



UNIVERSITY OF MINNESOTA

minnesota studies in
vocational rehabilitation: xvii

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and
Work*

October 1964

Bulletin 40

MINNESOTA STUDIES IN VOCATIONAL REHABILITATION

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The Minnesota Studies in Vocational Rehabilitation are supported, in part, by a research Special Project grant from the Vocational Rehabilitation Administration, Department of Health, Education, and Welfare

Disability and Work

Introduction

The following is an attempt to develop a psychology of disability as it relates to work, viewing disability in the context of the *Theory of Work Adjustment* (Dawis, England, and Lofquist, 1964). This approach defines disability in terms of its effects on work adjustment rather than exclusively in terms of medical diagnostic categories. While medical diagnostic categories are obviously essential for medical treatment and subsequent regimen purposes, our concern here is with the relevance for work of changes imposed by disabling conditions. We seek to focus more specifically and intensively on the work adjustment potential of the disabled individual than appears to be the case in contemporary thinking and practice in rehabilitation.

Physical disability has been viewed in a variety of ways. The physically impaired person, at one point in history, was viewed socially as an object to be feared and avoided. His disability was seen in contexts of religious beliefs and superstition. More recently, he has been regarded as an object of pity and/or as someone who must be protected and cared for. Medicine at one time viewed disability in the context of the anatomically perfect man. Competence for work and participation in the normal activities of society was determined by whether or not the individual was anatomically whole. Today, medicine's modern functional concept of disability rejects the focus on anatomical perfection in determining suitability for employment (Rusk, 1962). Instead, treatment restores as much capacity as possible, and the individual is encouraged to fully utilize all remaining assets.

Psychologically, disability has come to be viewed in the context of the concept of the person as a whole interacting with the environment (Garrett and Levine, 1962) or in terms of the variations in physique which influence the reactions of others to the disabled individual, or of the disabled individual to himself (Wright, 1960). The approach to be taken in this Bulletin is comparable to the point of view expressed by Sir William Osler, who described tuberculosis as a social problem with medical aspects (Garrett and Levine, 1962). Rather than viewing disability in terms of broad

social implications, however, our approach discusses disability in terms of its consequences for work adjustment. This is a necessary addition to the emphasis already given to the medical and social aspects of disability.¹

Work adjustment, in the *Theory of Work Adjustment*, is "the outcome of the interaction between an individual and his work environment," and is defined in terms of two concepts—"satisfactoriness" and "satisfaction." Satisfactoriness is defined as the "evaluation of the individual's work behavior principally in terms of quality and quantity of task performance and/or performance outcomes," and satisfaction is defined as "the individual's evaluation of stimulus conditions in the work environment with reference to their effectiveness in reinforcing his behavior." The theory proposes that satisfactoriness "is a function of the correspondence between an individual's set of abilities and the ability requirements of the work environment" and that satisfaction "is a function of the correspondence between the reinforcer system of the work environment and the individual's set of needs."

The development of the "stable work personality," on which the foregoing is premised, can be described briefly as follows: As an individual responds, specific reinforcers in the environment (i.e., conditions which "maintain" responding) become associated with specific responses of the individual. The broad classes of responses generally utilized by the individual develop into his "set of abilities," while experiences with classes of environmental conditions which occur frequently in the reinforcement of his responding develop into his "set of needs." Because of differing social-educational requirements, the individual experiences differential utilization of his abilities, resulting in a unique set of more specific abilities at varying strengths. Similarly, the individual's experience with differing social-educational reinforcer systems results in some reinforcers becoming more effective than others. As a consequence, his unique set of needs becomes differentiated, with some needs operating at higher strengths than others. As the individual persists in a particular environment, with his relatively fixed set of reinforcers and requirements, his set of needs and abilities become more specific and more stable, until changes in successive measurements of abilities and needs are negligible. With this stabilization

¹For a similar viewpoint, see Hanman, B. *Physical capacities and job placement*. Stockholm: Nordisk Rotogravyr, 1951.

of the work personality, it is hypothesized that an individual's work adjustment and tenure for specific jobs can be predicted from knowledge of the correspondence between his abilities and job requirements on the one hand and between his needs and the job-reinforcer system on the other.

Proceeding from this theory, the approach to disability and work to be developed here is based on the premise that, for purposes of vocational rehabilitation counseling, a discussion of the influence of a disabling condition is more meaningful when the emphasis is placed on the effect of the trauma on job-relevant abilities. This includes the effect of the trauma on an individual's vocational needs when changes in needs are accompanied by significant changes in job-relevant abilities. These statements suggest that describing the impact of a disabling condition on an individual in work-adjustment terms may not be the same as describing it in medical diagnostic terms.

Consider, as an example, two individuals—one a surgeon, the other a psychiatrist. Both are injured in accidents which result in amputation of the left hand. In diagnostic terms, and for purposes of medical treatment, both individuals have relatively the same disabling condition. In work adjustment terms, however, it is apparent that the trauma may have much more severe consequences for the surgeon. In fact, it is possible that the psychiatrist has lost none of his significant job-relevant abilities, while the surgeon has suffered a rather severe vocational disablement. In this instance, then, knowledge of the nature of the disabling condition has relatively little significance, by itself, for the vocational rehabilitation counselor. However, knowledge of the pre-trauma work history and of pre- and post-trauma ability levels of these individuals will enable the counselor to make a more accurate assessment of the individualized work-adjustment problems posed for each of them.

Disability viewed in the context of work adjustment is further illustrated by the following example: Two individuals, both Book-keeping Machine Operators, have scores at the 90th and 70th percentiles, respectively, on the clerical perception scale (Q) of the General Aptitude Test Battery (GATB). While both of these scores are within the range for which satisfactory performance as a Book-keeping Machine Operator is predicted in terms of Occupational Ability Patterns (OAP) (U.S. Department of Labor, 1956, 1962), Individual A is likely to be an extremely satisfactory worker, while

Individual B will probably be only marginally satisfactory. Both individuals have diabetes mellitus, and both suffer a loss of visual acuity as a result of progressive diabetic retinopathy. Individual A's residual visual acuity is 20/100; the visual acuity for Individual B is measured at 20/60. After visual loss, Individual A drops to the 70th percentile on Q, while Individual B drops to the 55th percentile. In terms of medical diagnostic measurements as well as in terms of absolute loss of measured clerical ability, Individual A is more severely disabled. When reference is made, however, to prediction of job performance based on OAPs, it is found that Individual B has fallen markedly below the level on Q for which satisfactory work performance as a Bookkeeping Machine Operator would be predicted, while Individual A remains within the necessary limits of ability-job requirement correspondence. Thus, in work-adjustment terms for this specific job, Individual B is more severely disabled and less likely to be able to readjust to his former job.

These overly simplified examples illustrate the possible utility of viewing disability with a focus on work adjustment. The following definitions describe disability in the terminology of the *Theory of Work Adjustment*, and may provide the framework around which a psychology of disability and work can be developed.

Defining Disability

Disability may be defined literally as ability loss (dis-ability). It may be conceptualized as a significant decrease in the strengths of specific response classes in the ability set, resulting from physical or psychological trauma. A significant decrease is one for which there are changes in ability-requirement correspondence with reference to the effective range of correspondence for present and continuing work adjustment. Decreases may be measured with reference to the following:

1. Response levels prior to trauma;
2. Relative position in a peer group of workers.

Psychiatric Disability is defined as changes in the set of needs which result in significant decreases in measured abilities. Changes in the set of needs are not considered as disabling unless the ability levels are significantly decreased.

Disabling Conditions can be described as changes or limitations in physical and bodily functions which can, but do not necessarily, have a significant effect on an individual's ability pattern. That is, an individual may have a disabling condition without being disabled (in work adjustment terms) if the disabling condition does not result in a significant decrease in his level of job-relevant abilities.

Severity of Disability may be described in terms of position in a hierarchy of magnitude of ability loss due to trauma. Meaningful measures of severity might include:

1. Amount of ability loss from the original pattern of ability strengths;
2. Amount of decrease in measures of satisfactoriness;
3. Reduction of the number of job-requirement patterns potentially available to the individual;
4. Ease or difficulty in reaching the point at which measures of the work personality are stable. This may be determined objectively in terms of time required, or demonstrated subjectively in terms of individual reports. Reference is made here to the ease with which the individual is able to adapt

or shift to other response classes and to a new stable set of abilities.

Permanence of Disability might be described in terms of ability measurement remaining lower than the pre-disability levels after maximum treatment.

Progressive Disability is defined as a continuing decrease in ability strengths over a series of successive measurements, with increasing restrictions on work adjustment possibilities.

Congenital Disabling Conditions are seen as resulting in sets of abilities and needs that are similar to those of the average individual, but are perhaps more limited in range and pattern and perhaps at a lower level. These abilities and needs result from structured social-educational experiences in the same fashion as for "normal" individuals. The individual is not really disabled in the sense of a decrease in ability strengths as a result of trauma, although he has experienced a disabling condition. He has, however, probably experienced a more limited range of reinforcers than the "normal" individual.

"**Handicap**" is not felt to be a useful term for defining disability, since it focuses on limitations or barriers. The terms used here, such as "stabilized sets of abilities and needs" (or "stabilized work personality"), focus instead on what the individual has available to act on his environment.

Rehabilitation can be viewed as treatment and training which continues until the level and pattern of abilities and needs do not change significantly. In the case of the congenitally disabled individual, **habilitation** would attempt to provide experiences with new conditions of responding, so that the patterns of abilities and needs might be broadened.

Vocational Rehabilitation Counseling is a process or set of techniques employed to facilitate an individual's learning about his ability and need sets, finding the Occupational Ability Patterns (OAPs) and Occupational Reinforcer Patterns (ORPs) available to him in jobs, and making appropriate vocational decisions. The success of counseling is evaluated in terms of measured work adjustment on follow-up, or, utilizing an intermediate criterion, in terms of counselee choice of objectives consonant (because of their

suitability in a person-job matching sense) with the prediction of work adjustment.

Working with this set of definitions, it is possible to state a number of research problems important to the development of a psychology of disability within the context of the *Theory of Work Adjustment*. The following research problems are listed as examples.

Research Problems

1. **Estimation of an individual's pre-trauma work personality from examination of job-analysis data for specific jobs in his work history (especially those on which he had substantial tenure), and from the cumulative record of his educational history.**

The estimation of pre-trauma work personality from work history data is premised on relationships specified by the *Theory of Work Adjustment*. According to the *Theory*, job tenure is a function of satisfaction and satisfactoriness² which, in turn, are functions of the individual's abilities and needs, and the job requirement and reinforcer characteristics of the job.

The cumulative record of the individual's educational history can also yield estimates of pre-trauma abilities and needs. Estimates of abilities can be derived from examination of the relationships between the scores on tests taken during school years and such instruments as the GATB. Estimates of pre-trauma needs can be derived from analysis of teachers' descriptions of the student.

The validity of such estimates of pre-trauma abilities and needs can be determined in a longitudinal study of individuals from whom pre- and post-trauma measures can be obtained.

2. **The identification of characteristic need patterns for disability sub-groups, when these sub-groups are defined psychometrically instead of medically.**
3. **The identification of characteristic need patterns for sub-groups of the psychiatrically disabled with common ability losses, regardless of specific psychiatric diagnosis.**
4. **Occupational ability level prior to trauma, age, and other demographic characteristics, as factors affecting the severity of disability.**

²For the definition and measurement of satisfaction and satisfactoriness, see Carlson, R. E., Dawis, R. V., England, G. W., and Lofquist, L. H. *Minnesota Studies in Vocational Rehabilitation: XIII. The measurement of employment satisfaction*. Minneapolis: Industrial Relations Center, University of Minnesota, 1962; and Carlson, R. E., Dawis, R. V., England, G. W., and Lofquist, L. H. *Minnesota Studies in Vocational Rehabilitation: XIV. The measurement of employment satisfactoriness*. Minneapolis: Industrial Relations Center, University of Minnesota, 1963.

5. The relationship between severity of disability and post-trauma stability of job satisfaction and work history.

With increasing severity of disability and relatively little change in the need set, it might be expected that restrictions on available job possibilities will result in decreasing or less stable job satisfaction, and a less stable work history (i.e., more exploration across several jobs).

6. The impact of sensory disability on the number of occupational possibilities.

Some sensory disabilities may impose additional restrictions on the number of feasible occupational possibilities because of inability to perceive reinforcers as relevant to individual needs and as present in the job.

7. The effect of individualizing the reinforcer system on the job to meet the needs of the disabled.

In situations where jobs are tailored to accommodate disabled individuals, it might be expected that work adjustment will be increased if the tailoring centers not only on restructuring of ability requirements but also on the provision of an appropriate reinforcement system. Work adjustment (and particularly satisfaction) would be expected to increase for individuals with *sensory* disabilities (e.g., blindness or deafness) when the need and ability correspondences for the job are adequate and the reinforcer system is tailored to provide for presentation of the reinforcers through non-affected sensory modalities. Where significant reinforcers on a job are typically presented through an affected sensory modality, attention should be given to other modes of presentation for the disabled person.

8. The effect of the manipulation of reinforcement during rehabilitation on the re-stabilization of the work personality.

It might be expected that post-trauma ability strengths will be increased more and in a shorter period of time, if the manipulation of reinforcement during the rehabilitation period (including specific retraining and adjustment training) is individualized and utilizes knowledge of pre-disability reinforcement history (i.e., the most effective reinforcers that operated during the development of the individual's work personality).

9. The development of work personalities of congenitally disabled individuals.

Congenitally disabled individuals would be expected to have fewer high strength needs compared with non-disabled and traumatically disabled individuals. These high strength needs of congenitally disabled individuals, while fewer in number, will probably operate in the same range of intensity as the needs of other individuals. The need sets of congenitally disabled individuals would be expected to stabilize earlier and show less fluctuation over time than will the need sets of other individuals. This might be the result of early structuring of response possibilities for the congenitally disabled person.

10. The relationship between congenital disability and job satisfaction.

When all individuals are in bands of acceptable correspondence, the level of job satisfaction for congenitally disabled persons should be the same as that for non-disabled individuals, but higher than that for traumatically disabled persons, when level of satisfaction is measured on the first job for all three groups. (First job in the case of the traumatically disabled refers to the first job after trauma.)

11. The relationship between job satisfaction and "outward visibility" and "social acceptability" of disabling conditions.

For individuals within bands of need-reinforcer and ability-requirement correspondences on specific jobs (for which work adjustment would be predicted), satisfaction may vary with outward visibility of the disabling condition, and social acceptability of the stereotype for the disabling condition.

12. Work personalities of mentally retarded individuals.

The individual differences in the abilities and needs of mentally retarded individuals should have significance for work adjustment. The mentally retarded individual, just as the normal individual, has a unique work personality, and his own work adjustment possibilities.

13. The relationship between stability of the work personality and "acceptance of loss."

Individuals who show greater stability of need and ability patterns should be judged to have emotionally accepted their loss more than those persons with less stability.

14. The relationship of counselee description of his work personality and vocational rehabilitation counseling process criteria.

The more accurately a counselee is able to describe his abilities and needs, the more likely it is that he will be observed to progress along dimensions such as "adjustment to disability," "acceptance of loss," "willingness to participate in counseling," and "motivation to plan."

15. Employer attitudes as affected by the nature of the disability information.

It is expected that there will be fewer conflicting attitudes toward "hiring the handicapped" when employers act on disability information phrased in work adjustment terms rather than when such action is taken on the basis of disability information phrased in medical terms.

Rehabilitation Counseling

Procedures

The vocational rehabilitation counselor who views disability in the conceptual framework of the *Theory of Work Adjustment* attempts to operate as closely as present knowledge permits to the following procedural steps:

1. **Obtains background information relevant to the medical description of the disabling condition, the reasons for referral, and the counselee's expectations of the counseling.**

At this point, the counselor informs himself completely about the circumstances surrounding referral for vocational rehabilitation counseling. He needs to know how the counselee, the physician, and other rehabilitation workers view the disabling condition and its implications for work. In addition, he must have data on which to base hypotheses about how the counselee is likely to respond to a variety of possible counselor behaviors in the initial set of interviews.

The counselor, then, seeks all relevant information that may facilitate his viewing what can now be called only a disabling condition against the context of the individual's personal history, with the additional benefit of expert referral opinions. He plans the most effective approaches to establishing a continuing relationship with the counselee so that he can gain access to the additional information that is required to determine whether or not a disability exists (and if so, to what extent), when disability is defined in work adjustment terms.

It should be possible for the counselor to find relevant background information in such materials as: the medical diagnostic records including the description of the traumatic incident, the medical treatment record, available social history information, the counselee's cumulative record in school, any previous counseling records, and all available test results.

2. **Establishes an initial accepting relationship, utilizing clues from the individual's reinforcement history to structure the situation so that the counselee becomes involved in a process of data gathering and planning.**

The counselor involves the counselee as an active participant in the search for the additional data on abilities and needs that are required to make predictions of work adjustment for specific kinds of training and specific job placements.

3. Constructs a model of the pre-trauma personality.

The counselor estimates the counselee's level and pattern of ability and need strengths prior to the advent of the disabling condition. He makes estimates of the kinds and amounts of reinforcement in the counselee's developmental history which were effective in shaping the pre-trauma work personality. It is necessary to construct such a model of the pre-trauma work personality in order to establish the existence of disability, to estimate its severity, and to formulate hypotheses concerning the amount and kinds of training that might be effective as well as the kinds of jobs that will be available to this person. The counselor establishes a base or a comparison level against which he can look at post-trauma ability and need strengths, and against which he can measure the effects of rehabilitation treatment and counseling.

4. Consults with medical experts on medical treatment goals and plans, and on environmental limitations, if any, for this individual.

The medical information which is sought at this point is that which is relevant to the individual's disabling condition and his general functioning, not to the performance of specific jobs.

5. Establishes, by psychometric evaluation, present levels of ability and need strengths.

The counselor measures abilities and needs in the same terms utilized in constructing the model of the pre-trauma work personality.

6. Evaluates psychometrically the progress that is made in rehabilitation by comparing pre-trauma and post-treatment levels of abilities and needs in relation to post-trauma levels.

Changes in need and ability levels are studied by retesting during the course of the broader rehabilitation process. This broader process would include such treatments as physical therapy, psychotherapy, work therapy, and training.

From data on changes during the rehabilitation process, the counselor estimates the likelihood that additional treatment will be effective both in terms of amount of gain or change (in measured abilities and needs) and amount of stabilization (lack of fluctuation) in the measured changes.

7. Assists the counselee in gaining knowledge of his abilities and needs.

The counselor communicates to the counselee realistic knowledge of his post-trauma assets and liabilities.

8. Determines from lists of Occupational Ability Patterns (OAPs) which jobs, across levels and fields of work, are similar to the counselee's stabilized ability pattern.

Determines from lists of Occupational Reinforcement Patterns (ORPs) which jobs, across levels and fields of work, are similar to the counselee's stabilized need patterns.

Determines which jobs meet optimal counselee matching standards for both job requirements (OAPs) and reinforcer patterns (ORPs).

The counselor predicts satisfactoriness and satisfaction, and subsequent job tenure for a number of jobs for this specific counselee. He predicts, for certain defined limits of counselee-job correspondence, the likelihood of work adjustment, or employment success, for this counselee. Predictions are recorded for subsequent evaluation.

9. Screens the kinds of jobs for which employment success would be predicted against medical consultant evaluations of the capacity of this counselee to do the physical tasks involved in the jobs and to perform in the environment in which this group of jobs is found.

10. The counselor attempts to influence the counselee so that he will select jobs which match his ability and need patterns and strengths.

Utilizing his knowledge of the counselee's reinforcement history, the counselor attempts to bring about selection of jobs for which the ability and need correspondences are consonant with a prediction of work adjustment. The counselor seeks to

facilitate counselee selection of appropriate jobs by the use of such techniques as selective reinforcement, suggestion, selective use of occupational information, and placement of the counselee in situations which are reinforcing to him. It should be understood that these techniques are aimed at facilitating a selection of jobs which will insure work adjustment with its attendant satisfaction for the counselee. Aside from an interest in following up a counselee's success in work as a means of evaluating how effective the prediction and counseling techniques were, the counselor, of course, should have no interest in maintaining control over the counselee beyond the counseling situation.

It should be noted that this approach to vocational rehabilitation counseling emphasizes the structuring of an individual's vocational choices in accordance with a stabilized work personality, rather than the achievement of marked changes in a counselee who has a stabilized work personality. The emphasis is placed on finding, in the realities of the world of work, appropriate situations in which a counselee with a stabilized work personality can utilize his abilities and satisfy his needs. The focus is not on changing the counselee to fit the world of work. To illustrate this approach, one might recall that often in conversations with rehabilitation counselors it appears that the counselor feels a desire to reduce a counselee's dependency. Little consideration may have been given to whether or not this dependency arose from the disabling condition, or if it is normal and stabilized dependency developed by the counselee over the years of his reinforcement history. It seems reasonable to think of normal individuals as being distributed along a dimension of dependence. If a counselee has a stabilized work personality, and is dependent, but his dependency is not of such magnitude that it immobilizes him or affects his ability utilization, it would seem more reasonable to help him to find ways in which he can utilize his dependency than it would be to attempt to reduce his dependency. Perhaps, in too many instances, counselors assume that it is desirable to try to bring all persons to some modal level of dependency or to reduce dependency to the extent that the counselee would approach a (perhaps nonexistent) condition of "ideal" lack of dependency. It would also seem that it may be relatively difficult to bring about significant changes in established need patterns in the relatively short period of time the counselee spends in a series of counseling interviews.

Evaluating Counseling Success

When vocational rehabilitation counseling and disability are approached in terms of the *Theory of Work Adjustment*, several criteria of the effectiveness of counseling are available for various points in the rehabilitation process, proceeding from criteria available in the counseling process itself through intermediate criteria, to an outcome criterion in a longitudinal study of counseling effectiveness. The following are examples:

1. Increases in ability utilization as counseling progresses;
2. Stabilization (lack of fluctuation) in measured abilities and needs as the counseling process progresses;
3. Satisfactory progress by the counselee in a course of training designed for a job, or set of jobs, for which work adjustment is predicted;
4. Counselee choice of a job, or set of jobs, for which work adjustment is predicted;
5. The counselee meeting selection standards and obtaining placement in a job for which work adjustment is predicted;
6. Adjustment (satisfactoriness plus satisfaction) in a job held for a short period of time (e.g., six months) where the correspondences on both the ability and need levels were appropriate;
7. Tenure in a job or series of closely related jobs for which work adjustment was predicted.

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