

FOCUS ON EXCEPTIONAL CHILDREN

Vocational Assessment and Training of the Handicapped

Patricia L. Sitlington

Vocational training programs for the handicapped have existed at the secondary and post-secondary level for many years. At the high school level these programs usually involve a work experience coordinator talking with the student and the student's teachers and placing him or her in a job in the school setting or community. This job experience is often supplemented with related instruction in the special education classroom. The majority of these programs seldom contain any provision for systematically obtaining vocational assessment data on the student and if there is an assessment component, it is usually a one- to two-week segment in the student's three- or four-year program.

Post-secondary training programs have traditionally been housed in sheltered workshops or private vocational training centers. Again, what assessment is done on the clients is usually completed in a two- to four-week period when the client is first admitted to the program, and this information typically consists of results from paper-and-pencil and manual dexterity tests.

The advent of Public Law 94-142 and the corresponding vocational education legislation, Public Law 94-482, mandated changes in the systems delivering vocational training to the handicapped. These laws have, first of all, dictated the involvement of regular educators in such vocational programs. This means that, although the work experience coordinator may still be involved in vocational programming for the handicapped in his or her high school, the regular vocational educator and counseling staff must also be involved, and the handicapped student should be included in regular vocational education cooperative education programs. At the post-secondary level it means that handicapped students should be served in existing vocational-technical schools and training programs with access to the appropriate entry level and advanced skill training areas within these programs.

If the handicapped are to receive the full advantage of existing vocational programs, the best possible match must be made between the handicapped individual and the program or job placement and the maximum amount of relevant data must be gathered on the trainee. This match between abilities and program or job requirements is particularly crucial for handicapped individuals because they may lack some of the flexibility to compensate for and adjust to programs or jobs for which they are not fully qualified.

Along with mandating the involvement of regular education, Public Laws 94-142 and 94-482 require that an Individualized Education Plan (IEP) must be written on each student determined to be in need of special services, and that these

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IEPs must have a vocational component. For relevant and appropriate objectives to be written in the vocational area, a much more complete assessment picture must be obtained on the individual than is currently the case. This assessment information can be gathered by the counseling, regular vocational education, or special education staff members. Such data should also make communication easier between and among these disciplines.

Because of the increased involvement of regular education staff and because of the systematic planning now required in vocational programs for the handicapped, vocational assessment becomes more important. This author believes that vocational assessment should be an ongoing process that runs concurrently with the vocational training program, providing continued information needed by the program and using the various program stages as sources of assessment data. In this way one can obtain an accurate, up-to-date, and comprehensive picture of the handicapped trainee's strengths and needs.

This relationship, as presented in Figure 1, requires that program staff members determine the types of information needed by their programs and that they then select the assessment techniques and instruments that will provide this information. Types of information needed can fall in any one or more of the following categories: (a) medical, (b) educational, such as functional reading level, (c) personal/social, such as relationships with peers and supervisors, appearance, (d) interests, (e) work habits and attitudes, such as showing up on time, staying on task, (f) gross and fine motor

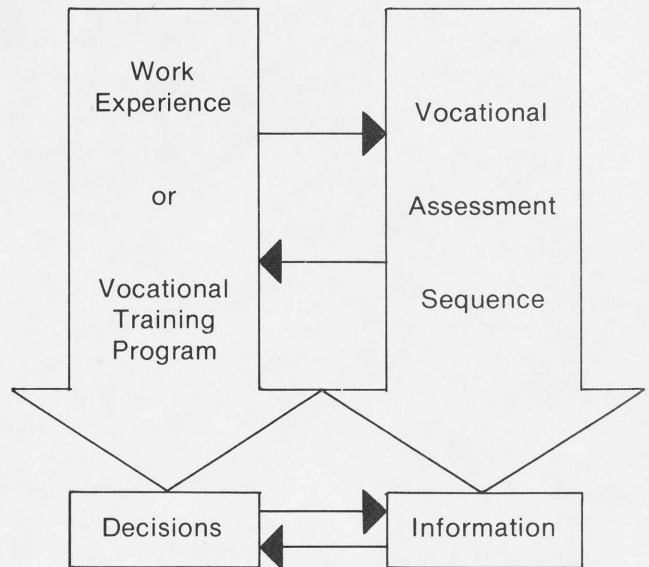


Figure 1.
Relationship between vocational programs and the vocational assessment process.

skills, and (g) preferred learning modes and type of effective reinforcers. A certain type of information may be useful as the individual enters the program and another type may be needed as the trainee enters the final training stages.

The intent of this article is to: (a) present each of the basic assessment techniques available to vocational programming personnel working with the handicapped, (b) list along with these techniques commercially developed instruments commonly used with the handicapped, and (c) give sample vocational assessment and programming sequences for a high school work experience program and a post-secondary vocational training program. The information presented here should help clarify and simplify selection of techniques and instruments appropriate to individual program needs.

BASIC ASSESSMENT TECHNIQUES AND INSTRUMENTS

Sitlington and Wimmer (1978) have listed the main assessment techniques available to the vocational programming professional as: (a) medical examination, (b) paper-and-pencil tests, (c) manual dexterity measures, (d) commercially developed assessment systems, (e) self-developed work samples, (f) behavior analysis, and (g) situational assessment. These approaches were presented on a continuum from the sheltered (less work realistic) to competitive (more work realistic) environ-

FOCUS ON EXCEPTIONAL CHILDREN (ISSN 0015-511X) (USPS 203-360) is published monthly except June, July, and August as a service to teachers, special educators, curriculum specialists, administrators, and those concerned with the special education of exceptional children. This journal is abstracted and indexed in *Exceptional Child Education Abstracts*, and is also available in microfilm from Xerox University Microfilms, Ann Arbor, Michigan. Subscription rates, \$12.00 per year. Copyright 1979, Love Publishing Company. All rights reserved. Reproduction in whole or part without written permission is prohibited. Printed in the United States of America. Second class postage is paid at Denver, Colorado.

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ment in which the student is assessed. Clearly, some of the techniques are best suited to provide only one type of data, and others can be used to gain information in several areas. In considering each of these approaches, the crucial concerns are the types of information that need to be gathered on each student and the suitability of the approach for providing that information.

Medical Examination

The medical examination usually involves referring the student to a physician or clinic for a general health checkup. This referral may uncover health problems that can be compensated for through rehabilitative medicine. The examination also might reveal health problems that must be considered in training or actual job placement of the client.

Paper-and-Pencil Tests

Paper-and-pencil tests are farther removed from the real world of work than are the other assessment techniques. Such tests, however, can provide valuable information on areas like functional academic skills, knowledge of the world of work, and general and specific vocational interests. Sitlington and Wimmer (1978) have listed some safeguards, however, that should be taken in using these instruments. First, will the content and format of the actual results be helpful to you? If the test is to determine vocational interest, do most of the jobs fall within the test taker's ability range? Second, is the test reliable and valid? Third, does the norming population represent a group with which you want to compare your clients? Fourth, can the student understand the questions, even if they are read aloud, and do the responses have a reasonable chance of reflecting the student's knowledge or feelings?

The appropriateness of a given commercial test will depend on the clients to be tested and the type of information sought. The following instruments have been found useful with handicapped populations. Brodin (1976) and Brodin and Kokaska (1979) have discussed these and other tests in more detail.

Vocational Interest Tests

AAMD Becker Reading Free Vocational Interest Inventory (American Association of Mental Deficiency, 1975)

Geist Picture Interest Inventory (Western Psychological Services, 1975)

Wide Range Interest and Opinion Test (Jastak, 1978)

Functional Academic and Prevocational Tests

Adult Performance Level Test (American College Testing Program, 1978)

Reading/Everyday Activities in Life Functional Literary Test (Cal Press, 1972)

Senior High Assessment of Reading Performance (CTB/McGraw Hill, 1977)

Social and Prevocational Information Battery (CTB/McGraw Hill, 1975)

Knowledge of World of Work

Career Education Needs Assessment (Olympus, 1975)

Comprehensive Career Assessment Scale (Learning Concepts, 1974)

Self-developed paper-and-pencil instruments also may be used and may more closely provide the actual information needed. A commercially developed test, however, should be used if available and appropriate because the construction and validation process are usually more standardized and the results may have more credibility with other professionals.

Manual Dexterity Tests

Another group of commercially available instruments measures areas like eye-hand coordination, finger dexterity, gross motor dexterity, and use of small tools. Many employers require such tests as screening devices for all job applicants. They can be useful, too, in ascertaining how well the student may be able to function on the type of small assembly tasks found in sheltered workshops or assembly lines. Manual dexterity tests can also be an indicator of a person's work habits and attitudes, physical endurance, and stress tolerance.

The same questions as directed at paper-and-pencil tests should be considered here. Norm groups for many of these tests are quite dated and may not represent an appropriate population to use as a comparison group. Therefore, one may want to administer the test under standard conditions for comparison with the norm population and then take data on repeated trials since handicapped persons often show marked improvement over repeated administration sufficient to indicate that they can be trained in these skills.

Some of the most commonly used tests of manual dexterity are listed as follows. Many of them measure similar skills, so one should consult the manuals before purchasing.

Bennett Hand Tool Dexterity Test (Psychological Corporation). Ordinary mechanic's tools are used to disassemble and assemble a series of bolts.

Crawford Small Parts Dexterity Test (Psychological Corporation). Small tweezers and screwdriver are used for placing pins and collars and small screws in a series of small holes.

O'Connor Finger Dexterity Test (Western Psychological Services). Three metal pins are placed by fingers in a series of small holes.

Purdue Pegboard (Science Research Associates). Pins and washers are placed in a series of small holes, using each hand, then both hands.

Stromberg Dexterity Test (Psychological Corporation). Colored round pegs are moved from one board to another using finger and hand-arm movement.

Minnesota Rate of Manipulation Test (American Guidance Service). Round pegs are moved from one board to another with one hand, then both hands, utilizing finger and hand-arm movement.

Minnesota Spatial Relations Test (American Guidance Service). Metal cut-outs are matched with corresponding shapes in metal board, using perceptual abilities.

Pennsylvania BiManual Worksample (American Guidance Service). Both hands are required to screw nut on bolt and place in series of holes.

Commercially Developed Assessment Systems

The available commercially developed assessment systems vary greatly in the types of tasks required of the testee and their resemblance to actual jobs or components of jobs. Many of the systems attempt to assess a person's performance on actual job components or activities, such as alphabetizing file folders, sorting mail, or tuning an engine. Other systems strive to measure the testee's performance on generic tasks common to a number of jobs, involving such skills as wrist-finger speed, independent problem solving, or numerical sorting. In either case, the individual's performance is usually reported not only in terms of the specific tasks assessed but also in terms of other occupations or activities related to those tasks.

As with all commercial products, careful selection of such systems can eliminate many of the problems associated with their use. If a system can be found that measures the performance areas being sought and if money is available for purchasing, commercial systems can provide a great deal of hands-on information about the clients' work habits and attitudes, potential for certain jobs, and interest in these jobs. Brodin (1973) lists

10 questions to ask when considering commercial systems, as follows:

1. Does the system take into account expectancy to fail?
2. Does the system take into account academic limitations?
3. Does the system take into account verbal limitations?
4. Does the system take into account limited experience?
5. Does the system allow for more than one trial on tasks?
6. Does the system allow for repeated instruction and check for comprehension?
7. Does the system have face validity?
8. Does the system allow for appropriate conditions for testing — i.e., pleasant surroundings, orderly administration, and fatigue?
9. Does the system use "spaced" rather than "massed" evaluation?
10. Is the system adequately normed on handicapped individuals and the workers who are doing the various types of tasks? Have follow-up studies been conducted on its vocational prediction validity?

The following systems have been used with the handicapped and are described below. For more information on each system, the reader is referred to Botterbusch (1976, 1977) and Brodin and Kokaska (1979). Publishers and their addresses are included at the end of this article.

Brodhead-Garrett Vocational Skills Assessment and Development Program. Brodhead-Garrett's program is designed for special needs learners from ages twelve to twenty. The Preliminary Assessment Phase consists of sorting, assembly, and salvage tasks. The Vocational Assessment Phase then takes the learner from this baseline assessment into specific occupational areas such as basic tools, sheltered employment, building maintenance, health, and construction. Assessment data are collected while beginner level skills are being developed. The third phase leads toward entry level Occupational Skills Development.

Comprehensive Occupational Assessment and Training System (COATS). Work samples comprise one of the four major components of this system, along with Living Skills, Job Matching System, and Employability Attitudes. The work sample component consists of nine samples of actual job activities presented in self-paced, audio-visual form and computer scored. Areas measured include drafting sales, food preparation, travel services, and small engine.

Hester Evaluation System. This system consists of 26 separate tests providing scaled scores on 28 ability factors, including arm-hand steadiness, hand/tool dexterity, and aiming. These scores are combined with

personal information and related to the Data-People-Things hierarchy of the *Dictionary of Occupational Titles*. The emphasis of this system is on skills suited to worker trait or job family groups rather than on actual job tasks.

Micro-TOWER. Micro-TOWER is a battery of 13 work samples that are actual job activities in the following aptitude areas: (a) motor skills, (b) perceptual skills, (c) perceptual-motor skills, (d) verbal skills, and (e) numerical skills. Each work sample provides for a learning period including administrator demonstrations with audiotape cassettes and photobooks to relate the work sample tasks to actual jobs. The Micro-TOWER can be administered to a small group and is designed to evaluate disadvantaged and disabled adolescents and adults.

The Singer Vocational Evaluation System. The system presently contains 20 work samples. Each sample is self-contained and provides actual job tasks with instructions presented through a self-paced audio-visual system. These samples measure areas like electrical wiring, plumbing and pipe fitting, office and sales clerk, engine services, and production machine operating.

Talent Assessment Program (TAP). The TAP is comprised of 11 tests measuring such areas as structural and mechanical visualization, discrimination by color, gross and fine motor dexterity with and without tools, and retention of structural and mechanical detail. The emphasis of this system is not on actual job activities, but dexterity and discrimination tasks that the developer has determined to be related to clusters of jobs.

The Valpar Component Work Sample Series. The Valpar Series consists of 16 work samples designed to evaluate job-related motor and thought process skills, rather than specific job tasks. Each work sample is related to the *Dictionary of Occupational Titles* worker trait groups, as well as to jobs requiring certain skill components. Work samples are directed toward such areas as upper extremity range of motion, independent problem solving, simulated assembly, eye-hand-foot coordination, soldering, inspecting, and drafting.

Vocational Information and Evaluation Work Sample (VIEWS). VIEWS contains 16 work samples designed for use with the mildly and moderately retarded. Work samples are related to worker trait groups of the *Dictionary of Occupational Titles* and are grouped into the following work areas: (a) elemental, including handling and feeding offbearing, (b) clerical, including routine checking and recording, (c) machine, and (d) crafts.

Wide Range Employment Sample Test (WREST). The WREST was developed in a workshop setting to observe economy of time and movement in production.

The 10 areas measured are common sheltered workshop tasks like folding, stapling, packaging, measuring, assembling, pasting, and collating.

Self-Developed Work Samples

As noted in the preceding section, commercially developed assessment systems can represent actual jobs or job activities or they can represent generic characteristics or skills common to a number of jobs. The major advantage of commercially available assessment systems over self-developed systems is, of course, that development and standardization have occurred. In contrast, self-developed work samples tend to reflect the type of job placements available in the local geographic areas and are much less expensive to construct. As with commercial systems, local norms can be developed so that clients can be compared with the population with whom they are competing for jobs.

This author believes that work samples developed by the work experience or vocational training program are the most useful of all of the assessment techniques. Not only can work samples be used to assess the handicapped individual's ability to perform specific work tasks or use specific equipment, but they can also be used to assess such areas as work habits, stamina, and social skills. A by-product of this type of assessment is also a hands-on exposure to actual job tasks before clients enter the semi-competitive or competitive job market.

For purposes of this article, work samples are defined as "simulated representation of work tasks or activities, which may or may not represent an actual job or component of a job" (Sitlington & Wimmer, 1978, p. 80). Work samples can be as large or small or as general or specific as is appropriate for the program. A self-developed work sample may be an exact replica of all or part of a job that exists in a local industry employing a large number of workers, such as an assembly task at a local industry. On the other hand, the work sample may consist of the tasks common to an occupation found in several businesses in the city, such as a fry cook in a fast food hamburger restaurant. In either case, the given sample can assess the person's ability to perform a specific job or may be used to gather information on general abilities, such as eye-hand coordination, attention to task, physical stamina, or interest in the job area. An effort should be made to gain as much information as possible from the work sample — in the areas of work habits and attitudes as well as specific job performance.

The process of developing work samples basically involves six steps:

1. *Decide on samples to develop.* This involves conducting an informal survey of the community to determine which jobs are feasible for the specific handicapped population being served, then ascertaining if work samples for some of these jobs have already been developed by someone else. Finally, it entails determining which job(s) can be most feasibly and realistically represented in a work sample format.
2. *Conduct a job analysis.* Once a job has been selected, a detailed, accurate analysis must be conducted, to include job tasks, worker requirements, physical demands, and environmental conditions. The content validity of the work sample depends almost solely upon this step.
3. *Design and construct the work sample.* The job tasks selected for inclusion in the sample must be based on their importance to the job and the feasibility of replicating them in the work sample. These tasks must then be sequenced, with necessary practice sessions and instructions included. Performance on the sample should be measured by number of correct products, number of errors, quality of work, or time required for completion, whichever element is most appropriate for the particular task.
4. *Write work sample manual.* For the work sample to be systematically administered and used by other professionals, a manual is necessary. It should include two forms of specific instructions — (a) to be given to the individual and (b) to be followed by the evaluator. The Materials Development Center at the University of Wisconsin-Stout has designed a standard format for such a manual that allows agencies and individuals to use work samples developed by others.
5. *Establish norms.* Establishing and updating norms is an ongoing process. The groups with whom the individual is to be compared should be carefully selected and should reflect the population with whom the handicapped person will be competing for a job. Percentile scores or standard scores are most often used in establishing norm tables. More information on these methods can be found in any standard measurement text.
6. *Establish estimates of reliability and validity.* This step is one most often overlooked in self-developed work samples, but it is probably one of the most important. Elaborate statistical calculations do not have to be carried out, but it is necessary to see

if the scores obtained on the work sample are consistent and if the sample measures what it purports to measure. Test-retest reliability is probably the most useful statistic in determining consistency. In terms of validity, it is most useful to determine if the essential tasks or activities of the job itself are realistically included in the work sample and if individuals who do well on the sample perform well on the real job that the sample represents.

Work sample development is a time-consuming process, particularly when doing it the first time. One must identify the top priority samples to be constructed first and also become aware of work samples developed by other programs that may be adapted or used as is. The Materials Development Center at the University of Wisconsin-Stout has established a Work Sample Clearinghouse to facilitate exchange of self-developed samples. This is a good resource for programs just beginning work sample collection.

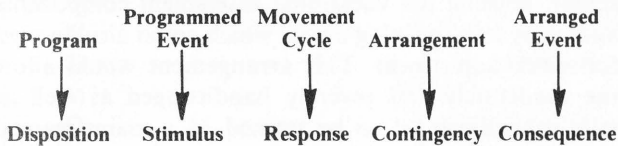
Behavior Analysis as an Assessment Tool

Behavior analysis and the techniques associated with it have been used in training programs for the handicapped for many years. This approach can be incorporated in the vocational assessment process, with a major emphasis on the effect of individual components of the training program and environment on the trainee's behavior, rather than on the actual behavior change.

For this method to be most effective, environmental conditions should be as similar as possible to the projected work environment, and these conditions must be amenable to control and manipulation. Following this basic tenet, one could systematically vary (a) environmental conditions such as noise level, extent of activity, and number of persons in work area, (b) instructional methods, such as verbal instructions and instructions with demonstration, (c) type of reinforcement, and (d) schedule of reinforcement. Data gathered during this process can then be used not only in training the handicapped individual but also in job placement. Such precise information is useful with all persons but is especially useful with more severely handicapped individuals who must be systematically trained and placed if they are to be successful in the world of work.

Basically, the steps in using behavior analysis involve: (a) specifying the behavior(s) to be observed, (b) describing the training environment (antecedent and subsequent events), (c) measuring the initial strength of the behavior(s) (baseline), (d) beginning the treatment (training) program, and (e) continuing the training program until behavior change can be shown to be a result of program component(s).

As mentioned previously in using behavior analysis as an assessment tool, the emphasis should be on the effects of manipulating individual components of the training program and environment. The "IS-DOES" equation formulated by researchers in precision teaching (Kunzelman, 1970) can facilitate analysis of these components. This equation is:



The top line of this equation represents the existing conditions in a training sequence. To prove that any one of these components is having an effect on behavior, all components except the one in question are held constant while the behavior analysis process is implemented. If a change in the one component results in a change in the individual's behavior, that component moves to the "DOES" side of the equation.

By using this procedure in a sheltered or semisheltered situation, one can manipulate aspects of the individual's environment to determine what working conditions, methods of instruction, or reinforcers work best. Although some of this information can be approximated through informal observation, behavior analysis as applied to the assessment process is the only method of systematically determining which aspects of the environment and training programs are most effective with individual handicapped trainees. This approach also allows trainees to gain specific skills while being assessed.

Situational Assessment

Situational assessment is the assessment technique most closely related to the target environment of the trainee. This approach involves systematically observing the individual in an actual work situation through the use of rating scales or other behavior observation devices. The work situation could initially be an in-school work station or a job station in a private vocational training program. Eventually, though, information should be gathered on the individual in the environment where he or she will be expected to function, whether it be sheltered, semi-competitive, or competitive employment.

This procedure is highly important in providing information on the general prevocational training needs and traits of the client (e.g., work habits and attitudes) because previously unforeseen strengths and weaknesses often appear in "real life" situations. Situational assess-

ment also provides an example of how the assessment process can be integrated into the ongoing vocational program, transforming general impressions of supervisory personnel into data-based conclusions.

Almost every vocational adjustment or vocational preparation program has an on-the-job component in which the individual is placed in the community or in a semisheltered work situation. Situational assessment allows the work experience coordinator or vocational supervisor to look at specific facets of the worker's performance in these situations as objectively as possible and to compile information on that performance.

Two things are crucial in situational assessment. First, the observation instruments must focus on the behaviors and attitudes that the supervisor is trying to observe. Second, the instruments used must allow reporting that is as objective as possible.

The employer or person supervising the worker usually completes some type of observational checklist or rating form. The work supervisor, during periodic visits, adds further information through his or her ratings. In both cases, the forms used should provide for information that will help in planning and working with the individual. Whether program administrators develop their own form(s) or use an existing form(s), the criteria must be such that the information obtained will provide necessary and valid data on the individual in the working situation. The MDC Behavior Identification Format (1974) is one established rating system. Esser (1975) has described other available instruments that may be used.

VOCATIONAL PROGRAMMING AND ASSESSMENT SEQUENCES

As was stressed at the beginning of this article, collection of assessment data should run parallel to the vocational training sequence, with the vocational programming phases providing much of the assessment data, and the assessment program providing information on whether the individual is ready for the next phase of the program or whether further work in the present phase is indicated. The remainder of this article presents two vocational programming options and suggested vocational assessment sequences.

High School Work Experience Programs

Thompson and Wimmer (1976) have listed the following five steps in the high school work experience sequence: (a) prevocational experience, (b) job analysis,

(c) in-school work experience, (d) community placement, and (e) after graduation placement and follow-up. To provide a true picture of the student, assessment data should be collected during each of these phases, not just concentrated blocks of time.

Figure 2 presents a suggested sequence and relationship between vocational training and the vocational assessment process. The regular vocational education program and post-secondary vocational-technical program are included in this sequence as sources of entry level and advanced skill training as well as work adjustment activities. All of the assessment techniques except behavior analysis can be included in the work experience program assessment sequence. Behavior analysis could also be used, with a segment of the classroom structured as a simulated work area; however, to employ this technique in competitive work placement would be difficult.

Secondary/Post-Secondary Vocational-Technical School Program

Many states are currently served by area vocational-technical schools with secondary and/or post-secondary vocational training options. An assessment center in this type of setting can serve two major functions. First, it can provide information on individuals currently enrolling in the school so that the best possible match can be made between that person's abilities and interests and the school's training programs. Second, it can serve as a central assessment and skill training center for area high school work experience programs and other (re)habilitation programs.

A vocational-technical school program has the advantage of easy access to a wide variety of specific skill training programs specifically designed to coincide with community employment needs. These training programs usually have the up-to-date equipment that many high school programs lack. Since such vocational-technical programs commonly serve wide geographical areas, they are able to generate both the physical space and the funds to house commercial and self-developed assessment systems. Factors that may be prohibitive for local school systems can be managed more readily by a technical school serving a larger population base and having the sole mission of vocational training.

Figure 3 presents a suggested model for a program serving special needs individuals within a vocational-technical school setting. This program would also serve nonhandicapped persons, whether they be high school students or individuals enrolled in the post-secondary school program.

In this author's opinion, the vocational-technical school holds the greatest potential in terms of comprehensive assessment and training for both secondary work experience programs and post-secondary rehabilitation programs. The components cited in Figure 3 could be implemented using the regular training areas of the vocational-technical school and a career lab within the school housing the vocational assessment components and entry level training areas, which could also be used for work adjustment. This arrangement would allow the moderately and severely handicapped as well as mildly handicapped to be trained in a mainstreamed setting.

A close look at the suggested model substantiates the point that the vocational assessment process cannot exist in isolation — that it must be closely allied with the areas of exploration, work adjustment, and skill training. A constant flow and interchange of information between and among these areas is inherent in the concept and vital to its realization. The suggested vocational assessment component utilizes all of the available assessment techniques, closely tying in the commercially available instruments with the entry level skill areas of the career lab and the advanced skill training areas in the regular vocational-technical program. Work samples are used both to gain assessment information and as an exploration tool to expose the individual to jobs in the community as well as training areas within the vocational-technical school. Behavior analysis techniques are not employed in isolation but as part of the work adjustment process; and job sites in the community are used for exploration, training, and assessment.

INDIVIDUALIZING THE MODEL

No one model can be adapted wholesale by any program, and this is particularly true in the area of vocational assessment and training. Before assessment planning can be done, specific program needs must be established. No one knows better than the staff itself what types of information are needed on the trainees. Once this has been determined, the job becomes one of picking and choosing the assessment techniques best suited to the task and sequencing these techniques in a way that will provide the information clearly, efficiently, and when it is needed. In short, the assessment component must be custom fit to the other segments of a vocational program, and the information flow must be continual between these segments and the assessment sequence.

| | Vocational Education in High School | Work Experience Program | Post-Secondary Vocational-Technical School | Vocational Assessment Program |
|------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| S O P H O M O R E | | Exploration Work Adjustment (if needed) In-School Work Experience (if ready) | | Paper-and-Pencil Tests Manual Dexterity Tests Work Samples (Commercial and Self-Developed) |
| J U N I O R | Entry Level Skill Training | Work Adjustment (if needed) In-School Work Experience or Community Work Experience (2 hours to ½ day) | | Work Samples (Commercial and Self-Developed) Situational Assessment (In-School or Community Job) |
| S E N I O R | Entry Level Advanced Skill Training Community Work Experience On-The-Job Training | Advanced Skill Training (Private Training Program) | Work Adjustment (if needed) Advanced Skill Training | Situational Assessment |
| P S E C O N D A R Y | | Advanced Skill Training (Private Training Program) Follow-up | Advanced Skill Training | |

Figure 2.
Suggested vocational programming and assessment sequence: High school work experience program.

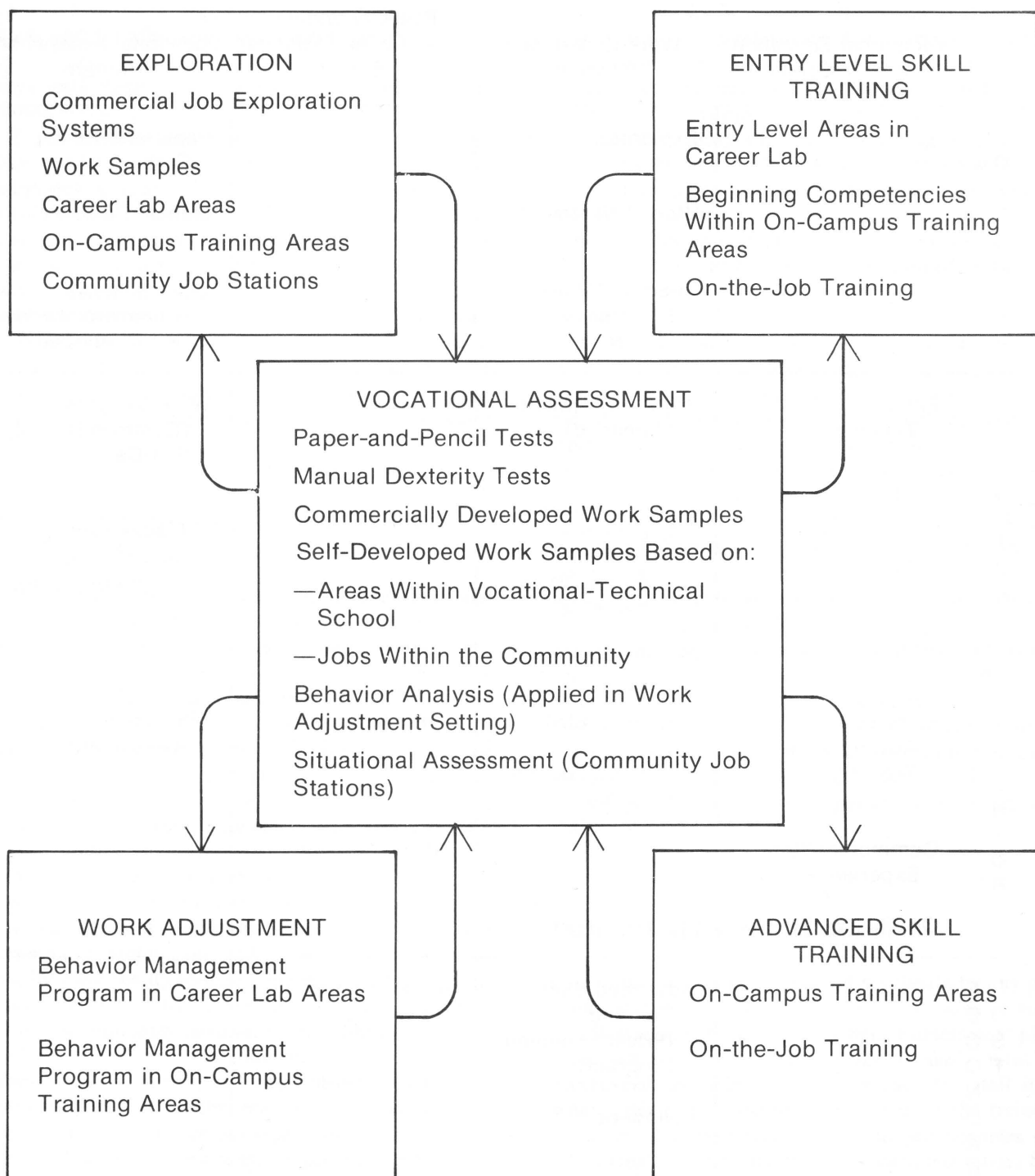


Figure 3.

Suggested components of secondary/post-secondary vocational-technical school program.

ADDRESSES FOR COMMERCIAL ASSESSMENT SYSTEMS

1. *Brodhead-Garrett Vocational Skills Assessment and Development Program*
Brodhead-Garrett
4560 East 71st Street
Cleveland, OH 44105
2. *Comprehensive Occupational Assessment and Training System*
PREP, Inc.
1575 Parkway Avenue
Trenton, NJ 08628
3. *Hester Evaluation System*
120 South Ashland Boulevard
Chicago, IL 60607
4. *Micro-TOWER*
ICD Rehabilitation and Research Center
340 East 24th Street
New York, NY 10010
5. *The Singer Vocational Evaluation System*
Singer Education Division
Education Systems
3750 Monroe Avenue
Rochester, NY 14603
6. *Talent Assessment Program*
Talent Assessment Program
7015 Colby Avenue
Des Moines, IA 50311
7. *The Valpar Component Work Sample Series*
3801 East 34th Street
Tucson, AZ 85713
8. *Vocational Information and Evaluation Work Sample*
Vocational Research Institute
Jewish Employment and Vocational Service
1913 Walnut Street
Philadelphia, PA 19103
9. *Wide Range Employment Sample Test*
Jastak Associates, Inc.
1526 Gilpin Avenue
Wilmington, DE 19806

REFERENCES

- Botterbusch, K. F. *A comparison of seven vocational evaluation systems*. Menomonie, WI: Materials Development Center, 1976.
- Botterbusch, K. F. *A comparison of four vocational evaluation systems*. Menomonie, WI: Materials Development Center, 1977.
- Brolin, D. Vocational assessment: What can be gained from it? In *Vocational assessment systems: Application in programs serving special needs populations*. Des Moines: Iowa Department of Public Instruction, 1973.
- Brolin, D. *Vocational preparation of retarded citizens*. Columbus, OH: Merrill, 1976.
- Brolin, D. E., & Kokaska, C. J. *Career education for handicapped children and youth*. Columbus, OH: Merrill, 1979.
- Esser, T. (Ed.). *Client rating instruments for use in vocational rehabilitation agencies*. Menomonie, WI: University of Wisconsin-Stout, Materials Development Center, 1975.

- Kunzelman, H. (Ed.). *Precision teaching: An initial training sequence*. Seattle: Special Child Publications, 1970.
- MDC Behavior Identification Format*. Menomonie, WI: University of Wisconsin-Stout, Materials Development Center, 1974.
- Sitlington, P. L., & Wimmer, D. Vocational assessment techniques for the handicapped adolescent. *Career Development for Exceptional Individuals*, 1978, 1, 74-87.
- Thompson, L., & Wimmer, D. Organizational considerations in planning for a work/study program. In *Parameters of planning: The work/study coordinator*. Lawrence, KS: Habilitation Personnel Training Project, 1976.

CLASSROOM FORUM

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Is it feasible for me to maintain a test item file to use with my students? If so, how do I go about developing it?

Not only is it feasible for you to develop and maintain a test item file for any teaching/learning situation, but it is *imperative* that you do so. With the push for accountability and the resulting emphasis on criterion-referenced mastery level tests, every teacher should be aware of the usefulness of such a file. Further, a test item file is especially helpful to the special education teacher in developing and monitoring IEP progress.

In educational evaluation both formative and summative evaluation techniques should be used to evaluate the teaching progress and the learning outcome. Formative evaluation is an ongoing process that gives feedback to the teacher concerning progress being made in learning. It can also be used to aid the teacher in discovering where students are currently functioning in certain areas and where they may need additional instruction in order to master specific content areas. It may be viewed as a developmental process in that it is continuous and is used to guide the teacher in developing educational strategies.

Summative evaluation is used at the end of a teaching unit, at the end of the school year, or when a judgment is needed concerning the overall picture of what has been learned at the end of a time period or content area focus. This type of evaluation can be likened to the post-test administered after a teaching sequence has been implemented and a series of specific learning tasks mastered along the way. As related to the IEP,

long-range goals may be the culminating event of the short-term objectives and, thus, summative evaluation is necessary to fully assess these long-range goals.

Even short-term objectives may be divided into simple tasks that must be mastered sequentially or developmentally to obtain the final goal. During the process of mastering these tasks, formative evaluation should be used to assess each step of the learning sequence.

Whether the goal is long- or short-range, it is viewed as the culmination of a specific learning outcome or instructional objective. To divide this outcome or objective into small, sequential learning steps requires development of a task analysis. This merely means that the steps or tasks leading to the final behavior are stated in simple, teachable sequences which, when taught in order, will generally produce the desired outcome or behavior. Prerequisite skills on the part of the learner must be considered an integral part of the instructional sequence, along with the evaluation techniques that are to be employed to determine whether or not the objectives have been met and how well they have been met.

Generally, a task analysis breaks down the final task into small steps which by themselves can be evaluated in one form or another. Thus, teachers must be knowledgeable in the content areas in which they are teaching in order for their task analyses to be developed in a complete and logical order. Most textbook manuals have already sequenced learning tasks in task analysis form. Also, the behavioral steps for mastery of other skill areas like self-help have been analyzed and sequenced in specialized teaching methods handbooks. Built into most of these sequences is some form of objective evaluation that teachers use to measure how well they have met their teaching objectives.

Since most classrooms contain heterogeneous groupings of learners, however, it is to the teachers' advantage to develop their own test item files for evaluation purposes. The most common form of test item file is a metal index card box, recipe file box, or shoe box with index cards categorized by content areas. Each major heading in the box gives the content area of focus; or an entire box may be used for one specific content area — e.g., *fine motor skills*. The skill areas are subdivided into individual skills, then further subdivided into the tasks or steps necessary for learning each particular skill.

Another form of the test item file is a manila folder with index cards taped or stapled in a ladder effect along both sides of the folder. One folder might be labeled "Shoe Tying," for example. On the inside, each card outlines one step of the teaching sequence, along with suggested measuring techniques and criteria for mastery of each step of the task. For each task, a sim-

ple statement of the task itself should be accompanied by a behavioral objective. The objective should directly answer these five questions: Who? When? What? How? and How Well? And a brief statement answering *Why?* assures the teacher of the relevance of such a task. Also, including a sample pre-test and sample post-test helps the teacher in assessing the student's learning skills. If the pre-test is developed accordingly, once it has been administered the teacher should have enough information on the student's level of competency in that area to decide where he or she is in the learning sequence developed in the task analysis. Thus, the teacher can review earlier steps in the sequence for both pre-testing and teaching. If the task analysis has been valid, the teacher should be able to then teach the desired skill by using one file card at a time in the teaching sequence. Each card should also contain an evaluation procedure to indicate the mastery level deemed necessary before going on to the next step in the learning sequence.

As such, the test item file has actually become a teaching sequence file box as well, personalized by the teacher's input into the various instruction cards. Instead of reinventing a sequence each time a skill must be taught to a new learner, teachers find that they have the skill sequence outlined on index cards and ready to use at a moment's notice. This is particularly beneficial when an aide is helping teach the same children, or when a student teacher enters the scene, or when a substitute must step in and take on the instructional process begun by the teacher.

Such a filing system is similar to the "Idea Box" concept frequently referred to in methods courses. But this filing system offers the teacher more structure and accountability. In the long run, it also provides more efficiency and economy in terms of teacher preparation time. Task analyses, as mentioned, are available in most methods books and are also found in journal articles dealing with teaching methodology. If these are transferred to the index cards, the teacher has a permanent file of teaching tasks that are criterion-referenced for specific levels of mastery. The published analyses may be adapted to meet specific needs of individuals, but their use should always be in the same order as originally presented in the text or journal.

By building evaluation into the individual tasks, you will find that accountability will also be built into your teaching sequences, and learning outcomes will be less haphazard when data regarding mastery levels can be objectively substantiated. Thus, your test item file can actually become a teaching tool in and of itself. As such, it should prove invaluable to your methodology for all classroom instruction.