1959 Eleanor Clarke Slagle Lecture

The Essentials of Work Evaluation

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Preface

The principles of occupational therapy established by our pioneer occupational therapists, and most particularly Eleanor Clarke Slagle, have given us the foundation upon which to build advanced techniques and approaches.

Although pre-vocational occupational therapy is a recognized part of our work, it seems apparent that there is still a need for a discussion of the basic principles and practices essential to such a program.

The essentials which will be considered today are the expression not only of myself, but also of the members of the work evaluation team of the May T. Morrison Center for Rehabilitation. The recognition you have given to me must, in truth, go to this team as a whole.

Introduction

In the consideration of vocationally oriented occupational therapy, it is essential to provide an effective means of determining needs, measuring abilities and predicting capacities of an individual. One of the most effective means is through the use of tests. Experience in helping to develop a work evaluation service has taught me that tests are basic to such a service and that the work tests developed in occupational therapy are the very essence of such a program.

It is, therefore, this subject of tests which will be our primary consideration today; what a test is, what a test should do and the role of the occupational therapist as a tester.

In the field of physical disabilities, certain tests have become standard to good treatment. Some of these are range of motion tests, muscle examinations and functional activity tests. Initially, we use these various evaluations as a way of establishing tentative goals. Throughout the course of treatment, we use them as a means of measuring progress or abilities.

Originally published 1960 in *American Journal of Occupational Therapy, 14,* 65–69, 79.

The work evaluation team, in an examination of the vocational needs of the patient, realized that these tests did not reveal, to any practical extent, the person's ability and capacity for work. The need for a more thorough appraisal and accurate prediction of vocational capacities was evident. It was appropriate that an approach be developed which would attempt to deal with this need and which would be suitable for all diagnostic areas.

In work evaluation, tests using the reality situation or work sample method have proven to be such an approach.

Statement

If we recognize that tests play a part in determining needs and act as a guide to the attainment of goals, then we can assume that the purposes of a work evaluation program are the testing and evaluation of work abilities, including skills; the testing and predicting of work capacities, including the level of employment expected; and the testing and exploration of interest and work aptitudes.

More specifically, the objectives of the tests are:

(1) To evaluate ability as related directly to recommended and specific job tasks. The evaluation of the person's learning ability, retention of skill through tests and recall of skills on re-tests should be considered.
(2) To determine capacity to perform job tasks. Such factors as production and proficiency in terms of the specific samples should be carefully evaluated.
(3) To evaluate such physical and psychological factors as work tolerance and work habits.
    (a) To evaluate work tolerance, such factors as ability to work in the required physical position for the required length of time; tolerance to job demands, such as noise, dust, people and tools; tolerance to routine, repetitive work or skilled work should be considered.
    (b) To evaluate work habits, such factors as responsibility, cooperation, attention span, response to authority and criticism, method and manner of performance, mood and relationship to others, should be examined.
(4) To devise and evaluate work simplification methods as indicated.
(5) To provide the patient with an opportunity to participate in a realistic work program.

In order to meet these testing objectives based on vocational needs, it is necessary to have media closely related to job demands. Work sampling and evaluation is job-oriented, not disability-oriented. We are evaluating the ability of a person to work. Because the individual is vocationally in need, our media and our roles must have a vocational orientation. The fact that a medical diagnosis rendered the person in need of vocational rehabilitation means that we must be aware of the diagnosis in the work program. We are dealing, then, with a medical and a vocational program, with consideration of the former but emphasis on the latter. This change of emphasis influences the role of the occupational therapist.

To understand this clearly, we first need to know what a test is and what a test should do. A test is defined as "a means of measuring the skill, knowledge, intelligence, capacities or

aptitudes of an individual." In preceding remarks, it was mentioned that a work testing program should provide a reality situation, an accurate measurement of abilities, and an accurate prediction of capacities.

Let us keep the definition of a test and these essentials of testing in mind and determine how work tests should be organized to accomplish the objectives.

Many of you will be familiar with the *Dictionary of Occupational Titles*. This publication has been prepared by the Division of Occupational Analysis, of the United States Employment Service. It has provided a suitable framework upon which to organize the structure of work tests. This structure allows for division and selection of appropriate work samples according to the major job families, such as: technical work, clerical and sales work, service work, mechanical work and manual work.

The test should measure as nearly as possible the movements required on the job. In addition, such intensity factors as the distance walked, directions reached, and weights lifted and carried should be evaluated. It should be of sufficient length to evaluate both ability and endurance. This means that the test should involve normal units of work rather than single units which would evaluate only the momentary capacity. If, under normal working conditions, the individual would be required to work with 500 or 1,000 parts for a given period of time, then the work sample should be set up accordingly.

The tests should be provided in a special atmosphere which is tailored to fit the demands of the various job families and which is in keeping with the demands of a testing situation. Unless group testing has been specifically recommended, the tests should be administered in a room separate from the occupational therapy department or workshop area.

The test should provide both an objective and a subjective analysis and standardization in all tests is a recognized goal. Standardization does not relieve the occupational therapist of interest, ingenuity or initiative. On the contrary, as each client varies so greatly from the next, the tester's entire thought and time will be directed to the evaluation of that particular person's performance in terms of the test objectives established for him. Without standardization of the testing procedures, there would be no reference point or base line for the tester, there would be no opportunity to accumulate reliable data and, indeed, the entire process would lose the scientific concept.

The test should be easily administered. Each test should have a test kit indexed according to the occupational classification and titled with the test name itself. For example: handwriting is classified under the major heading of "Clerical Work, General Recording," with the numerical classification of 1-X2-0. Assembly, packaging and sorting of miscellaneous items is classified under the major heading of "Manual Bench Work" with the numerical classification of 6-X4-3.

Each test kit should contain a test outline composed of a description of the test in industrial terminology, the purpose of the test, the physical demands of the task, the psychological factors to be considered, a list of the equipment and supplies required, a detailed explanation of how to prepare the work place, an explanation of the exact information to be given the client, and full instructions as to what should be included in the timings and what

items should be recorded as errors. The equipment, tools and supplies should be assembled in a portable kit if possible.

The test results should be readily evaluated. This requires a standard and quick method of scoring and checking for accuracy. Several systems for the latter can be used, such as: special marks, numerical codes, or answer sheets. When evaluating craftsmanship, models for comparison should be used. When evaluating work samples classified as repair work, the tester should be sure that the finished project works. Discussion of scoring will come later in the paper.

The test should be acceptable to the individual taking it. This is not a problem if there is rigid adherence to the reality situation. There is some danger when devising a work sample to make something do for the sake of economy in time and money. This is false economy. It results in the test appearing silly to the client and thus losing its predictive value.

The test should be available to facilities and occupational therapists at a moderate initial outlay. Replacement or maintenance should not be costly.

The use of work evaluation tests means that the occupational therapist must be a work tester and, as such: is assuming a function of more vocational emphasis than medical. This change in emphasis, however, does not change our functions radically. The following outline of the essential functions of the tester will indicate that these are basically the same as the defined and accepted functions of the occupational therapist. The items with which we work, the factors which we consider, the terminology which we use, the goals which we set, may be adapted to fit the need. The basic or fundamental things that we do, however, have not changed.

Essential Functions of the Tester

Referral. Included in the referral for work evaluation should be as many known factors as possible, such as: the work history, the medical, social and educational histories and the results of psychological evaluations. There should be a recent physical examination or medical approval of the program. In our facility, it has been the occupational therapist and the rehabilitation counselor who have procured and assembled this data.

Acceptance. Once this information is obtained, the referral should be followed by a staff review for determination of acceptance and choice of work samples. At the May T. Morrison Center, we have termed this review the work sample prescription conference. The occupational therapist, the physiatrist and the rehabilitation counselor select the appropriate tests. If the referral comes from the Vocational Rehabilitation Services, the counselor active in the case attends the conference. The selection of tests is based on the client's physical capacities, personality appraisal, social history, vocational interests and aptitudes and the tentative vocational objective.

The occupational therapist should assist in recommending the actual tests to be used. He should suggest whether or not re-tests or equivalent tests seem indicated and at what stage these should occur in the program. Re-tests refer to the same tests done more than once and can be administered within the first tryout period or scheduled for a later date. Re-tests given

within the initial period will evaluate the individual's ability to recall skills. If given at a later date, re-tests will not only evaluate re-call but also will serve as a measurement of progress in abilities. Equivalent tests refer to tests which are similar to others in that they can evaluate similar factors but will differ in such things as the test outline, the instructions or the tools. These are generally done within the initial tryout period. Such tests are useful when evaluating the client's tolerance to working with a variety of materials, such as wood as opposed to metal or vice versa.

Preparation. In the planning stage, preparation refers to the scheduling of the client. Various social, psychological or physical factors enter into the choice of time and days. The time of the day, the day of the week, the time of the month, the attitude of the family can, and will, influence the client's participation in the testing program.

Pre-Testing

Preparation. The equipment should be kept in working order, the supplies should be adequate for each testing period and the work room should be properly arranged for the client and the job.

Presentation. In the explanation of the testing program, it is important to orient the client to the purpose of the testing and of the tests. Terminology should be used which is in keeping with the job and suited to the client's needs, such as in the case of the deaf, blind or the brain injured. Initial contact will structure the total testing atmosphere.

Instructions will be oral, written or schematic depending on the nature of the job. Instructions should be kept to the test outline as they have been carefully worked out according to normal job conditions.

Demonstrations of the movements required and the various methods needed to complete the work sample will be necessary. This is particularly true in jobs requiring a high rate of production. Our test outlines are written for the non-handicapped person and adapted as necessary for each client. This adaptation would be required in the case of a functionally one-handed individual performing a task normally requiring the use of two hands.

Tryout phase. The client should be allowed to try out part of the test to learn the procedures and to allow the tester to observe his capacities. The learning time should be recorded for comparison with the average learning time. The need for accuracy should be stressed during this phase and all errors should be corrected and discussed with the client as they occur.

Test

Administration. An accurate administration is essential otherwise the scores cannot be validated. Strict adherence to the work samples as prescribed, however, should be up to the discretion of the tester—a judgment which is used constantly in the treatment of patients.

Instructions and comments should be confined to the testing situation. The performance must be by the client's own efforts in this phase. Unnecessary words or actions will disturb the worker.

Observation. Both direct and indirect methods of observation should be used. An example of the direct method would be the close observation essential to note the number and types of errors which the client makes. Very often an individual will make consistent errors. These could be due to an oversight during the instruction period, or something that the client has failed to comprehend or something that he is prone to do. Without close attention to this detail, the wrong conclusion could be made. An example of the indirect method would be the subtle observation of manifestations of behavior.

Recording and evaluation. When making observations, it is easy to overlook certain factors, forget certain details or emphasize unimportant events. Therefore, for recording and evaluating, it is recommended that the tester use a work test sheet, check list (work sample prescription) and stop watch. A slide rule is optional.

The work test sheet is an ideal place for recording the client's name, diagnosis, date, numerical classification and title of test. It also allows space for a description of the client's performance and his production, proficiency and final ratings. If this sheet is carefully written, it can serve as a part of the final report. Only the most significant material should be recorded. This places additional importance on the work sample prescription as the testing objectives will then serve as a guide.

To evaluate performance, it is necessary that some method of scoring be established. The Morrison Center has a norm for each work sample test. This norm was established by methods used by our industrial engineer, Mr. Paton B. Crouse. The norm is set up so that 100% represents the normal good performance of non-handicapped workers familiar with the job and working at a tempo that would be required in competitive employment.

These norms, written in decimal figures, are recorded in each test kit. If the test involves several parts, each part will have a norm. A decimal stop watch is used to record the client's time. At the conclusion of the test, the norm is divided by the time achieved by the work. This establishes a percentage and is known as the production rating. To obtain a proficiency rating, a certain percentage is then deducted for errors. This percentage is based on the degree of skill needed and the quality required by the job. All final ratings are based not only on the production and proficiency ratings, but also on the subjective analysis of the client's coordination, attention and interest for that particular job. These ratings are expressed in terms of "good," "fair," or "poor" depending on where they fall in the numerical scale of 100–0. For example 0–30 represents poor or questionable performance and means that the client is capable of selective work in the sheltered shop area or noncompetitive employment. A score of 30–50 represents a fair performance and means that the client is capable of sheltered shop work at that time with the potentiality for competitive employment with training or adjustment. A 50–75 score represents good and means that the client is an adequate worker for competitive employment. A 75–100 score represents superior and means that the client is a good to exceptional worker and capable of competitive employment.

The final evaluation must also be based on the atmosphere and deviations which have been allowed by the tester. These deviations may or may not be acceptable from the vocational viewpoint. It is imperative that this be determined before the tester ventures too far from the standard procedure. This again is one reason why a discreet choice or prescription

of samples is so essential. If the elements of a test have to be varied to such a degree that the test loses its identity, then an appropriate work sample was not selected.

Reporting

Quite detailed and structured reports should be prepared. Adoption of standard terminology by the team is essential. To avoid unnecessary repetition when preparing the report, our evaluation service has adopted a standard organization of the report and standard phrases for certain parts. For example, the opening paragraph always states:

> The following work samples were selected on the basis of the client's education and employment history, psychological test results and physical (or psychiatric) information in order to evaluate his physical ability and capacity, his emotional tolerance and capacity, his interest and aptitude to engage in the following work.

The prescribed or selected work samples are then listed, after which is a description and evaluation of the client's performance on each test. A summary of the overall performance relating directly to the testing objectives with recommendations for future course of action or possible areas of placement concludes the report. Whatever the organization of the report, however, the tester must strive to be objective in his remarks. The tester must not be influenced by previous evaluations. His opinions must be based solely on the observations during the testing period.

The preceding essentials form the scientific basis of a work evaluation program. The success of such a program depends on the most important essential of all—that is, the tester. It is obvious that there are certain traits that a tester should possess. First, the tester should be one who can perform concise analyses, both of a qualitative and quantitative nature. As he will be confronted with varying abilities, diagnoses and degrees of intelligence, he must be one who can react consistently and objectively. He must be sensitive to the needs of the client during the testing—needs which could result in a shift in the task or the atmosphere. The tester should be one who can adopt and maintain a scientific concept. He should be one who is willing to work in harmony with a team. He must be one who is interested in learning new concepts, in developing new programs and in the broadening of his education.

The opinion of the work evaluation team at the Morrison Center is that the occupational therapist is the natural choice for the work tester. An occupational therapist's training and work experience is geared to dealing directly with human beings—not just for a few brief moments, or in an hour's interview, but hour after hour throughout a day. An occupational therapist's thoughts and techniques provide him with a unique approach. This approach is ideal for, and essential to, a testing situation.

Before concluding, there are certain other practical considerations which should be noted at this time. First of all, one should not assume that a vast number of tests are required for a work evaluation service. There are four major job classifications which are most commonly requested. These are: clerical and sales work, service work, skilled mechanical work, semi-skilled to unskilled manual work. Of these four classifications, the first and the last are the most used and the most practical from the standpoint of placement areas for handicapped individuals.

Although our tests number 83, only 26 of these are most commonly used. These 26 are:

Clerical and Sales Work

1. Computing work using the calculator machine
2. Handwriting
3. Simple book-keeping
4. Typing
5. Checking of equipment, invoices
6. Routine recording work, using adding machines
7. Classifying work
8. Filing
9. Clerical machine operation
10. Collating
11. Telephone and switchboard work
12. Cashiering and vending machine

Service Work

1. Kitchen helper
2. Domestic worker

Skilled Mechanical Work

1. Electrical equipment repairing
2. Radio repairing

Semi-skilled to Unskilled Manual Work

1. Inspection
2. Electrical unit assembling
3. Wood unit assembling and woodworking machine operation
4. Miscellaneous bench work
5. Metal bench work
6. Miscellaneous metal working
7. Miscellaneous paper work: assembling, cutting, sorting
8. Light elemental work: simple routine, repetitive jobs
9. Elemental service work: janitorial or dishwashing jobs
10. Miscellaneous physical work. This is work requiring simple, routine tasks such as might be found on construction projects or in maintenance areas and which would range from light to medium to heavy in degree.

A second major consideration is the number of days suitable for testing. We have found that a period of three days is quite adequate. This is a concentrated period, lasting all day, with one occupational therapist handling one client at a time. Such an arrangement is ideal, but this period must be solely confined to testing and not include training or adjustment. It is my feeling that there is a time and a place for testing, and a time and a place for adjustment

or training. An attempt, on the part of one occupational therapist, to do both of these simultaneously loses the scientific approach. This is not to say that adjustment and training cannot be scientific, but in the combination of the two, the true purposes become obscured. The purpose of the testing is to diagnose and evaluate the client's ability and capacity for work but not to condition him for employment. Testing is required to determine the area of training, the level of training and, indeed, if training should be considered. The purpose of a work adjustment program, on the other hand, is to adjust and condition the client to the demands of work by providing opportunities for him to develop work habits or improve such work assets as were noted in the testing situation. The opportunity to participate in a testing program, with close relation to an adjustment program, has made me realize that similar but not identical evaluations can be gained. It would seem apparent, therefore, that both a work testing and a work adjustment program is needed to provide a thorough vocational appraisal. These programs must be coordinated in a team approach. As the work training or adjustment program should occur in a variety of places depending on the results of the work tests, a coordinated team approach implies the integration of an in-center and an out-center team.

There is one last consideration. This is the implication of a testing and evaluation program to our patients, our media and our selves. It means that we are able to offer a more thorough program to our patients by determining their vocational needs and assisting in their fulfillment. It means that occupational therapy can offer a scientific approach. It means that the occupational therapist has a new and stimulating concept. All of these factors have a far-reaching implication as they extend to the potential occupational therapist, our students, a challenge to enter our profession.

In conclusion, certain basic essentials must be considered and adopted in order to provide an effective work evaluation program. It is apparent that such a program must be composed of several phases. The phase which has been discussed today, namely work sample testing, is just one step towards the determination of the patient's ultimate vocational objective. This paper has been an attempt to outline work evaluation essentials and to show the effectiveness of occupational therapy when planned with a group of experts and executed with a goal in mind.