a new discipline.

The Nature of Vocational Evaluation

Vocational evaluation may be defined as a process that is designed to assess and predict the work behavior and vocational potential of individuals who are handicapped for employment, primarily as a result of physical, mental, or emotional impairments. This definition implies that there is a need for two distinct types of technology in vocational evaluation. One type of technology is needed to assess the capacities of individuals and to diagnose their vocational assets and limitations. Another type of technology is needed to predict the capabilities that individuals will exhibit at work and to render prognoses that accurately reflect those occupational areas in which each individual will most likely become involved and achieve success. Both types of technology must be applied in a comprehensive program of vocational evaluation, and the technology selected for use in vocational evaluation should relate directly to the capacity requirements and capability demands of occupations.

Due to the comprehensive nature of this relatively young discipline, the process of vocational evaluation is not well understood, either by the general public or by many individuals who provide vocational evaluation services on a daily basis. Much of the confusion that exists is a direct result of the interrelatedness and interdependency of those concepts which are of central importance to the vocational evaluation process. The concepts capacity and capability, much like diagnosis and prognosis, are closely related to, and dependent upon, one another. These terms are often viewed as interchangeable and used to represent or describe the same concepts. Consequently, to understand the comprehensive nature of the vocational evaluation process, it is necessary to clarify and differentiate between the concepts of capacity and capability and to distinguish diagnosis from prognosis.

Capacity vs. Capability

A capacity may be defined as an inherent attribute of a body, system, or device which enables it to receive or accommodate and store or hold a particular measure of content. Numerical units (i.e., pounds, cubic feet, gallons, and related quantities) are often used to designate capacities since the ability of a particular item to receive or accommodate and store or hold is limited by the inherent qualities of its structure. In other words, the capacity of an item is determined by its volume or by the amount that it is able to contain. For this reason, capacities can be objectively measured.

On the other hand, a capability may be defined as a feature of a body, system, or device that is responsive to action, influence, or development. Capabilities are not inherent, nor are they determined or limited by the structure of an item. Rather, the capability of a particular item is dependent upon the action or influence exerted by or on that item as it is applied in different situations. For this reason, capabilities cannot be objectively measured; they are extremely variable and subjectively derived.

The capacity of an item can be understood by focusing on the amount or volume that it can accommodate or hold, while an item's capability can only be determined by attending to what it is able to do or how it might be used. For example, the capacity of a wastebasket can be objectively determined by measuring

the amount or volume that it can hold. But a wastebasket has varying types of capability which enable it to be effectively used for different purposes. In addition to being capable of holding paper, water, sand, or some other material, a wastebasket can also be used as a drum, seat, foot stool, step, planter, ash tray, or to fulfill a variety of other purposes. The specific manner in which a wastebasket is used will be subjectively dependent upon the action or influence exerted on it by others.

However, the capability of a wastebasket is, to a great extent, determined by its capacity. That is, a one-foot high wastebasket with a two gallon capacity might be capable of serving as an effective foot stool, step, drum, or planter, but that same wastebasket does not possess sufficient capacity to render it capable of serving as a comfortable seat. For this reason, the capacity of a body, system, or device imposes limitations on its effective capability but, within these limitations, a wide variety of capabilities exist for any given item.

The terms capacity and capability are applied in vocational evaluation to respectively designate the traits that are required of workers and the tasks that workers must perform to function in various occupations. Worker traits are considered capacities since they are inherent characteristics possessed by individuals and assumed to be normally distributed among the general population. Furthermore, occupations required different types and/or amounts of worker traits, and the degree to which individuals possess these traits can be objectively measured with reasonable accuracy.

On the other hand, the tasks that must be performed constitute the worker capability requirements of occupations since the ability to perform these tasks is dependent upon the actions expressed by individuals as they use the tools, equipment, and materials that are commonly encountered in specific work situations. When confronted with new and different work situations, individuals rely on their background and experience to perform the required tasks. They do not attack work-related problems in a standardized manner, but respond to the situation in their own personal way. For this reason, the capabilities of potential workers cannot be objectively measured; they can only be determined by focusing on the manner in which individuals subjectively relate to a variety of real or simulated work situations.

As applied in vocational evaluation, worker capacities represent those abstract attributes possessed by individuals which can be objectively measured, while worker capabilities relate to those concrete actions or behaviors expressed by individuals as they subjectively respond to a given situation. A variety of psychometric instruments are used during the initial phase of vocational evaluation to objectively measure the traits possessed by individuals in relation to the worker capacity requirements of occupations. Worker capabilities are determined by observing an individual's behavior and performance on work samples, situational tasks, simulated work experiences, occupational exploration procedures, and/or job tryouts during the experiential phase of the vocational evaluation process.

Diagnosis vs. Prognosis

Historically, the terms diagnosis and prognosis have gained widespread use and acceptance within the medical profession. In medical terms, diagnosis refers to the art or act of identifying a disease from its signs or symptoms. A diagnosis is essentially a concise statement or conclusion concerning the nature or cause of a particular condition as derived from its underlying signs or symptoms. Prognosis refers to the prospect of recovery from a given condition as anticipated from the usual course of the disease and peculiarities of the case. It

is a forecast or prediction about what the individual can anticipate in the future.

Conceptually, a diagnosis is firmly based upon accumulated knowledge that is commonly understood and shared by members of a particular discipline. It is a categorical approach to understanding and dealing with problems which assumes that conditions which affect individuals can be understood and categorized according to a number of common signs or symptoms. During the diagnostic process, the individual is ignored and attention is focused on the signs or symptoms that are demonstrated and observed. The process of diagnosis gives primary consideration to uncovering information that is internal to the discipline and that can only be understood by individuals trained in that discipline. The patient or client does not have the background necessary to understand this information or to relate it to a diagnostic category.

On the other hand, a prognosis is conceptually based upon the specific characteristics of each individual case. Every prognosis, regardless of related diagnostic category, will be different since they must each be based upon the individual and his or her particular situation more so than upon diagnostic signs or symptoms. Factors that are external to the discipline must be taken into consideration when rendering a prognosis since they will have a marked effect on the accuracy of the prognosis.

Although vocational prognosis is not a new concept it is not well understood. Historically, vocational assessment programs have been rendering vocational prognoses solely on the basis of diagnostic findings (i.e., biographical information, interview data, and psychometric test results). These programs have been involved in a process of categorizing people and rendering predictions or prognoses on the basis of categorical data. In many instances, they have ignored the individual and his or her unique situation and have based vocational predictions on categories of people such as the deaf are good printers, the mentally retarded are best suited for service work, highly intelligent individuals should pursue a professional career, or clerical work is for females.

Vocational Evaluation in the Vocational Assessment Process

The discipline of vocational evaluation is a definite part of the vocational assessment movement since it utilizes traditional vocational assessment techniques and procedures to diagnose worker capacities. However, realistic work experiences are extensively employed in vocational evaluation to determine worker capabilities. In fact, the reliance on work-related experiences is a central and unique feature of vocational evaluation which provides an identity to the discipline and "sets it apart" from other programs of vocational assessment.

Due to its direct concern with both diagnosis and prognosis, as well as its emphasis on the assessment of worker capacities and the determination of worker capabilities, vocational evaluation has emerged as a comprehensive approach to vocational assessment. The Tenth Institute on Rehabilitation Services (1972) defined vocational evaluation as:

> ....a comprehensive process that systematically utilizes work, real or simulated, as the focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. Vocational (work) evaluation incorporates medical, psychological, social, vocational, educational, cultural, and economic data in the attainment of the goals of the evaluation process (p. 2).

The second sentence in this definition implies that vocational evaluation is not a free standing or completely autonomous discipline. Rather, it is a discipline that relies on data provided by other professionals

to assist in the accurate and economical attainment of its goals. In other words, vocational evaluation incorporates data that was previously obtained by other disciplines into its process, instead of requiring a completely new evaluation of an individual's status in those areas that might directly affect the outcome of the vocational evaluation process.

In a similar manner, the discipline of vocational evaluation incorporates previously obtained and relevant vocational assessment data into the evaluation process, rather than using the same or similar instruments of vocational assessment to recollect that data. Thus, vocational evaluation may be viewed as the third level of a continuous or sequential vocational assessment process. Task Force Number One of the Vocational Evaluation Project (1975) indicated that the vocational assessment process consists of three levels; namely, (a) First Level of Assessment: Screening, (b) Second Level of Assessment: Clinical, and (c) Third Level of Assessment: Vocational Evaluation. In discussing the delivery of vocational assessment services, Task Force Number One (1975) related that:

> ....all clients within a service program go through a basic assessment process, which can be termed "screening." Typically, it is similar to the guidance procedures used by high school counselors or 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.
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> The second level of assessment 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 of other agencies and professional persons, use of clinically interpreted tests, and several hours of interaction between counselor and client.
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> Vocational evaluation is at 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.
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> The three level sequential assessment process has a number of advantages to it. First it is comprehensive: all of the clients within a particular service program can be accommodated within the process. Second, the strategy is parsimonious, or economically conservative: the first procedure used is the most simple, common, and economical; more elaborate, difficult, and expensive assessment processes are used only if necessary. Third, the strategy is direct: as soon as a reasonable course of action becomes apparent it is effected at once, instead of being subjected to a more elaborate assessment. Fourth, the strategy practices conservation: the assessment findings of the previous assessment processes are retrieved and passed along, rather than recreating this information at each new level of assessment. Fifth, the strategy is cost-effective.... (pp. 30, 32).

Thus, by its very nature, vocational evaluation is a comprehensive process. It not only makes use of data obtained from other disciplines, but also systematically applies its own series of realistic work experiences with each individual served. Vocational evaluation is the third level of

a sequential vocational assessment process, designed for individuals who require exposure to the realistic and experiential demands of specific areas of work in order to determine their vocational potential.

The Expansion of Vocational Evaluation Services

Vocational evaluation is a service that developed and evolved within the context of the vocational rehabilitation movement in an attempt to accurately assess the work behavior and vocational potential of handicapped individuals. Neff (1968) traced the evolution of vocational evaluation and indicated that vocational evaluation services are a logical extension or outgrowth of the mental testing approach to vocational assessment. Neff further suggested that vocational evaluation services were designed particularly for a handicapped population, a population whose work behavior and vocational potential could not be adequately assessed or effectively determined through the use of traditional mental or psychological testing procedures. Consequently, the field of vocational evaluation owes its existence to the vocational rehabilitation movement and many vocational evaluators remain directly involved with programs that are primarily designed to serve clients of the state/federal vocational rehabilitation system.

But due to the experiential nature of its work-related technology and its emphasis on self-involvement in vocational decision-making, vocational evaluation services have been incorporated into the structure of various social agencies and institutions during the past decade. In addition to being a service offered by rehabilitation facilities, vocational evaluation is currently found in public schools, vocational-technical schools, community colleges, hospitals, mental health centers, manpower programs, and in a variety of private business or professional settings. Although most of our adult population could derive personal benefit from participating in a vocational evaluation program, these programs have become essential to the accurate vocational assessment of those individuals who are non-verbally and experientially oriented, intuitive thinkers. In other words, vocational evaluation programs are not only beneficial, but also essential to the career planning and subsequent vocational development of individuals whose thought process is primarily governed by the right cerebral hemisphere. Such individuals have special needs in our modern society since they derive minimal benefit from exposure to the verbally-oriented programs and procedures that have been traditionally and extensively applied in our service-oriented agencies and institutions.

The majority of individuals who receive vocational assessment services from various social agencies and institutions do not require vocational evaluation; they have sufficient verbal and logical reasoning ability to benefit from the application of traditional verbally-oriented procedures employed during the first and second levels of the vocational assessment process. However, within any service population there exists a group of individuals whose special needs do not permit them to receive optimum benefit from their participation in a traditional program of vocational assessment. These individuals are predominantly nonverbally oriented, intuitive thinkers and require an experiential program of vocational assessment to effectively determine their vocational potential. Although it is impossible to specify the exact number of individuals who have special needs and require vocational evaluation services, Task Force Number One of the Vocational Evaluation Project (1975) indicated that:

> There are no accurate figures on the sizes of the special needs groups. However, there are some studies done in different

> manpower service programs (primarily education, labor, and rehabilitation) which have estimated the proportion of clients from a target population who fall into a special needs group. These estimates range from 10% to 20%, but cluster around 15% (p. 18).

Based on these estimates, approximately 15% of the population served by any agency or institution that is concerned with the career preparation or vocational development of its clientele will require vocational evaluation services. And since public schools, vocational-technical schools, community colleges, manpower agencies, mental health centers, and related community facilities are directly concerned with career preparation or vocational development, an increasing number of these agencies or institutions have incorporated vocational evaluation services into their structure during the past decade.

Thus, vocational evaluation can no longer be accurately identified as a service that is designed primarily for clients of the state/federal vocational rehabilitation program. During the past decade, the discipline of vocational evaluation has expanded, beyond the confines of the vocational rehabilitation movement and has become an integral component of the service structure of many other human service agencies and institutions. In commenting on the professionally-related consequences associated with this expansion, Nadolsky (1981) noted that:

> ...., vocational evaluation has emerged as a discipline with a broad base; it does not identify with any one program nor is its practice limited by the needs of a particular referral source.
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> Because of its broad base, vocational evaluation has the potential to develop an identity as an independent profession. It has become a discipline that must independently establish and maintain its own standards for professional practice, regardless of the specific needs and desires of any one program (p. 70).

Although the development of a broad base is not a distinguishing characteristic of a profession, it does establish a solid foundation for the independent or autonomous operation of a discipline. That is, the pervasion of a service into various sectors of society not only provides visibility to an emerging discipline, but also decreases the likelihood that a specific agency or institution will be able to maintain a controlling influence over the practice of the discipline. Due to its pervasive nature, an emerging discipline will eventually become recognized and accepted by the general public for its separate, unique, and distinct service contributions. Furthermore, as the discipline's practitioners become involved in offering a common program of service, which is based on a shared rationale and a consistent technology, members of the discipline begin to identify with one another, more so than with their particular place of employment. Practitioners feel a need to define, confirm, and protect their identity; they take steps to establish formal lines of communication and develop internal methods for the regulation or control of their discipline and its practice. For this reason, the establishment of a broad base appears to be a necessary, if not sufficient, condition for the professionalization of a service-oriented discipline. And the joint sponsorship of this forum suggests that the discipline of vocational evaluation has acquired such a broad base.

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