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VECAP MISSION

The Vocational Evaluation and Career Assessment Professionals (VECAP) is a nonprofit organization originally founded in 1967 to promote the professions and services of vocational evaluation and work adjustment. Formerly known as the Vocational Evaluation and Work Adjustment Association (VEWAA), the name was changed in 2003 to better reflect the focus of the organization as well as emphasize the independent status of the organization. This group has no affiliation with the National Rehabilitation Association (NRA) or the NRA/VEWAA.

The VECAP organization is committed to advance and improve the fields of vocational evaluation and career assessment and represents the needs of the professionals who provide those services. Its scope of services encompasses individuals who need assistance with vocational development and/or career decision-making.

VECAP's membership comprises professionals who provide vocational evaluation, assessment, and career services and others interested in these services.

VECAP members identify, guide, and support the efforts of persons served to develop and realize training, education, and employment plans as they work to attain their career goals.

For membership information, visit VECAP.org.

EDITORIAL

Welcome to the 2018 edition of the *VECAP Journal*

Two New People

Recently, a credentialed vocational evaluator had an opportunity to conduct an assessment with a person who is blind. She approached me to provide assistance because this was her first time working with a person with this disability. We discussed how to provide accommodations for testing, modifications for work samples, and, most importantly, how to be accepting and appropriate in the establishment of rapport. She has evaluative skills and tool knowledge and read about the client's diagnosis and functional capacities. She had a crash course in sighted guide techniques and learned to be comfortable when she told the client without thinking *the screwdriver is over there* and had to re-phrase to *the screwdriver is in front of you at 12 o'clock*. The VE was successful; the client and the referring counselor had their questions answered and the report was completed on time.

Watching this process unfold, I was reminded of the John Steinbeck quote: *When two people meet, each one is changed by the other so you've got two new people*. The client was certainly changed by the empowerment that is VE. The client was able to identify career possibilities and establish a plan to pursue the options. The perspective change from a person who is unemployed to one who is seeking employment was brought about by the interactions with the vocational evaluator. She and the referring counselor were able to facilitate insight and goal setting. These benefits are often discussed and ascribed to us as vocational evaluators. The other side of Steinbeck's quote is easy to overlook.

The vocational evaluator learned about blindness, recognized her knowledge gap, and used her experience to meet the client's needs. When the VE was completed, she was more experienced and wiser about how to interact with a person who is blind, in both this specific case and also in the broader sense of future referrals. Both the client and the vocational evaluator were changed as a result of their interaction. Neither was the same as when they met. As a result, they are two new people.

The papers presented in this edition of the *Journal* symbolically facilitate the metamorphosis of two new people. The first paper represents not only individual change, but also change and growth of our profession. Sam Castiglione shepherded various professionals representing 16 different professional organizations that revised the *Position Paper of The Interdisciplinary Council on Vocational Evaluation and Assessment*. Be sure to read Sam's personal statement about re-building consensus as a prelude to the actual document that follows.

The next opportunity involves determining a client's functional capacities. In Jeff Bruno's article, he argues for a "comprehensive, interdisciplinary approach to vocational evaluation" with a focus on functional capacity evaluations (p. 20). Bruno posits the importance of the interaction between the client and his/her service providers, such as physician, neuropsychologist, health professionals (e.g., occupational therapist), rehabilitation counselor, and qualified vocational

evaluator. The change occurs in the professional-client relationship and the interdisciplinary interactions.

Matt McClanahan critiques Paul Power's *A Guide to Vocational Assessment* (2013). Many vocational evaluators and other rehabilitation professionals may be familiar with or perhaps studied this text. As you applied the principles and suggested techniques in your day-to-day practice, this helped you and the client to change. McClanahan takes a fresh eyes perspective while he reviews the content and offers a critique of selected portions.

In addition, we continue the serialization of the book *Vocational Evaluation and Assessment: Philosophy and Practice* by Dr. Stephen Thomas, who has granted VECAP the rights to publish his text. It was first drafted in 1997 for use in the Introduction to Vocational Evaluation course and only available through the East Carolina University bookstore. This issue of the *Journal* presents *Chapter Six: Instruments of Evaluation* and *Chapter Seven: Techniques of Evaluation*. In order to acquaint the new reader (or reacquaint those readers who know him) with Dr. Thomas, a short interview by Matt McClanahan introduces this work.

Dr. Thomas' excellent book on vocational evaluation and assessment was ground-breaking when it was published in 1997, and still retains its value today. Be aware, however, that some of our industry terminology has changed, and several of the resources he lists in Chapter Six have changed their contact information. (You can find the current information through a simple Internet search.) These issues notwithstanding, the chapters we re-print here have relevance and value to those of us who teach about or conduct vocational evaluations.

We extend a big VECAP WELCOME to Lauren Bethune Scroggs, who is joining us as co-managing editor. She is currently a PhD student in the Department of Addictions and Rehabilitation Studies at East Carolina University.

We are proud of this edition and welcome your responses or comments.

Steven R. Sligar
Co-Editor

Nancy Simonds
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**Lauren Bethune
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Ralf Schuster
Managing Editors

Editors' Note: The VECAP Journal was not published in 2017 and, therefore, there is no volume 12.

**VOCATIONAL EVALUATION AND CAREER
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Re-Building Consensus on Vocational Evaluation and Assessment: A Personal Introduction

Samuel Castiglione, DEd

Like a ship on the sea that finds itself adrift and needs to take adroit action to get underway and on course, a profession can sometimes find itself in a similar position and in need of similar actions. When I became President-Elect of VECAP in 2016, I found a profession not only still split into two professional organizations, but further being swamped in a sea of “career assessment” practices involving career development specialists, workforce personnel, education-based professionals focused on transition assessment of students with disabilities, and litigation-centered expert witnesses in family law, injured workers, and veterans’ groups, among others. Credentialing and professional groups with interest in vocational evaluation were found in multiple organizations, while credentialing directly in vocational evaluation was trying to keep its head above water. Further, in trying to support a research project to distinguish the positive outcomes from vocational evaluation, we found our researcher overwhelmed with articles having topical relevance to vocational evaluation only, with little perception of the principles and practices underlying the best practices of the discipline.

Authentic vocational evaluation is a little ship on a big sea of assessment practices. The remedy called for a renewal of the ties and understandings from when we first set our course—an Interdisciplinary Council. The original efforts began in 1989 and took three years until 1992 when such a council actually formed and took action, resulting in the original *Position Paper on Vocational Evaluation and Assessment* in 1993 and 1994. The Council continued its work and developed standards for practice and practitioners in 1997, but those were not followed up. The Council became dormant, and other currents in assessment became dominant, such as the continued trend to merely psychometric assessment becoming apparently “normative,” while graduate training and support for genuine vocational evaluators shrank.

Near the end of 2016, the initiative to renew the Interdisciplinary Council and to both re-affirm and update its principles began. Both original, still-existing organizations, as well as additional organizations with interest in the topic, were invited. We all can be grateful, as I am, that all invited organizations were either actively encouraging or willingly in consideration of the effort, with no objections or resistance. They participated to greater or lesser extents during the early comment period of 2017, the Symposium of October 2017, and the follow up re-editing through March of 2018. Their organizations are in the process of endorsing and then disseminating these updated principles.

I also take full credit for the (questionable) wisdom of having two of the original authors of the first Position Paper as additional authors here. Their refinements and suggestions in the closing months of consolidation made me grit my teeth, but also helped produce a better paper. Their participation also helps us to maintain solidarity with the efforts of the original council while taking account of current conditions around us. I’m grateful to all those who contributed edits, suggestions, and refinements along the way, and I’m hopeful that our profession will take the principles to heart.

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**The Revised Position Paper of
The Interdisciplinary Council on Vocational Evaluation and Assessment**

Samuel Castiglione, DEd
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The Interdisciplinary Council on Vocational Evaluation and Assessment is a national coalition that represents the issues and concerns of personnel involved in vocational evaluation and assessment across a variety of settings and disciplines.

Background

Eleven organizations that came together to express concerns and build consensus from 1989 to 1993 (Smith & Schuster, 1993; Schuster & Smith, 1994) comprised this coalition. They published a consensus of their work as a National Position Paper (Smith, Lombard, Neubert, Leconte, Rothenbacher, & Sitlington, 1994, 1996). Several of the initial organizations have since disbanded.

Starting in late 2016, representatives of several of the existing organizations agreed to renew and expand the Interdisciplinary Council. In early 2017, all the existing and new organizations were invited to make comments and suggest revisions to an online draft of the original document. On October 24, 2017, members offered comments/revision either in-person or via virtual presence during a Symposium at Atlantic Beach, North Carolina, the day prior to the National Forum on Issues in Vocational Evaluation. After incorporating all the proffered ideas in an October 2017 draft, and after further opportunities to comment in December 2017 and January–March 2018, a final version of the Revised Position Paper is offered for dissemination.

This revised paper, in addition to re-affirming the basic principles of the original, strives to include attention to: the four paradigms (individualization, empowerment, cultural considerations, and assistive technology) of the Thirtieth IRI (Thirtieth Institute on Rehabilitation Issues [IRI], 2003), the place of Universal Design for Learning in assessment, the rise of computer/Internet assessment, and to ethics in practice.

The organizations invited in 2017 to participate in and renew this coalition include:

American Board of Vocational Experts (ABVE)
American Deafness and Rehabilitation Association (ADRA)
American Evaluation Association (AEA)

American Occupational Therapy Association (AOTA)^{1*}
American Rehabilitation Counseling Association (ARCA)*
Commission of State Administrators for Vocational Rehabilitation (CSAVR)
Council for Educational Diagnostic Services (CEDS)*
Division on Career Development and Transition (DCDT)*
International Association of Rehabilitation Professionals (IARP)
National Association of Disability Evaluation Professionals (NADEP)*
National Association of School Psychologists (NASP)*
National Community of Practice on Transition (NCoPT)
National Counseling and Development Association (NCDA)
Registry of Professional Vocational Evaluators (RPVE)
Vocational Evaluation and Career Assessment Professionals Association
(VECAP)*
Vocational Evaluation and Work Adjustment Association (VEWAA)*

The Interdisciplinary Council seeks to promote, through a unified voice, the responsible practice of vocational evaluation and assessment by encouraging advocacy, professional standards, communication, leadership, and policy development, all of which enhance the overall provision of best practice (*see Appendices A for Definitions and B for Levels of Assessment*).

Goals of this Interdisciplinary Council

- Provide an avenue for linkages among disciplines
- Facilitate a unified voice regarding certification, policy development, and legislation
- Promote professional standards of practice
- Advance the development of common language and definitions while recognizing diversity among disciplines
- Promote significant individual participation in the development and implementation of vocational evaluation and assessment practices
- Provide a forum to discuss key concerns in the field and share information across disciplines
- Encourage the establishment of unified quality assurance in practice and outcome
- Promote public education and advocacy for vocational evaluation and assessment

¹An asterisk * denotes one of the original organizations that developed the first Position Paper in 1994.

- Advocate for support and funding of education and training in vocational evaluation and assessment.

Scope of Services

Vocational evaluation and assessment are professional disciplines that utilize systematic appraisal processes to identify an individual's vocational potential. Individuals range from school-aged youth to senior adults who are making career decisions or vocational transitions. The vocational evaluation and assessment professional provides services to identify, observe, and document an individual's strengths, interests, values, temperaments, work-related behaviors, aptitudes and skills, physical capacities, learning preferences, and education and training needs. When applied to high school students, assessment data provide educators and staff, students, parents, and other service providers with valid information to guide educational plans and career development, inform transition assessments and promote a smooth exit from high school to employment and postsecondary opportunities.

Underlying Values

The foundation of vocational evaluation and assessment is that all human assessment should be holistic, humanistic, and equitable. A holistic approach encompasses issues of diversity, all relevant attributes of the individual, his/her existing or potential environments (ecologies), and the interactions between the individual and the environments. A humanistic approach to vocational evaluation and assessment requires an individual's involvement, informed choice, and self-determination, and processes that are designed and implemented to benefit the individual served with an emphasis on individual capabilities and strengths. Equitable services ensure that each individual is treated fairly—whatever one needs to complete the assessment process in a non-discriminatory way is what he or she should receive. Further, the environment should fit the individual rather than the individual adjusting to fit the vocational environment.

Guiding Principles

The following eight principles serve as guides to best practice across settings.

- A variety of methods, tools, and approaches should be used to provide accurate vocational evaluation and assessment. A broad range of questions must be posed to determine what type/level of assessment is required to uncover an individual's unique abilities and needs and to customize the process. Individual self-determination is enhanced by incorporating the individual's questions and goals into the initial planning to help drive the process. Attention to possible cultural influences should be explicit before and during the evaluation and assessment. Assessment professionals remain aware of advantages, disadvantages, and research findings regarding current computerized/web-based and evolving distance and virtual reality assessments.
- Vocational evaluation and assessment information should be verified by using different methods, tools, and approaches for each domain of investigation. Separating an individual's attributes into domains such as interest, aptitude, or learning preferences helps organize the assessment. Using alternative methods or approaches

- to validate findings can primarily be achieved by a *triangulated* process: a) observing an individual's demonstrated or manifested behaviors, such as performances on actual work; b) using an individual's self-report or expressed statements; and/or c) administering some type of survey, inventory, or structured interview or test.
- Behavioral observation is essential in any vocational assessment process. Behavioral observation (e.g., observing physical performance, social characteristics, interactions with people, and other aspects of the environment) occurs throughout the assessment process. The observation process can be a) informal or formal, b) occur in a variety of environments, c) made by a variety of people, with sensitivity to possible cultural influences, and d) should be documented and presented in an objective, non-biased manner.
 - Vocational evaluation and assessment may involve on-going developmental processes in career development. However, all individuals, especially those with disabilities, challenges, or barriers, may need evaluations and/or assessments of varying degrees given at different junctures over their career life span. Incorporating Universal Design for Learning in Vocational Evaluation (UDL in VE) [which entails multiple means of: representation, expression, and engagement] into the planning and implementation of evaluation and assessment processes (Smith, Leconte, & Vitelli, 2012), and thoughtfully considering and applying additional Assistive Technology (AT) when needed (Smith, Leconte, Garner, & Umeasiegbu, 2015) can promote equity, fairness, and usability of results.
 - Vocational evaluation and assessment should be an integral part of larger service delivery systems. Vocational evaluation and assessment should be the basis for planning needed services, resources, and support; therefore, it can be an integral part of the total service delivery system. Evaluation and assessment professionals know and follow their own codes of ethics as well as recognize the ethical demands on collaborating professionals.
 - Vocational evaluation and assessment requires the collection of input from a variety of individuals and requires an understanding of how to use the results of the assessment process. An interdisciplinary team approach allows for the effective use of information that can be translated into effective planning, implementation activities (e.g., placement, support services, counseling), and fulfilled vocational development for consumers. Vocational evaluation and assessment results should be interpreted and conveyed to the individual as well as others in language that is understandable to all. Benefits of this process are optimal when started as early as possible in the developmental process and extended throughout the adult service delivery process.
 - Vocational evaluation and assessment should be current, cross-validated, and relevant to be useful.
 - Vocational evaluation and assessment is grounded in career, vocational, and work contexts.

Competencies

The Interdisciplinary Council on Vocational Evaluation and Assessment strongly recommends that all individuals providing vocational evaluation and assessment services

demonstrate competency or successful completion of training in competencies related to each of the guiding principles identified in this document. They include the following:

- The ability to apply ethical principles in the selection, adaptation with accommodations and modifications, and/or development of methods and approaches that are useful in determining an individual's attributes, abilities, and needs. This includes incorporating AT, UDL in VE, and cultural sensitivities to insure an individualized approach of empowerment.
- The ability to utilize alternative methods and approaches that can be used to triangulate information generated by or collected from other assessment sources.
- The ability to conduct formal and/or informal behavior observation and documentation strategies that can be integrated in a variety of settings.
- The ability to collect, interpret, and report ongoing data from assessment, in conjunction with occupational and labor market information, that can be utilized to promote successful transition through critical junctures of the individual's career development.
- The ability to interpret vocational evaluation and assessment data in a manner that contributes to the total service delivery system. Vocational evaluation and assessment team members must be capable of summarizing, interpreting, synthesizing, and reporting formal and informal data in a manner that promotes useful planning, goal setting, and coordination of needed support services.
- The ability to function as an effective participant on an interdisciplinary team.
- The ability to select, implement, and integrate evaluation and assessment approaches that are current, psychometrically sound, useful, trustworthy, and grounded in career, vocational, and work contexts.

The Interdisciplinary Council on Vocational Evaluation and Assessment will work with its member organizations to implement the principles outlined in this document. We believe an interdisciplinary approach to vocational evaluation and assessment encourages the involvement of a team of professionals, practitioners, and individuals. Hence, professional roles and certification criteria should be met according to the specific service area. The vocational evaluation and assessment specialist who has in-depth training in vocational evaluation and assessment is an essential team member.

The Council affirms its commitment to the stated mission, goals, and objectives, and its dedication to proactively supporting individuals and service providers in responding to the challenges of current economic conditions, new legislative mandates, changing demographics, and changing service delivery systems. Increased individual input will guide provision of services.

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Appendix A

Three Definitions

For clarity in working together, the Interdisciplinary Council adopts the following definitions and affirms the foundational three levels of assessment that form the backdrop to our work.

Career Assessment

Career assessment is a measure of a client's or student's career development process as well as the content domains of that process. In essence, it is the evaluation of the process and content of career decision making using a variety of assessment tools (Wood & Hays, 2013, p. 4).

Vocational Assessment

A general term for the process of identifying and appraising an individual's level of functioning in relation to vocational preparation and employment decision making (Ahlers, 2003, pp. 10–11).

Vocational Evaluation

A comprehensive process that systematically uses work, either real or simulated, as the focal point for assessment and vocational exploration, the purpose of which is to assist individuals in vocational development. Vocational evaluation incorporates medical, psychological, social, vocational, educational, cultural, and economic data into the process to attain the goals of evaluation (Dowd, 1993, p. 28).

It “is a comprehensive vocational process when more in-depth information is needed beyond Levels I and II that systematically uses work to assist individual's vocational development and career decision making. The process can use work samples, standardized tests, situational assessments, behavioral observation, community based assessment, transferable skill analysis, job matching and background analysis.” (Ahlers, 2010, pp.12–13).

Appendix B

Levels of Assessment

*This process traditionally includes three levels of service intensity and comprehensiveness**

Level I – Screening or Needs Assessment:

The initial process designed to arrive at a decision for vocational planning or for providing additional services. This approach may consist of interviews, functional assessment, limited standardized testing, collecting and analyzing background information. It is also used to assess one or two specific skills related to a specific vocational option. If more information is needed or questions emerge, Level II can be initiated.

Level II – Clinical or Exploratory:

A process to further investigate vocationally relevant information. It may include additional interviewing, additional vocational counseling, additional standardized testing, transferable skills analysis, and/or job matching. Vocational options may not have been determined. If more information is needed or questions emerge, Level III can be initiated.

Level III – Vocational Evaluation:

A comprehensive vocational assessment process when more in-depth information is needed beyond Levels I and II that systematically uses work, real and simulated, to assist individual's vocational development and career decision making. The process can use work samples, standardized tests, situational assessments, behavioral observation, community-based assessment, transferable skill analysis, job matching, and background analysis.

(Three levels from Ahlers, 2010, pp.12–13).

Application of the Three Levels:

All or a variety of assessment methods, as cited in the previous levels, are used to construct a vocational profile.

What is important to note is that these three levels are typically considered to build on each other and are not mutually exclusive. Some individuals may not need any level of formal assessment service beyond collecting relevant information portfolio style. Others, especially those facing the greatest transition, career, and vocational challenges or barriers, may need one, two, or all three services to further their self-awareness and enhance the career development process.

* The original basis for this three-level view to vocational evaluation flowed from The Vocational Evaluation Project Final Report, with Dr. Stanley H. Crow acting as the Project Chair. Originally published as three

monographs, it was published in entirety in a special edition of *The Vocational Evaluation and Work Adjustment Bulletin* (Crow, 1975). The specific material for the three-level view is found in Chapter Two: Vocational Evaluation Services in the Human Services Delivery System (pp. 29–32). Of interest is that the authors determined that Level 1 screening is used as an initial process in all human service delivery; that Level 2 assessment is most identified with what could be called clinical assessment; and that Level 3—the most intensive, requiring vocational evaluation—is a process of last resort and incorporates work in various situations (e.g., work sampling, simulated work, situational assessment in situ) to corroborate or validate clinical findings, or to specify further avenues to vocational planning and action.

Author's Note:

Sam Castiglione, D.Ed., PVE, NCSP (retired) is a retiree from the Workforce & Technology Center under the Md. Division of Rehabilitation Services (DORS), who still provides independent career assessment and consulting services. He is the immediate past-president of National VECAP. Dr. Castiglione was a licensed psychologist and school psychologist in Pennsylvania for ten years before spending 20 years as a vocational evaluator for DORS. His current ventures include taking VECAP “on the Road” by visiting the vocational evaluation departments of the comprehensive rehab centers by motorcycle.

Pamela J. Leconte, EdD, Retired Assistant Research Professor from The George Washington University (GWU). Dr. Leconte has worked in the field of vocational evaluation for many decades. She has authored numerous articles, book chapters, and training manuals and presented on vocational evaluation, transition assessment, Universal Design for Learning, and other topics.

Frances (Fran) G. Smith, Ed.D, CVE, Adjunct Faculty at George Washington University and an Independent Consultant at Recognizing Differences, LLC. Dr. Smith has been following the collective fields of vocational evaluation, universal design for learning, instructional technology, assistive technology, and distance technologies for more than 30 years. She is a Board Member at Large and Past President of national VECAP and represents VECAP on the National Task Force on Universal Design for Learning. Dr. Smith was a co-chair of the original Interdisciplinary Council on Vocational Evaluation and Career Assessment.

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Functional Capacity Evaluation: A Best-Practices Model for the Vocational Evaluator

Jeff Bruno

BRUNO Evaluation & Consulting

Abstract

This article presents an overview of a comprehensive, interdisciplinary approach to vocational evaluation. This model of best practices uses functional capacity evaluation to make determinations regarding a client's vocational potential, employability, earning capacity, and work-life expectancy. In an effort to expand the footprint of the vocational evaluator within governmental, non-governmental, and private institutions, an emphasis will be placed on outlining methods designed to increase both the utility and defensibility of the vocational evaluator's findings. Finally, potential avenues of future collaboration among the various healing professions is explored.

Key words: functional capacity evaluation, best practices, vocational potential, employability, earning capacity, work-life expectancy

Functional Capacity Evaluation: A Best-Practices Model for the Vocational Evaluator

Scenario to Consider

Imagine for a moment that you are poised to take a plane ride. You have two choices:

- 1) You can fly with Pilot A, who has passed all of the paper-and-pencil tests required for licensure with perfect scores but has never actually flown a plane.
- 2) You can fly with Pilot B, who has passed all of the paper-and-pencil tests required for licensure with perfect scores and has actually flown a plane.

Which pilot do you choose?

For most, the choice is simple: Pilot B. The pilot with not only impressive scores on written tests but also with real-world experience will likely be the most capable of flying an aircraft. More broadly, the person who has demonstrated an ability to meet all of the performance demands of a given job will be the most likely to succeed. We have empirical evidence of Pilot B's functional capacity.

Continuum of Tests

Using the thought experiment above, a continuum of tests for vocational evaluators can be established, based on the degree of fidelity each test has to real-world conditions, known as ecological validity, or the extent to which an assessment instrument corresponds with naturalistic settings (Crist, 2014). Ecological validity effects impacts the level of confidence vocational evaluators place in an assessment instrument's results when making determinations regarding a client. Such a continuum of tests is represented in Figure 1.

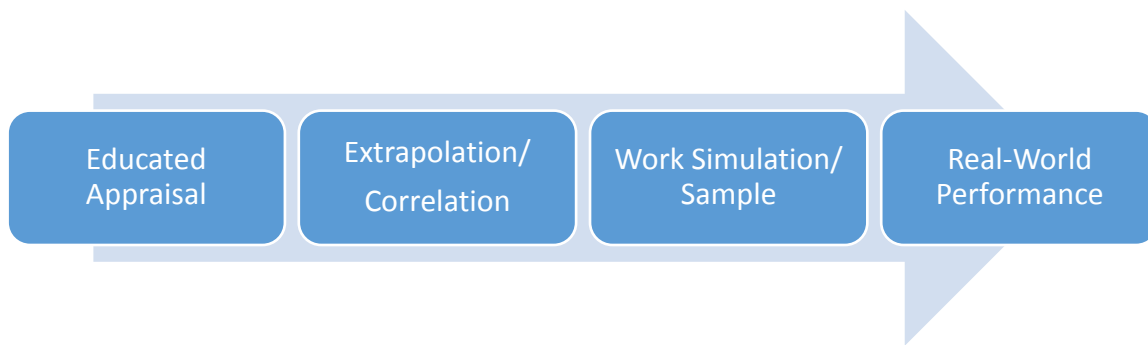


Figure 1. Continuum of Tests.

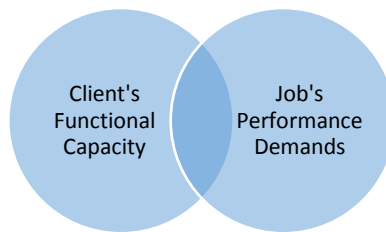
As we progress from educated appraisal to extrapolation/correlation to work simulation/sample and, finally, to real-world performance, ecological validity increases. As ecological validity increases, our ability to identify correctly vocational potential, employability, earning capacity, and work-life expectancy increases, particularly if we also include all preceding items on the continuum of tests. Real-world performance is central to making the most informed vocational determinations, but it functions best as an assessment instrument when considered in concert with all foundational components on which it is underpinned. Incorporation of data from all items on the continuum of tests promotes a comprehensive evaluation that renders accurate, well-reasoned findings.

Returning to the pilot scenario, a vocational evaluator may use an educated appraisal in order to determine that a client cannot suitably work as a pilot. Perhaps the client has a visual impairment or deficits in selective attention. Simple task analysis may indicate that the capacities of such a client will fall short of meeting the performance demands required of a pilot. Alternatively, a vocational evaluator may use extrapolation or correlation in order to determine that a client cannot suitably work as a pilot. Perhaps the client has obtained a low score on standardized tests of visual perception, attentional switching, or bilateral cerebral functioning. Predictions using regression equations may indicate a high probability of failing on-the-road driving tests (Gouvier, et al., 1989; Mazer, Korner-Bitensky, & Sofer, 1998). By default, the more complex job of pilot will then be eliminated from the list of occupations for which a client may be considered. A vocational evaluator may also use a work simulation or sample in order to determine that a client cannot suitably work as a pilot. Perhaps the client has failed to meet the methods-time-measurement standard on a test of eye-hand-foot coordination (Maynard, Stegemerten, & Schwab, 1948). Without even considering other areas of deficit, the client's failure to perform at an established industrial standard may indicate that the foundational activities of the job of pilot, such as operating hand and foot controls, cannot be safely and efficiently performed. A flight simulator is another example of a work simulation with high ecological validity for the job of pilot, and vocational evaluators may rely on performance metrics obtained during flight-simulator testing when making job placement recommendations. Finally, a vocational evaluator may use real-world performance in order to determine that a client cannot suitably work as a pilot. Although in the safety conscious industry of aviation an underperforming pilot may be removed from service without any vocational evaluator being consulted, such an example, nevertheless, demonstrates the decisive role that real-world performance plays in making vocational-related decisions. Even in the air, real-world

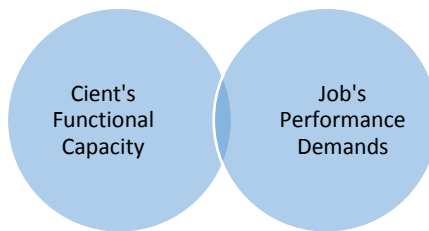
performance is where the rubber meets the road. Of course, the same methods outlined above may be employed in order to qualify rather than to disqualify a hypothetical client from working as a pilot, or to establish a list of alternative jobs for which a client may already be qualified or be qualified after receiving additional vocational preparation.

Functional Capacity versus Performance Demands

Fundamentally, any evaluation conducted with the goal of determining a client's ability or lack of ability to work in a given job is founded upon a simple premise: in order to succeed in a job under consideration, a match must exist between a client's functional capacity and a job's performance demands. Such a relationship among three variations is represented in Figure 2.



Highest Degree of Match, Lowest Degree of Mismatch



Lower Degree of Match, Higher Degree of Mismatch



Lowest Degree of Match, Highest Degree of Mismatch

Figure 2. Variation of match between a client’s functional capacity and a job’s performance demands.

Additionally, vocational potential, employability, earning capacity, and work-life expectancy are directly proportional to the degree of match and inversely proportional to the degree of mismatch. Such a relationship is represented in Figures 3 and 4.

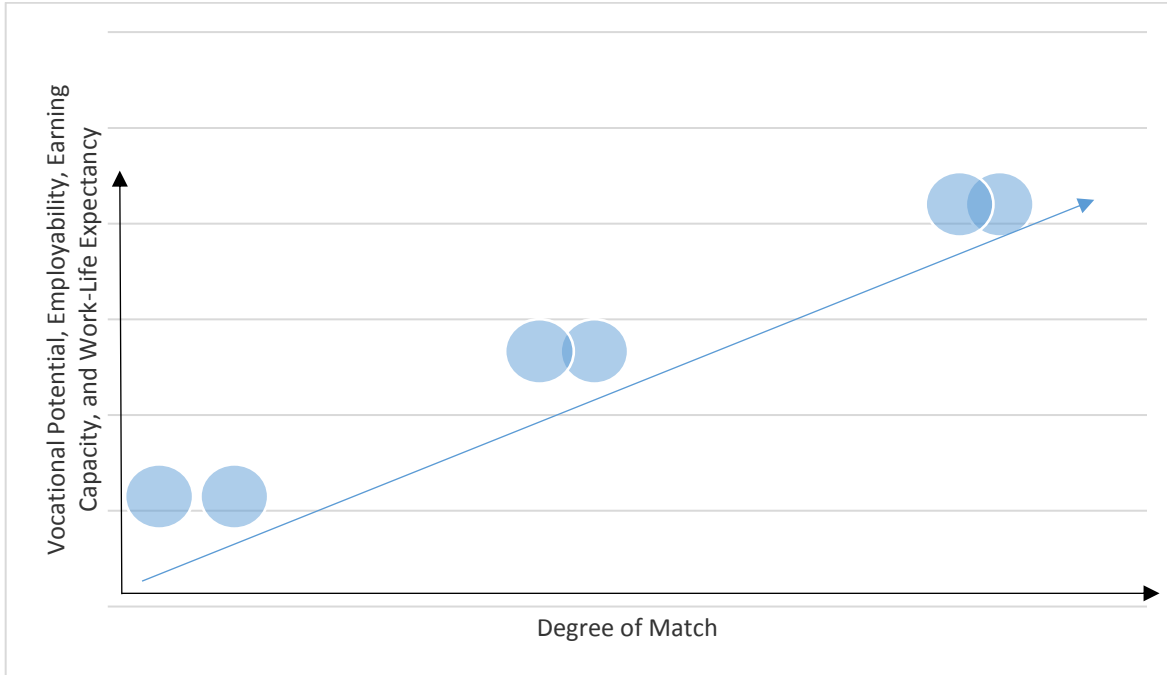


Figure 3. Degree of match versus vocational potential, employability, earning capacity, and work-life expectancy.

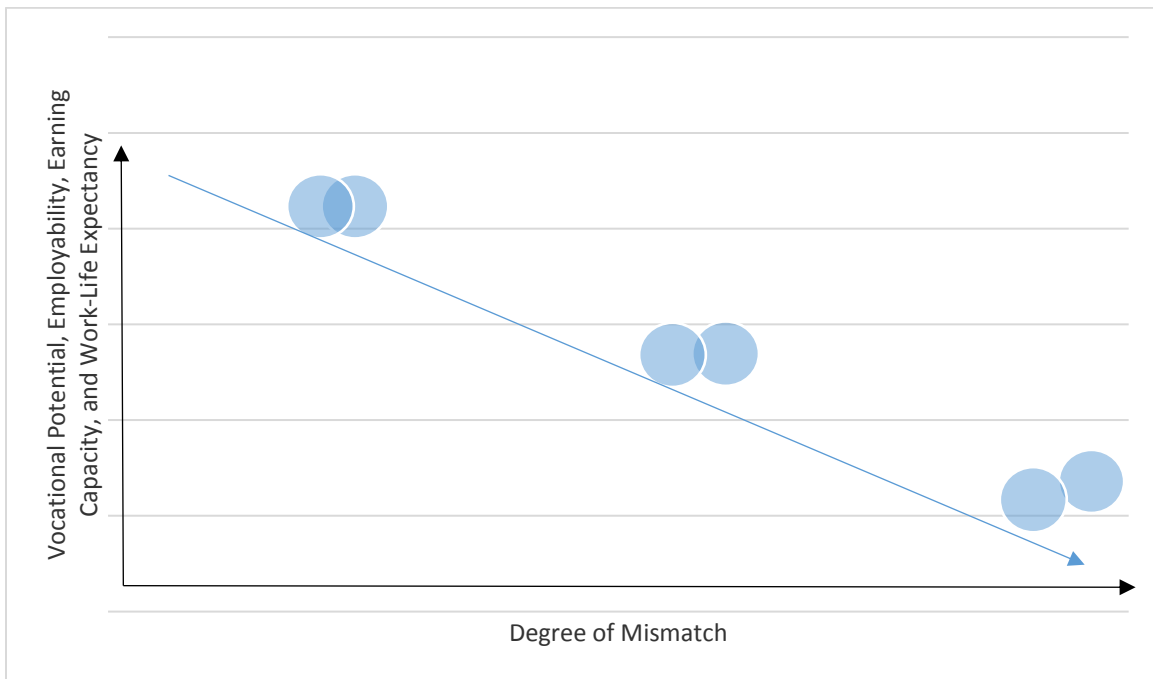


Figure 4. Degree of mismatch versus vocational potential, employability, earning capacity, and work-life expectancy.

Furthermore, because usage of the continuum of tests maximizes the number of characteristics that are assessed across the hierarchy of factors contributing to a client’s overall functional capacity, employing the methods outlined above will likely empower the vocational evaluator to defend any conclusions reached with greater confidence, as probing numerous dimensions of function increases the number of variables on which vocational evaluators can base findings. Such a relationship is represented in Figure 5.

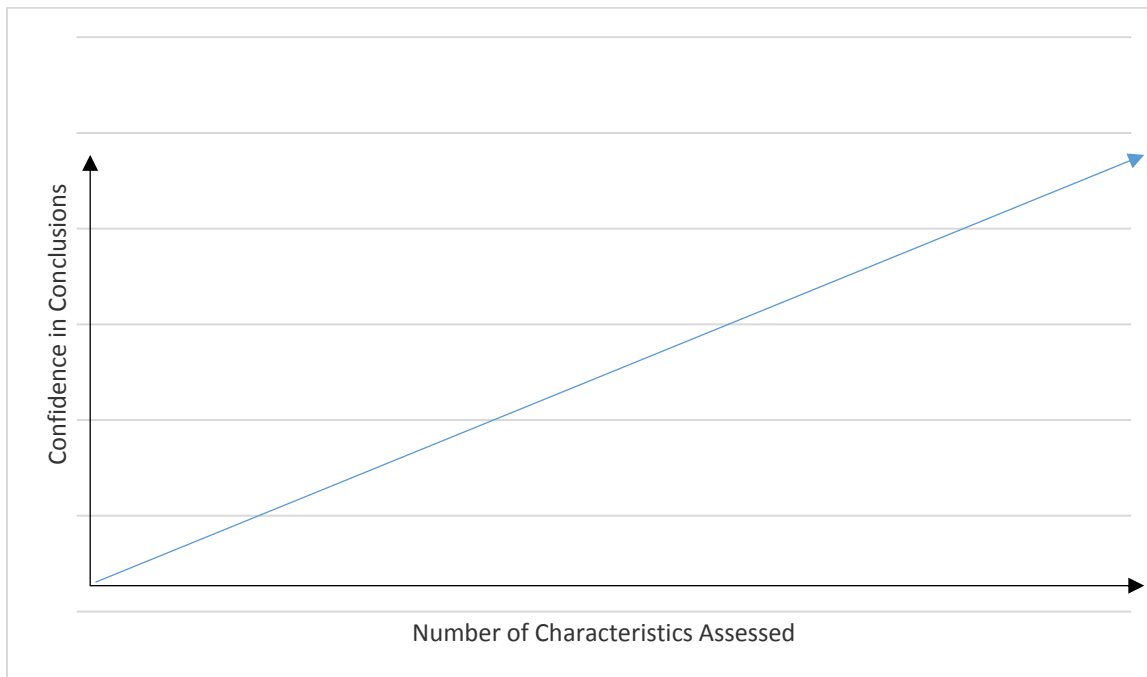


Figure 5. Number of characteristics assessed vs. confidence of conclusions. Note the relationship may also be nonlinear.

Practicing vocational evaluators may have observed that, when making determinations regarding vocational potential, employability, earning capacity, and work-life expectancy, inclusion of all items on the continuum of tests is not always possible. Organizational or governmental policy unresponsive to the methods outlined above, a lack of funds or evaluation time, or simply an absence of available assessment data may exist. But present shortcomings need not obstruct the conceptualization of a best-practices model.

Functional Capacity Evaluation

Among the range of techniques available to vocational evaluators tasked with determining the degree of match versus the degree of mismatch between a client's functional capacity and a job's performance demands, the aptly termed *functional capacity evaluation* provides a framework for the development, testing, and widespread dissemination of a best-practices model. A functional capacity evaluation is a systematic analysis of one's ability to meet the performance demands of work via the administration and interpretation of a dynamic battery of clinical exams, work/activity samples, situational assessments, and performance-based tests. Currently, functional capacity evaluations are used for injury prevention, functional goal setting, job matching (specific), disability rating, occupation matching (general), and work capacity testing (Paquette, & Lacerte, 2013). Depending on the particular evaluator's expertise and/or professional scope of practice, functional capacity evaluations can assess not only physical but also psychosocial, sensory, contextual, and cognitive areas of functioning. Given the natural ability of functional capacity evaluations to accommodate all items on the continuum of tests, functional capacity evaluations can also be used by the vocational evaluator as a best-practices model for making determinations regarding a client's vocational potential, employability, earning capacity, and work-life expectancy.

Indispensability of the Functional Capacity Evaluation

Independent Medical Evaluation—Physicians

Without a functional capacity evaluation, not only are placement decisions regarding an uninjured job seeker compromised, but the veracity of findings related to return-to-work of physically injured parties are degraded as well. For example, physician-conducted independent medical evaluations are often insufficient for determining strength and manual materials handling ability, positional and activity tolerances, or overall disability and fitness for duty (Allen, 2005; 2008; Badley, 2008, 1995; Brokaw, Walker, Cifu, & Gardener, M. 2004; Brouwer, et al., 2005; Butler & Park, 2000; Farzad, et al., 2015; Hazard, Haugh, Green, & Jones, 1994; Jette & Badley, 2000; Mandell, et al., 1993; Matheson, 2003; Matheson, Gaudino, Mael, & Hesse, 2000; Milhous, et al., 1989; Million, Hall, Nilsen, Baker, & Jayson, 1982; Mooney, 1987; Institute of Medicine and National Research Council, 2000; Newton & Waddell, 1993; Reville, Neuhauser, Bhattacharya, & Martin, 2002; Rondinelli, 2008; Todd, Chyatte, & Decker, 1979; Torgerson & Dotter, 1978; Van Oosterom, Ettema, Mulder, & Hovius, 2007; Waddell Somerville, Henderson, & Newton, 1992; Waddell & Main, 1984; Wind, Gouttebauge, Kuijer, Sluiter, & Frings-Dresen, 2009).

In fact, even the *American Medical Association's Guide to the Evaluation of Permanent Impairment* (2007) states, "impairment scores do not, in themselves, indicate whether a patient can work or not" (p. 356), and "the Guide is not intended to be used for direct estimates of work participation restrictions. Impairment percentages derived according to the Guide's criteria do not directly measure work participation restrictions" (p. 6). Furthermore, the *Guide to the Evaluation of Functional Ability* (Genovese & Galper, 2009) states, "a growing awareness has emerged that physicians are not formally trained to define a person's occupational capabilities and, therefore, are unable to accurately declare a person as totally disabled for working or, conversely, capable of gainful employment" (p. 359). Physicians play a vital role in diagnosing medical disease, establishing injury causation, and determining medical prognosis; however, without a functional capacity evaluation, determinations regarding the work capacity of physically injured parties may be made based on non-predictive data.

Independent Medical Evaluation—Neuropsychologists

Similarly, without a functional capacity evaluation, determinations regarding the work capacity of cognitively injured parties are equally worthy of critique. For example, neuropsychologist-conducted independent medical evaluations are often insufficient for assessing functional cognition, including the full range of executive functioning, influence of compensatory strategies, the full range of skills related to daily living, and long-term employment (Baum, et al., 2008; Bjorkdahl, 2010; Chaytor, Schmitter-Edgecombe, & Burr, 2006; Chan, Shum, Touloupoulou, & Chen, 2008; Faust, 1991; Guilmette, 2008; LeBlanc, Hayden, & Paulman, 2000; Lezak, Howieson, & Loring, 2004; Ponsford, Sloan, & Snow, 2013; Sbordone, 2001; Wolf, Dahl, Auen, & Doherty, 2017; Wolf, Morrison, & Matheson, 2008; Zomeren, Spikman, Timmerman, & Deelman, 1999). LeBlanc, et al. (2000) even cautioned that using neuropsychological testing "to project such global functioning as return to work is, at best, risky" (p. 1038). Neuropsychologists play a vital role in diagnosing psychological disease, evaluating discrete cognitive components, and determining psychological prognosis. However, without a

functional capacity evaluation, determinations regarding the work capacity of cognitively injured parties will also be made based on irrelevant or unfounded data.

Functional Capacity Evaluation—Qualified Vocational Evaluators

Contrary to a physician or a neuropsychologist, a vocational evaluator qualified either to conduct or at least to interpret functional capacity evaluations will render findings regarding work-related physical and cognitive abilities that are based on demonstrated, empirical evidence. In fact, provided that a vocational evaluator employs the continuum of tests in order to assess the degree of match or the degree of mismatch between a client's functional capacity and a job's performance demands, a functional capacity evaluation will yield determinations regarding the very work-related information that an independent medical evaluation conducted by a physician or a neuropsychologist cannot, including strength and manual materials handling ability, positional and activity tolerances, overall fitness for duty, the full range of executive functioning, influence of compensatory strategies, the full range of skills related to daily living, and context-dependent factors likely to affect impact long-term employment. Underscoring this point, results of a functional capacity evaluation have been found to determine not only a client's ability to return safely to work, but to predict the risk of injury at work after more than one year of employment, as well as to predict work retention after one year of employment (Harbin, & Olson, 2005; Cutler, Fishbain, Steele-Rosomoff, Rosomoff, & Fishbain, 2003; Fishbain, et al., 1999; Anderson, & Briggs, 2008; Kuijer, Gouttebarga, Brouwer, Reneman, & Frings-Dresen, 2012; Wind, et al., 2009; Cheng, & Cheng, 2010; Legge, Burgess-Limerick, & Peeters, 2013; Fore, et al., 2015), enabling the vocational evaluator to make determinations regarding future employment outcomes. Finally, when a standardized work-related interview is incorporated into the continuum of tests, return to work can be predicted even after a client has previously remained unemployed for as long as two years (Ekladh, Thorell, & Haglund, 2010). Since functional capacity evaluations assess performance ability across the multidimensional constructs found in real-world work—including physical, psychosocial, sensory, contextual, and cognitive areas of functioning—determinations made by a vocational evaluator regarding vocational potential, employability, earning capacity, and work-life expectancy will be made based on relevant, proven data, then confidently defended.

Quality Functional Capacity Evaluations

As evidenced above, the utility as well as the defensibility of any professional's findings are only as good as the methods employed in order to produce such findings. Usage of quality functional capacity evaluation methods is, therefore, crucial for ensuring that vocational evaluators make accurate determinations regarding a client. Indicators of suspect methods, or "red flags," include:

- An absence of:
 - Analysis concerning the degree of match versus the degree of mismatch between a client's functional capacity and a job's performance demands.
- An overemphasis on:
 - Reliability and/or validity testing.
 - Unidimensional findings (e.g., examining the physical domain at the expense of the cognitive domain).

- Rendering of net opinions (providing unsubstantiated conclusions).
- Limitations rather than abilities.
- Inclusion of:
 - Only isometric strength testing at the expense of isoinertial dynamic materials handling.
 - Only fixed batteries or systems.

Indicators of quality methods include:

- Usage of:
 - An emphasis on analysis concerning the degree of match versus the degree of mismatch between a client's functional capacity and a job's performance demands.
 - Techniques ranging from clinical exams (in order to conduct a magnitude-of-injury assessment) to work/activity samples, situational assessments, and performance-based tests (in order to conduct a functional impact assessment).
 - As many items on the continuum of tests as feasible.
 - Consideration of multidimensional interactions (e.g., influence of pain on cognition, or of cognition on the physical domain).
 - Specific job demands analyses against which a client's performance will be compared, provided by an employer or authored by a vocational evaluator.
 - General job demands analyses against which a client's performance will be compared, obtained via Occupational Information Network (O*NET), Dictionary of Occupational Titles, or Occupational Information System.
 - Both data tables as well as narrative explanations in the report.

Additionally, functional capacity evaluation methods would be improved by future research and development efforts directed towards:

- Sophisticated, multidimensional task analysis (e.g., simultaneous and equal assessment of the physical, psychosocial, sensory, contextual, and cognitive domains).
- A library of extrapolation-based and/or correlation-based vocational drivers as well as vocational inhibitors for specific jobs or job groups, including O*NET career clusters, in order to predict better employment outcomes.
- A wider array of modern, updated criterion-referenced as well as norm-referenced work samples, with usage of methods-time measurement, in order to reflect better the demands placed on workers in today's labor economy.
- Assessment standardization according to age, gender/sex, and job, but also according to job group, including O*NET career clusters, in order to improve the generalizability of work sample findings beyond one, specific job.

Multidisciplinary Collaboration

As evaluation methods grow in sophistication—both with the development of novel assessment paradigms as well as with the emergence of new technologies—multidisciplinary

collaboration may prove beneficial. For example, independent health professionals such as occupational therapists, skilled at evaluating the severity of physical, psychosocial, sensory, and cognitive injuries, may find advantages in including vocational rehabilitation counselors as subject matter experts whenever conducting or interpreting a functional capacity evaluation for return-to-work purposes. Likewise, vocational rehabilitation counselors, knowledgeable regarding case management and employment laws in addition to being skilled at triangulating vocational interests, academic performance history, and functional job measures, may find advantages in including occupational therapists as subject matter experts whenever considering work-pace tolerance and/or endurance. In order to promote the development, testing, and widespread dissemination of a best-practices model of vocational evaluation, a novel co-mingling of professions may be on the horizon.

Conclusion

Making determinations regarding a client's vocational potential, employability, earning capacity, and work-life expectancy requires assessment methods capable of evaluating the complex interplay between a client's functional capacity and a job's performance demands. As an assessment tool designed for just such a purpose, a functional capacity evaluation enables professionals to base findings on demonstrated, empirical evidence.

In summary, a functional capacity evaluation—as an assessment tool designed to determine the degree of match versus the degree of mismatch between a client's functional capacity and a job's performance demands, as well as an assessment tool that can accommodate all items on the continuum of tests—provides a framework for the development, testing, and widespread dissemination of a best-practices model of making determinations regarding a client's vocational potential, employability, earning capacity, and work-life expectancy.

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A Critique of *A Guide to Vocational Assessment* by P. W. Power
Matthew L. McClanahan
East Carolina University
Abstract

The purpose of this critique is to provide a critical review of *A Guide to Vocational Assessment – Fifth Edition* by Paul W. Power. In this critical review, revisions are highlighted and a summary of the book is offered along with an appraisal of its strengths and weaknesses. Lastly, recommendations are offered to prospective readers.

A Critique of *A Guide to Vocational Assessment* by P. W. Power

Presented in *A Guide to Vocational Assessment – Fifth Edition* is a sweeping explanation of the modern vocational evaluation (VE) process for assessing clients with disabilities. As alluded to by author Paul W. Power, the book was developed to (a) provide rehabilitation students an introductory text for developing knowledge and skills related to VE, and (b) offer rehabilitation practitioners a detailed reference for updating or enhancing their field-based knowledge. Whether these aims were achieved is the primary focus of this book critique. First, highlighted below is an overview of the revisions that are unique to the newest volume. A summary of the book is then presented, followed by an appraisal of its strengths and weaknesses. Lastly, this manuscript contains recommendations for prospective readers.

New Revisions

Composed of 15 chapters, the newest volume in Power's series of guides on vocational assessment details the same general topics as in previous editions. However, there are a few notable revisions. Among these revisions is the inclusion of more than 100 new citations. According to Power, citations were added to contemporize or expand upon active trends that are shaping vocational rehabilitation (VR) assessment practices. For instance, new information has been included to form a much needed, standalone chapter on the burgeoning topic of assessment services for transition-aged students (see Chapter 13). In addition to in-text revisions, updates were made to the workbook and CD-ROM that accompany book. The workbook incorporates new case examples and the CD contains original VE forms developed as recent as 2013 (e.g., Interview Guide for Consumers with Functional Limitations, Independent Living Assessment, Employment Readiness Scale). Owners of the CD are allowed to reproduce and use the VE forms in practice.

Book Summary

In the first third of the book, ubiquitous terms and foundational concepts within the field of assessment are discussed. Additionally, the author begins guiding the reader through the initial phases of the public VE process. In doing so, ethical and multicultural issues are noted by the author at different stages of evaluation. For example, when selecting a particular assessment strategy or tool, Power directs the reader's attention to a checklist of client-related factors to contemplate to help the VE professional make ethically and culturally appropriate selections (see page 42). Furthermore, the author outlines a general philosophy about VE that emphasizes a multifaceted assessment approach. This approach is meant to highlight strengths and abilities regarding clients' interactions with, and responses to, their environment.

Specific strategies and tools in VE are the major focus of the middle third of the book. In this section, there is a chapter on client interviewing that incorporates a discussion of communication skills, counseling techniques, and process dynamics. Subsequent chapters relate to information on assessing domains of interest, intelligence, personality, aptitude, and achievement. In all, the author outlines more than 100 instruments (e.g., *Slosson Intelligence Test – Revised*) and other tools (e.g., work samples, functional assessments) that are used by evaluators to assess these different domains.

The final third of the book covers an assortment of topics, such as self-assessment, situational assessment, supported employment, and assistive technology. Also, in this portion of the text, the author returns the reader's focus back to the VE process to discuss the remaining stages of evaluation. As is the case throughout the book, the author provides guidance to the reader with regard to VE protocol. When interpreting and communicating the client's evaluation results, for example, Power includes a section on how assessment professionals can best address incongruences between the client's vocational expectations and their actual results from the evaluation. The book then concludes with a chapter on private and forensic rehabilitation, wherein an intriguing list of frequently asked testimony questions directed towards vocational experts is included.

Appraisal of Strengths

There are several strengths to Power's readable yet content-heavy book. Among such strengths is the author's personal philosophy on VE and assessment, which is reiterated throughout the text. Specifically, Power advocates a data collection approach to assessment that incorporates both formal (e.g., tests) and informal (e.g., qualitative procedures) methods. As argued by Power, this mixed-methods approach increases the likelihood of the evaluation being "an individualized, creative, empowering, holistic, process and experience of self-discovery" (p. X). Such a perspective is current and consistent with the perspectives of other well-respected professionals in the field of rehabilitation (see 30th Institute on Rehabilitation Issues, 2003).

Another notable strength is its rarity. There are few, if any, such modern texts in print on VE competencies and protocols. Furthermore, the book is thorough, as all essential knowledge and skill domains of Certified Vocational Evaluators (CVEs) are discussed (e.g., see Hamilton & Shumate, 2005). Furthermore, evaluation competencies of Certified Rehabilitation Counselors (CRCs) are reviewed (e.g., see Saunders & Leahy, 2010). Simply put, with his publication, Power addresses an important gap within the field of VE and assessment.

In addition to being current and comprehensive in the information provided on VE and assessment, the fifth edition is effective as a practical, application-based guide. The author blends numerous field-ready tools, templates, and checklists into the text while also discussing how they can be used. Such an example is found in the first chapter, wherein a well-developed, comprehensive model of vocational functioning (MVF) is shown (see pages 11–14). Beyond merely showing this tool, the author effectively explains its practical use, even describing how readers can develop their own MVF to help specific clients with disabilities.

A final major strength of the book is Power's dedication to providing detailed, client-based advice relating to ethical, multicultural, and disability-related factors. To help practitioners

make ethically appropriate tool selections, for example, Power suggests specific interest measures for clients with low, average, or high reading skill (e.g., the *Geist Picture Interest Inventory – Revised* for individuals with low reading skills). Similarly, in the same chapter, a chart is presented to show the usefulness ratings of 13 different interest measures based on the client’s specific education level (see page 184). Such attention to client-based considerations is evident in all chapters.

Appraisal of Weaknesses

In addition to strengths, the book has a few weaknesses. As previously mentioned, Power generally expresses a perspective on VE and assessment that is reflective of modern ideals within the field. For this reason, the author’s execution in Chapter 3 is curious. In this chapter that is meant to describe the “varieties of people who present themselves for rehabilitation,” the author writes his way into a potentially worrisome paradox (p. 73). After accurately stating that people with disabilities often encounter discrimination through society’s use of labeling and stereotyping, Power proceeds, on the same page, to label and stereotype clients (p. 46). More exactly, clients are labeled as secondary gainers, restorer-achievers, or angry resisters. Secondary gainers, for instance, are described as having *attitudinal problems* and “are basically very angry at having disabilities” (p. 49–50). These and other assertions are provided to explain the different client types. Lacking, however, are references to empirical research that would substantiate claims that such client types exist. Simply put, the author unnecessarily risks further stereotyping of this population by making unfounded statements about clients.

Another weakness is found in the latter half of Chapter 3, wherein the author discusses broadly defined disability categories (e.g., mental illness) with narrow descriptions (e.g., “[People with mental illness] generally give the impression of being bored,” p. 58). However, such disability categories as mental illness are complex, constituting an array of diagnoses that can manifest drastically different psychological symptoms or behaviors that cannot be generalized to other individuals within similar categories of disability. Thus, while the chapter *may* present readers with a few insights about *some* clients and disabilities types, a much more effective approach would have been for the author to discuss empirical findings related to the common behavioral, cognitive, and emotional experiences of people with specifically defined disabilities.

As in the example above, there are other content areas within the book that deserve a more thorough explanation. More notably, the author apportions only three of the book’s 456 pages to career theory, which, to his credit, Power admits is “very briefly explained” (p. 25). Considered an essential knowledge domain of CVEs, career theories provide the conceptual framework from which many interventions and assessment tools are developed. A greater explanation of career theories is therefore needed.

A final weakness of the book pertains to book’s structure. More specifically, the author sometimes uses vague chapter titles for topics that would seem to warrant a more specific designation. For example, important issues in assessment like reliability, validity, and test modifications are seemingly buried in a chapter that is ambiguously titled *Understanding Selected Concepts in Vocational Assessment* (p. 109). Such a title does little to inform the reader

about chapter content, making some topics cumbersome to locate within the book. As a result, the book's efficiency as a *grab-and-go* reference guide is likely somewhat compromised.

Recommendations

Regardless of any weak points, *A Guide to Vocational Assessment – Fifth Edition* is mostly successful in achieving the author's aim of providing (a) rehabilitation students with an introductory text to VE, and (b) rehabilitation practitioners with a reference guide for enhancing field-based knowledge. Therefore, this book is highly recommended for graduate and undergraduate students pursuing a career in rehabilitation or career assessment. Instructors looking for a primary text for an introductory course to VE are encouraged to assign Power's recent volume, as it should be required reading in such classes. The book would also do well serving as a supplementary text for almost any course in rehabilitation studies (with a notable exception of medical and psychosocial aspects of disability). With regard to practitioners, this book would likely be most useful for state or federal evaluators who are either relatively new to the field of VE or are without the benefit of a master's degree in rehabilitation. For professionals seeking an in-depth description on the different tests and measures used in assessment, there are other more comprehensive texts that can be purchased. Nonetheless, experienced evaluators would likely benefit from the plethora of insights that can be gleaned from this book. In sum, Power's latest guide provides a valuable addition to the field of VE and assessment, worthy of a spot on any current or prospective rehabilitation professional's shelf.

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Author Note:

Matthew L. McClanahan, MEd, CRC, graduated with his master's degree from Auburn University. Mr. McClanahan has worked as a vocational rehabilitation counselor and as a journalist. He is currently enrolled in the Rehabilitation Counseling and Administration PhD program at East Carolina University.

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Interview of Dr. Stephen W. Thomas

Who is the intended audience for this book?

The book is designed for people who have an interest in engaging in vocational evaluation. This is what you might call an introductory text for students, but I also think it's intended for people who are going to be evaluators who really weren't trained in that area.

In this book, you describe vocational evaluation and how it contributes to successful employment outcomes for clients. You also explain the professional role of evaluators, and effective tools and techniques for practice. What was the driving force behind writing this book?

There just wasn't what I would call a definitive text for an introductory course in vocational evaluation out there. I can't think of any other source where you can go to look this stuff up. There are a lot of rehabilitation evaluation books, but nothing for vocational evaluation. So I think that's a good reason for this book to be developed and marketed.

As an expert in the field of vocational evaluation, where do you see the profession headed and what tool or technique would you like to see emphasized in the future?

The market (for vocational evaluation) is still very much alive, well, and needed. I think functional assessment is going to play a very important role because you can involve family members, teachers, counselors, or other individuals who have actually seen the (client) perform things. As evaluators, observing behavior is such a big part of what we do and you can't always give someone a psychometric test and definitively say, "The behavior I saw there is going to be consistent with what would happen in a work environment." Psychometric testing is important, but getting really good behavioral information can be a longer-term process. If you're going to work with people with severe disabilities and make recommendations that maximize their potential, functional assessment is something to consider.

What advice do you have for individuals beginning a new career in vocational evaluation?

I would recommend that they join a professional organization like VECAP or VEWA, of which Dr. Sligar and I have been members.

And you would also recommend that they read this book?

Yes, that's right.

Interviewer Note: Matthew L. McClanahan, MEd, CRC, has worked as a vocational rehabilitation counselor and as a journalist. He is currently enrolled in the Rehabilitation Counseling and Administration PhD program at East Carolina University.

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Author Biography: Dr. Stephen W. Thomas

Dean Emeritus

ECU College of Allied Health Sciences

At his retirement on October 31, 2014, Thomas was bestowed the title of the first Dean Emeritus at East Carolina University (ECU) by Chancellor Steve Ballard. On July 1, 2003, he became dean of the ECU College of Allied Health Sciences in the Division of Health Sciences. He also served as the interim dean of the College beginning April 16, 2001. Prior to his interim dean position, Thomas was department chair, professor, and a vocational evaluation graduate program director within the Department of Addictions and Rehabilitation Studies at ECU. Prior to his arrival at ECU in 1980, he directed the vocational evaluation graduate program in the Department of Rehabilitation at the University of Arizona, served as a development specialist and instructor in the Materials Development Center, Stout Vocational Rehabilitation Institute at the University of Wisconsin–Stout, and as a vocational evaluator in the rehabilitation center at the University of Texas Medical Branch in Galveston, beginning in 1970.

Within his profession, Thomas has served as president of both the Arizona and North Carolina Vocational Evaluation and Work Adjustment Associations (VEWAA) and of the national VEWAA. He is also the recipient of the Paul R. Hoffman award from VEWAA. In addition, Thomas served as the chair of the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists.

A Houston, Texas native, he graduated with a bachelor's degree in psychology and sociology from Texas Christian University, and master's and doctoral degrees in rehabilitation from the University of Arizona. He and his wife, Melodie, have two married daughters (Darby and Morgan), identical twin granddaughters, a grandson, and a granddaughter.

May 2015

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The following text by Dr. Stephen Thomas is an authorized reprint of *Vocational Evaluation and Assessment: Philosophy and Practice* presented as published in 1997.

Vocational Evaluation and Assessment: Philosophy and Practice

CHAPTER SIX

Instruments of Evaluation

Vocational Evaluation Tools

The generic term tools refers to the comprehensive collection of instruments, techniques, and strategies available to vocational evaluators in the routine performance of their job duties. Instruments, the focus of this chapter, are those standardized tests, work samples, and evaluation systems used to collect objective, norm-referenced data (e.g., time and error scores) on skill and ability. The techniques covered in the next chapter refer to the criterion-referenced approaches including functional assessment, situational assessment, continuity-based assessment, curriculum-based assessment, ecological/environmental assessment, behavioral observation, and interviewing used to subjectively assess behavior, performance, and attitude toward work. The strategies covered in the chapter on vocational evaluation processes are the accommodations, modifications, and supports for learning and performance that are applied during the use of instruments and techniques to ensure an accurate assessment of potential.

Vocational evaluation also relies on a wide variety of work-related tools (e.g., mechanical tools, office tools, electronics tools) to assess an individual's current and future potential. Unlike counseling, vocational evaluation is an equipment-oriented process. Evaluators in comprehensive units rely on similar kinds of tools and equipment used by workers on their jobs to assess a consumer's work-related needs and abilities. It is this reliance on simulated and real work tools and equipment that makes vocational evaluation uniquely different from other assessment disciplines that rely primarily on file review, interviewing, psychometric testing, and career counseling. Although vocational evaluation techniques will be briefly reviewed in this chapter to illustrate their interrelationship with evaluation instruments, they will be covered in greater detail in the following chapter.

Although evaluation instruments provide the opportunity to apply techniques and strategies (e.g., behavioral observation, modification) both instruments and techniques can stand alone as assessment methods. There are times when a technique can be used to collect information that is also available through the use of instruments. For example, the assessment of learning style can be accomplished by observing how individuals best understand what to do when being administering different tests, work samples, and situational assessments that are not designed to evaluate learning style. However, there are a variety of standardized instruments that were specifically designed to identify the preferred learning style. If such an instrument is used to determine the learning style, then the outcome can be validated through the observation of applied learning on other tests, work samples, and situational assessments. When instruments

and techniques are used together, more subtle and detailed information can be collected that will provide greater insight into behaviors, interests, abilities, and needs of the consumer.

It is this highly individualized mix of instruments, techniques, and strategies within the evaluation process that make vocational evaluation a unique and creative venture for the participant and practitioner alike. The key to a successful vocational evaluation is knowing how to efficiently plan when and what instruments and techniques will be administered to meet the individual needs of different consumers and referral sources. This chapter will provide a basic overview of the widely used instruments and techniques of evaluation and assessment. The application and interpretation of these instruments, techniques, and strategies will be described in later chapters.

Recognized Instruments and Techniques

The instruments and techniques of vocational evaluation have been adapted from a variety of other professions and fields that also engage in various forms of assessment (Neff, 1985; Pruitt, 1986). Psychology, for example, contributed standardized tests, the first work samples, and the testing laboratory. Pruitt (1986, p. 6) feels the most important concept psychology has given vocational evaluation is that "information derived from evaluative methods or instruments may be used to understand current behavior and to make predictions about future adjustment." Industry and industrial psychology created job analysis, behavioral rating scales, simulated tasks, and job tryouts for work classification, and employee screening and selection. The military has given evaluation the group testing approach and contributed to the further refinement of work samples through the development of instruments, such as flight simulators. The simulator has been applied to other fields to evaluate and train ship pilots and captains, and assess applicants for bank teller positions through computer simulations. Lastly, the rehabilitation facility in the United States can be credited with the organization and refinement of these different assessment approaches into the process known as vocational, or work, evaluation. Neff (1985, p. 180) indicates that, due to a lack of available assessment procedures, rehabilitation facilities were forced to develop their own "assessment devices, which largely fall under the work-sample and/or situational assessment categories."

Neff (1985) identified four instruments and techniques commonly used in the assessment of work potential. They include the:

- Mental testing approach,
- Job analysis approach,
- Work-sample approach, and
- Situational approach.

These are consistent with (Nadolsky, 1973, p. 51) five evaluation methods, which include: "(a) the psychological testing approach, (b) the work sample approach, (c) the situational approach, (d) the job tryout approach, and (e) the job analysis approach." With the exception of job analysis, the literature has recognized the same fundamental tools of evaluators (Sax & Pell, 1985; Tenth Institute on Rehabilitation Services, 1972). Similarly, Lesnik (1983)

identified six generic "techniques" of vocational evaluation under the umbrella of occupational exploration. These techniques, which are listed in the general order used, and lead to the goal of real work, include:

- Interviewing,
- Psychological testing,
- Work samples situational assessment,
- Job site evaluation, and
- Job tryout.

The Vocational Evaluation and Work Adjustment Association (1975) classified the tools of vocational evaluation into three categories, situations as tools, resource tools, and applied tools, with a listing of the appropriate instruments and techniques under each one.

Situations as Tools

1. On-the-Job Evaluation, consisting of:
 - Job site situation,
 - Production work situation,
 - Trial training evaluation, and
 - Simulated job stations.
2. Work Samples, consisting of:
 - Actual job samples,
 - Simulated job samples,
 - Single trait samples, and
 - Cluster trait samples.
3. Psychometrics

Resource Tools

1. Occupational information
2. Client information
3. Job analysis
4. Audio-visual materials

Applied Tools

1. Interviewing procedures
2. Observational procedures
3. Reporting procedures

Sitlington, Neubert, Begun, Lombard, and Leconte (1996) identified methods for gathering information through transition assessment, which include:

- Analysis of background information interviews
- Psychometric tests
- Work samples

- Curriculum-based assessments
- Behavioral observations
- Situational assessments
 - In vocational settings
 - In community settings (e.g., home, recreation sites, banks, and stores)
- Assessing potential environments
 - Analysis of community environments
 - Job analysis
 - Analysis of postsecondary education environments

A national study by Hayward, Wine, Thorne, Stoddard, and Wilhite (1992) reported the percentage of vocational evaluations conducted for Vocational Rehabilitation that used the following instruments and techniques (Hayward & Thomas, 1993, p. 337).

Table 1

Most Common Vocational Instruments and Techniques Used in Vocational Evaluation

Vocational Instruments and Techniques	Percentage of Use
Specific tests and work samples	92.9
Clinical interview	50.4
Situational assessment	30.5
Functional assessment	22.3
Other	2.9
On-the-job evaluation	4.8

Thomas (1986, pp. 150–151) found relatively similar distributions of use to the Hayward et al. (1992) study, in a national survey of 106 full-time vocational evaluators in public, private, and school-to-work settings, who were members of VEWAA. Psychometric tests and work samples were listed separately, and there was a much higher reported use of interviewing, situational assessment, and job site (on-the-job) evaluation.

Table 2

Most Common Vocational Instruments and Techniques Used Among VEWAA Members in Vocational Evaluation

Vocational Instruments and Techniques	Percentage of Use
Psychometric/standardized testing	100.0
Work samples and systems	96.0
Interviewing	95.0
Situational assessment	67.0
Job site evaluation	30.0
Other	16.0

In the early years of vocational evaluation, work samples were the instruments of choice. Over time, as evaluation became shorter, there was greater reliance on quicker and cheaper psychometric tests. Today, however, newer work sample and evaluation systems have been significantly shortened, increasing their frequency of use. Situational assessments, which rely on behavioral observation, are performed in-house or in the community and take considerable time to set up and administer, as do on-the-job evaluations (OJE) that rely on consumer placement in community-based jobs. As a result, situational assessment and OJE are used less frequently. The "Other" category at 12.9 % in the Hayward et al. (1992) study and 16 % in the Thomas (1986) study represent the range of creative activities employed by evaluators in assessing potential.

More current instruments and techniques used in evaluation and not mentioned above include computers for assessment, occupational information, job search, and report writing; functional capacity assessment; training analysis; and, checklists and rating scales used in areas, such as functional assessment and ecological (environmental) assessment. Variations of recognized instruments and techniques are also identified in the *CARF Standards Manual* (1996), and the *CCWAVES Standards and Procedures Manual* (1996). Although the administration and interpretation of various standardized instruments will be presented later in the book, brief definitions and descriptions will be provided in this chapter to give the reader a basic familiarity with selected evaluation instruments.

Considerations in Choosing Appropriate Instruments

There is a well-defined hierarchy of vocational evaluation instruments (Cutler & Ramm, 1992; Thomas, 1991). It is based on the relationship of the instrument to real and simulated work—a fundamental consideration in vocational evaluation. As illustrated below, the most commonly used assessment instrument is the psychometric test. It is the quickest and most cost-effective means of obtaining information. Because psychometric tests are abstract in design, often require reading, and frequently have time limits, they look the least like work of all the evaluation instruments. Therefore, they may create testing anxiety in people who do not perform well on standardized tests, and the results may not adequately represent current ability or future

potential. Since they rely on a comparison of the individual being tested to a group of individuals in a norm table, they are often referred to as "norm-referenced" instruments or procedures.

Work samples (which are simulations of work) are initially more expensive to buy than psychometric tests and take longer to administer. As a result, they are not given as frequently but are more appropriate for the assessment of work-related performance, behavior, and manifest interest than psychometric tests. Situational assessments and community-based assessments (on-the-job evaluations) take the longest time to administer because of their focus on work-related behavior and are the least used evaluation techniques. Community-based assessments, in particular, have the highest relationship to work and rely on a "criterion-referenced" interpretation (i.e., how the individual performed each job task), rather than a norm-referenced interpretation. Situational assessments and community-based assessments are particularly useful for lower functioning individuals who might benefit from supported employment placement but, by no means, are limited in their application to lower functioning populations. Since work samples share many of the same characteristics with tests and situational assessments, they provide an opportunity for both norm-referenced and criterion-referenced assessment and interpretation.

Continuum of Vocational Evaluation Instruments

The tools an evaluator uses are a personal choice; what works for one may not work as well for another. As a result, many evaluators are somewhat eclectic—that is, they prefer to use a variety of instruments and techniques that best fit their assessment style and philosophy, as well as evaluation setting. A unit must maintain a widest possible variety of instruments to relate to: changes in populations; referral source needs; differences in consumer interests and abilities; and, the variety of available community resources, training and education programs, and employment/career opportunities. Following are a number of important questions evaluators must answer when choosing a repertoire of instruments and techniques for the unit (Brown, McDaniel, Couch, & McClanahan, 1994; McDaniel & McClanahan, 1993; McFarlane, Bellinger, Paulsen, Wesolek, & Modahl, 1988; Thomas, 1991).

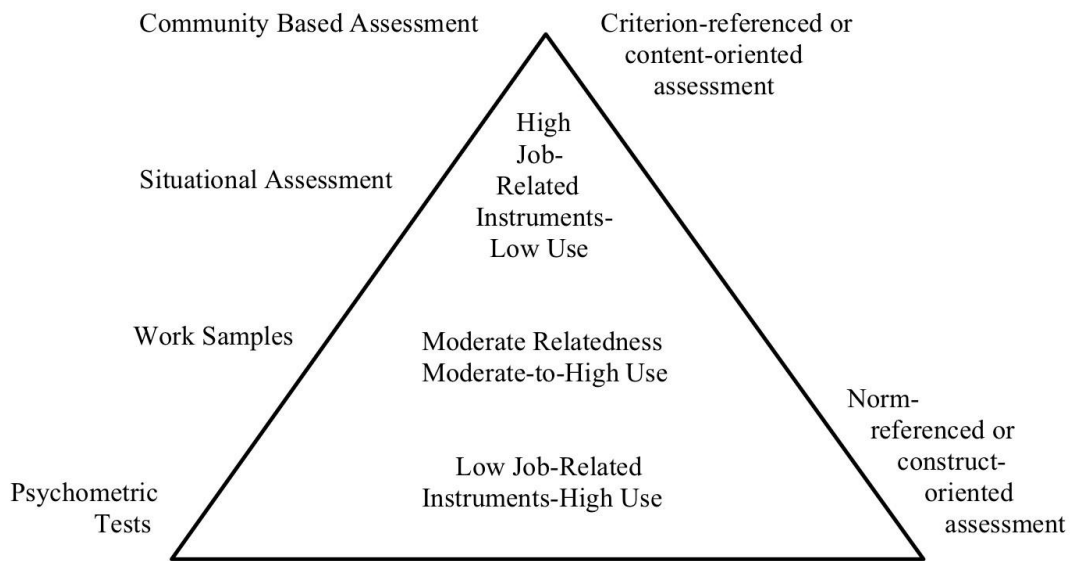


Figure 1: Continuum of Vocational Evaluation Instruments

1. What is the composition of the population being served? Although an evaluator will want to anticipate occasional variations in the type of individual served, instruments should be targeted to the typical referral. Tests and work samples should not be too easy or too difficult for participants to take. Otherwise, motivation in the evaluation will be affected. Instruments for readers and non-readers that assess for the same information (e.g., written and picture interest inventories) should be available.
2. What are the composition of the labor market, course/curriculum offerings at local schools and colleges, and community resources? There is little value in using instruments that do not represent available jobs (or job families), education, and training. In addition, evaluators need to know what community resources (e.g., remedial programs, adjustment services) and community supports (e.g., supported employment, supported living, accessible public transportation) are available to consumers to enhance learning, living, and working.
3. What are the goals and objectives of the evaluation/assessment unit? Similarly, what are the needs of consumers/students and referral sources? For example, if the goal is to assess curriculum placement for secondary special needs students, then more attention must be given to class placement rather than job placement issues. In this case, the repertoire of instruments must represent curriculum and community training opportunities first. The needs of consumers and referral sources must be consistent with the goals and objectives of the unit, and the two must be considered simultaneously when change is contemplated.

4. What is the size of the unit? In small fixed or mobile units, only instruments that are easily stored and setup when needed can be purchased. Bulky evaluation systems and work samples can be permanently set up in larger fixed and mobile units.
5. What is the length of the evaluation? Length (e.g., several hours, several days, or several weeks) dictates the number and types of instruments and techniques that can be administered. Therefore, the time necessary to give, score, and interpret lengthy work samples, entire evaluation batteries, or situational assessments may take longer than is provided for evaluation. In this case, the evaluator must rely on brief work samples and psychometric tests. The needs of the consumer and level of functioning will influence the length of the service and the types of instruments and techniques employed.
6. What is the consumer-to-evaluator ratio (i.e., will there be a group or individual administration)? Evaluators need to be fully aware of the demands on their time made by the different instruments they use. If the ratio is one to one, then evaluators can use instruments that require their undivided attention; where they must be present throughout the entire administration. If the ratio of two to one or higher, then instruments that take up less of the evaluator's time for instruction and assistance must be chosen. Although instruments designed for use with a high ratio or with groups can usually be administered individually, but instruments requiring an individual administration cannot be used with two or more evaluatees at the same time. In general, instruments that allow the evaluator to give the instructions and walk away to observe behavior at a distance are often preferred.
7. What is the cost to buy, administer, score, and maintain an instrument or battery? Although some work samples and evaluation systems have a high front-end purchase cost, their durability and low maintenance may make them cheaper, in the long run, than psychometric test materials and packets that are expended with each administration. It is best to conduct long-term price comparisons based on at least two years' worth of administrations to determine which approaches are most cost-effective. Computer scored tests may be costly if charged by the person, as compared to unlimited access software. Because of the equipment orientation, vocational evaluation units will require sufficient funds to routinely purchase materials and supplies, and maintain or replace instruments. Evaluators must target how many participants will be served each year and set their budget based on the overall costs.

Other considerations for instrument choice may surface depending on the unit. Over time, personal experience will provide a better understanding of instrument needs. Following is a review of three selected instruments (i.e., psychometric tests, work samples, evaluation systems) commonly used in vocational evaluation and assessment.

Psychometric Tests

Psychometric tests are standardized instruments (paper-and-pencil and performance-based) used primarily for counseling and planning; in this case, vocational/career counseling and planning. Psychometric tests are different than the more high level "psychological tests" (e.g., intelligence tests, personality tests, projective tests) used by licensed psychologists for clinical

diagnosis. The American Psychological Association originally developed a test classification system that is used today by companies that market standardized tests to qualified users. Companies such as American Guidance Service, Consulting Psychologists Press, Psychological Assessment Resources, and The Psychological Corporation give the "user qualification level" for each test listed in their catalogs. There are three user qualification levels: A, B, and C.

User Qualification Levels.

Level A. This ranges from no qualifications for test use, other than employment with an appropriate company or organization ordering the tests, to the completion of a course in measurement, guidance, or related area. Supervised experience in test administration and interpretation is also acceptable. Tests in this category include dexterity tests traditionally used for employment screening in industry, and some self-administered and self-scored interest and aptitude tests. Generally, the range of tests available for purchase at this level is quite limited.

Level B. Depending on the company, users must have graduate training in measurement, guidance, or psychological assessment, or a Bachelor's or a Master's degree in psychology, counseling, education, or closely related field. Membership in specified professional associations or licensure/certification in appropriate areas will also qualify a user. This level contains the largest number of tests that are most frequently used by appropriately trained and qualified vocational evaluators. They include interest and work values tests, achievement and aptitude tests, and some intelligence tests used for quick screening.

Level C. Requirements in this category range from a graduate degree (a doctoral degree is preferred) in psychology, education, or closely related field; with coursework, training, and/or supervised practical experience in the administration and interpretation of clinical assessment instruments (i.e., psychological tests). Appropriate professional association membership or licensure is also acceptable for purchase.

Psychology licensure requirements for testing vary from state to state, and the ability to buy a test may not necessarily qualify someone to use it. Evaluators must check their own state regulations to determine the minimum qualifications needed to use specific kinds of psychometric and psychological tests. States generally do not limit appropriately trained and/or certified evaluators (CVE or CRC) from administering and interpreting Level A and B psychometric tests. However, restrictions may be placed on the use, especially the interpretation, of Level C psychological tests.

Ethical Considerations in Testing

It has been this author's experience that standardized tests are frequently misused. Much of this misuse comes from a lack of knowledge of tests and measurements theory, including norms and norm groups, reliability, validity, Standard Error of Measurement, standardization in administration and scoring, and interpretation strategies. Knowledge of tests and measurements theory is just as important to the work of vocational evaluators as counseling theory is to counselors. Anyone engaged in any form of standardized testing should have, at a minimum, a course in testing that emphasizes measurement principles, ethics in testing, and a review of the different types of standardized tests. In particular, it is the violation of well-recognized ethical

standards, which are generally accepted across related professional disciplines, that can create harm to the consumer, misinformation for the referral source, and potential legal trouble for the individual in charge of testing. Ignorance of ethical standards is not an acceptable defense for uninformed evaluators who are facing a hearing, grievance, or litigation resulting from inappropriate test use.

Following is a brief list of the major ethical guidelines that test users must firmly adhere to in all aspects of purchasing, storing, administering, scoring, and interpreting standardized tests. These ethical "themes" were taken from the codes of ethics of the American Counseling Association, the American Psychological Association, the Commission on Rehabilitation Counselor Certification, the Commission on Work Adjustment and Vocational Evaluation Specialists, and the Joint Committee on Testing Practices (1988).

1. Vocational evaluators must recognize the limits in competence and qualifications they have on using certain tests. They should also understand the purposes and limits of the tests they are using and know how they will benefit or potentially harm the consumer.
2. Evaluators must be sensitive to the impact that disability, socio-economic status, education, age, gender, race, and culture have on choosing, administering, and interpreting standardized tests. Many evaluation units will have a variety of tests that assess the same areas (e.g., mechanical reasoning) for readers and non-readers, and for individuals who approach learning and processing of information differently. The goal is to eliminate any adverse impact in testing and level the "playing field" (i.e., give all examinees the same unbiased opportunity to demonstrate their best performance). Adverse impact (as with differential prediction) is where one group performs better on a test than another but with no appreciable difference in the performance between the two groups on the outcome (e.g., job or classroom performance). Cross-cultural issues must be considered by the evaluator. Be attentive to how a test is designed to handle variations in motivation, working speed, language facility, experiential background, and any bias in response to its content by individuals taking it (Alston & McCowan, 1994; Colyer & Smith, 1993; Joint Committee on Testing Practices, 1988; Prediger, 1993; Smart & Smart, 1993; Suzuki, Meller, & Ponterotto, 1996). Understand that the individual being evaluated is a "cultural entity" (Feist-Price, Harley, & Alston, 1996). Review the manual to determine if there are representative samples of minorities, women, individuals with disabilities, and individuals from a wide age range in the normative sample, and in the reliability and validity studies as well. Determine if studies of equity are reported in the manual or literature on the test in question. Review test content to determine if the wording is free of stereotypes and cultural bias. During test orientation and administration provide appropriate accommodations, when necessary, to minimize language, processing, and time barriers, and describe the accommodations made when reporting test results. Test developers and publishers are becoming more sensitive to the need to minimize bias in testing related to age, gender, race, culture, and disability. In the future, existing tests will be revised, and new tests developed that can be accurately used across an inclusive range of groups and environments.

3. To protect the confidentiality of tests, evaluators must maintain all unused test materials in a secure place. All used tests must be maintained in consumers' files and also stored in a secure place. It is the responsibility of the professional using the test to safeguard the materials. In particular, tests should not be given or mailed to consumers to take at home unless the test is designed for that purpose.
4. Participants in evaluation and assessment must ensure that informed consent is obtained before tests can be administered. The evaluatee must be notified of and agree to three things: (a) the purpose of the testing program; (b) the kinds of information being sought; and, (c) what will be done with the information obtained. Some referral sources, such as Vocational Rehabilitation state agencies, workers compensation rehabilitation companies, and welfare-to-work programs, will have blanket consent forms signed before evaluation is provided. However, this does not circumvent the evaluator's responsibility to cover these three facts with the participant during the orientation phase. School systems often require that a separate consent form be completed for every service including vocational assessment. Vocational evaluators should not release evaluation reports to individuals who were not identified as recipients of the report; nor should they share any test results with unauthorized individuals. Since the report is considered the property of the referral source and the consumer, anyone else requesting a copy should be directed to contact the referral source. However, if a subpoena is issued for report or test information, the evaluator should turn over only that information that is requested in the subpoena, excluding actual copies of the test. Test score forms and profiles can be attached to reports, but as indicated in the previous ethical guideline (see 3.), not the actual test itself. This will compromise the test's confidentiality if the report is subpoenaed, in which case it will end up in public court records, or if a copy of the report and attachments are given to the consumer or consumer's family, it will be released into the public domain. Since tests are protected by copyright, their unauthorized public distribution is further restricted, and if attorneys insist on receiving a copy, refer them to the publishing/marketing company.
5. Strict adherence should be paid to administering, scoring, and interpreting the test as specified in the manual. Variation in the instructions and interpretive guidelines set down in the manual will negatively affect the accuracy and utility of the results. Reasonable accommodations are allowed in administration and test performance; however, there is no set rule or formula that can predict how the modification will affect the validity of the instrument. In this case, criterion-referenced procedures will take precedence over norm-referenced procedures when scoring and interpreting the instrument. Modifications in standardized testing are appropriate when it is found that the test is unsuitable for use as is, and when other tests that measure the same trait (that would eliminate the need for modification) are not available. Modification is appropriate as long as a description of why and how the test was modified is included in an oral and written review of the test results. Although some professionals argue against the modification of standardized tests, this author would sooner be in violation of tests and measurement principles than to be in violation of the ADA. A detailed description of specific modification procedures will be presented later in the book.

6. Since most standardized tests today employ a norm-referenced approach to scoring and interpretation, use of appropriate norm groups is essential. When interpreting performance, take into account any major differences between the norm groups and the individual taking the test (Joint Committee on Testing Practices, 1988; Prediger, 1993). In reference to "substantial limitations to the activities of living and working," the ADA indicates that comparisons should be made to the general population (for living activities) and to the working population (for work activities; Thomas, Hiltenbrand, & Tibbs, 1997). Therefore, general population norms, applicant norms, and job trainee or worker norms should be used when available. If an individual wants to go to school, then the use of appropriate school norms would be recommended. "*The Civil Rights Act of 1991* (P.L. 102–166)" specifically addresses the issue of norms through *Section 106 Prohibition Against Discriminatory Use of Test Scores*. An amendment to the section states that:

It shall be an unlawful employment practice for the respondent, in connection with the selection or referral of applicants or candidates for employment or promotion, to adjust the scores of, use different cutoff scores for, or otherwise alter the results of, employment related tests on the basis of race, color, religion, sex, or national origin.

7. The testing environment should be quiet, comfortable, and conducive to optimizing performance. Every attempt should be made before and throughout the evaluation to minimize testing anxiety and ensure the best possible performance of the participant.
8. Provide an accurate, understandable interpretation of the results and relate them to the purposes of the test and overall evaluation (e.g., employment and training, goals and needs). This interpretation may be offered to consumers and their families, to the referral source, and to other involved professionals through written and oral communication. Scores should be considered as approximations since no percentile score is an absolute representation of performance. The evaluator may also want to use more than one norm group for a broader comparison of performance to other environments and populations. Scores from one test, or work sample, will have less utility than scores and observations from a variety of different evaluation instruments and techniques (e.g., work samples, situational assessments, job or classroom tryouts). Comparison of scores to other evaluation information from sources, such as file review, interviews, staffing, behavioral observations, job analysis, and occupational information, will increase accuracy in decision-making. This broad interpretive approach, which uses multiple sources of information, will help the evaluator account for a significant number of variables that affect the outcome.
9. Update test versions when they become available. If a publisher continues to support an older version of a test, it can be used until the forms are no longer stocked. Outdated tests may result in outdated outcomes.

The codes of ethics of professional associations, and licensure and certification bodies that represent testing disciplines, provide specific standards for the appropriate choice, administration, scoring, interpretation, and safe keeping of standardized tests. Federal regulations

available through the Equal Employment Opportunity Commission (EEOC) also provide guidelines for employment screening and testing. The following two ADA regulations, administered by the EEOC, caution professionals on how tests should be chosen and used with individuals with disabilities.

It is unlawful for a covered entity [employer] to use qualification standards, employment tests or other selection criteria that screen out or tend to screen out an individual with a disability or a class of individuals with disabilities, on the basis of disability, unless the standard, test or other selection criteria, as used by the covered entity, is shown to be job-related for the position in question and is consistent with business necessity ("Americans with Disabilities Act of 1990," 1991a).

It is unlawful for a covered entity to fail to select and administer tests concerning employment in the most effective manner to ensure that, when a test is administered to a job applicant or employee who has a disability that impairs sensory, manual or speaking skills, the test results accurately reflect the skills, aptitude, or whatever other factor of the applicant or employee that the test purports to measure, rather than reflecting the impaired sensory, manual, or speaking skills of such employee or applicant (except where such skills are the factors that the test purports to measure; "Americans with Disabilities Act of 1990," 1991a)

These awkwardly worded regulations relate more to testing performed in employment settings than to rehabilitation or transition settings. However, the regulations have general application to vocational evaluation as well since tests are often used to determine employment potential and placement. In short, the two regulations stress the need to carefully choose and use tests and work samples that evaluate individuals' abilities rather than their disabilities. Keep in mind that psychometric tests should not be used in evaluation and assessment as diagnostic instruments but to provide direction for vocational/career counseling and planning—with the ultimate goal of achieving satisfying and meaningful employment for the consumer.

Review of Standardized Tests

Eight different categories of Level A and B standardized tests commonly used in vocational evaluation and assessment will be reviewed. These categories include achievement, aptitude, basic skills, dexterity, intelligence, interest, learning style, and temperament and work values tests.

Achievement Tests. VEWAA's *Glossary of Terminology* (Dowd, 1993, p. 1) defines an achievement test as one "that measures the extent to which a person has 'achieved' something, acquired certain information, or mastered certain skills—usually as a result of planned instruction or training." Whereas professional certification and licensure examinations are considered to be achievement tests, the focus for evaluators is on assessing the more fundamental and traditional skills of reading, spelling, and mathematics. A few achievement tests may also include vocabulary or information subtests. Most comprehensive achievement tests are available at different levels (e.g., by school grade, age, or functional level), have time limits, and take several hours to administer. Results are reported using a combination of percentile scores,

stanine scores, standard scores (which can be used to compare results to IQ scores), and/or grade level scores (e.g., 3rd Grade, 7th Grade, post high school). Although grade level scores are routinely requested by counselors and reported by evaluators, they cannot be used to draw direct comparisons to grade levels in local school systems.

Formats for different reading subtests often consist of word recognition, vocabulary, or comprehension questions, with some comprehensive tests using a combination of subtests. Mathematical questions consist of math problems and/or word problems and require the examinee to write down the answer or choose the correct one from a list of four or five possible answers (forced-choice format). Spelling subtests (which are frequently omitted by evaluators with limited time) can be dictated to the examinee, or the correct word chosen from a list of four or five similarly spelled words. As a rule, items on the tests are arranged in an increasing order of difficulty. Examples of achievement tests include:

- Adult Basic Learning Examination (ABLE)
- Comprehensive Adult Student Assessment System (CASAS)
- Key Math—Revised
- Peabody Individual Achievement Test—Revised (PIAT-R)
- Tests of Adult Basic Education (TABE)
- Wide Range Achievement Test 3 (WRAT-3)
- Woodcock Reading Mastery Tests—Revised (WRMT-R)

Achievement tests are often given first to determine whether reading or non-reading instruments should be used. Most psychometric tests require reading at the 7th-grade level or higher, with low-reading versions around the sixth grade or less. The consumer populations of most referral sources (e.g., Vocational Rehabilitation, school-to-work and welfare-to-work transition programs) read at around the 6th-grade level. Therefore, tests must be chosen and used with caution to ensure that low reading level does not unknowingly affect performance. Functional illiteracy in the United States is defined as reading, spelling, and math at or below the 4.9th-grade level. The "local" section of the average newspaper is written at the 6th-grade level (ranging from 4th for want ads, to 9th or 10th for the international section). Reading ability is a critical factor for success in the United States today.

Aptitude Tests. Aptitude is "a combination of abilities and other characteristics, whether native or acquired, that are indicative of an individual's ability to learn or develop proficiency in some particular area if appropriate education or training is provided" (Cronbach, 1990, p. 701; Dowd, 1993, p. 2) defines an aptitude test as "a measure intended to predict success in a job, educational program, or other practical activity." The purpose of aptitude testing in vocational evaluation is to determine an individual's potential to succeed in a particular course or job where there has been no prior exposure or experience.

A fine line between an aptitude and achievement test and a certain amount of achievement is always needed (e.g., reading) to do well on an aptitude test. The U.S. Department of Labor (1991b) incorporates the following 11 aptitudes into its occupational classification system: intelligence or general learning ability (G), verbal ability (V), numerical ability (N),

spatial ability (S), form perception (P), clerical perception (Q), motor coordination (K), finger dexterity (F), manual dexterity (M), eye-hand-foot coordination (E), and color discrimination (C). Other aptitudes appearing in the testing literature include mechanical reasoning, abstract reasoning, sales aptitude, and musical aptitude, to name a few.

Some evaluators attempt to use a limited number of aptitude tests, such as verbal, spatial, and manual ability, to develop a general aptitude composite. While these three scores have utility, uncovering subtle differences only available when all subtests are administered, can improve the comparison of scores to the complex aspects of work (Cronbach, 1990). For example, a vocabulary subtest may be a good measure of verbal aptitude, but it may not fully represent performance on other aptitude subtests, such as verbal reasoning, spelling, and language usage. Ultimately, scores can be categorically grouped (e.g., cognitive, spatial, motor) for interpretive purposes, as long as score differences within each group are not significant.

Aptitude tests are available individually to measure a single aptitude (e.g., mechanical reasoning, clerical ability, spatial relations), or as multiple aptitude (or multi-aptitude) test batteries. Multiple aptitude test batteries are composed of a collection of eight-to-twelve subtests that cover a broad range of aptitudes, similar to the Department of Labor's 11 aptitudes (i.e., general learning ability, verbal, numerical, spatial, form perception, clerical perception, motor coordination, finger dexterity, manual dexterity, eye/hand/foot coordination, color discrimination) All subtests within a battery are universally similar in their layout, administration, scoring methods, norm groups, and interpretation strategies. This "universality" allows for the comparison of subtest scores—a procedure that is difficult to do with individual aptitude tests that do not share the same developmental philosophies or norm groups. Profiles are available for interpreting and comparing results on multiple aptitude test batteries. Percentile scores in the low thirties and higher is often indicative of average and better performance when compared to the chosen norm group.

Examples of individual and multiple aptitude tests are as follows:

- Individual Aptitude Tests
 - Bennett Mechanical Comprehension Test (BMCT)
 - Computer Operator Aptitude Battery (COAB)
 - Computer Programmer Aptitude Battery (CPAB)
 - Minnesota Clerical Test (MCT)
 - Minnesota Spatial Relations Test—Revised (MSRT)
 - Office Skills Test (OST)
 - Revised Minnesota Paper Form Board Test (MPFB)
 - SRA Clerical Aptitudes
 - SRA Test of Mechanical Concepts
- Multiple Aptitude Batteries
 - Career Ability Placement Survey (CAPS)
 - Differential Aptitude Tests (DAT; several editions are available)
 - Employee Aptitude Survey (EAS)
 - General Aptitude Test Battery (GATB)
 - Occupational Aptitude Survey and Interest Schedule (OASIS)

For the sake of administrative convenience, most aptitude tests have time limits. These time limits often affect the performance of individuals who do not respond well to the pressure of time, do not read or process quickly, and have difficulty marking the answer sheet rapidly. Work samples are a more work-related, "hands-on" method of aptitude assessment that can more easily minimize (or accommodate) the negative effects of time, processing, and manipulation on performance.

Basic Skills Instruments. Basic skills comprise those fundamental competencies related to independent living and working. They include activities, such as telling time, money handling, measuring (e.g., weight, volume, linear), sign recognition and survival words, consumer skills, job search skills, and knowledge of job keeping behavior. These are particularly important traits to assess in the prevocational phase with individuals whose basic skills are in question, as a result of a lack of community exposure, limited or no education, or processing disabilities, such as mental retardation or traumatic brain injury. Basic skills instruments are generally administered orally with the aid of pictures and other "hands-on" activities. In the strictest sense, they are not considered psychometric tests but standardized tests. Examples of basic skills instruments include:

- Life Centered Career Education Assessment System (Competency Rating Scale and Knowledge Battery–LCCE)
- Social and Prevocational Information Battery (SPIB–moderate and low level forms available)
- Street Survival Skills Questionnaire (SSSQ)
- Tests for Everyday Living (TEL)

Instructional materials and remedial suggestions are also furnished with these instruments that can be used to recommend or provide accommodations or improvements in identified skill deficits. With basic skills instruments, it is particularly important to supplement norm-referenced interpretation with criterion-referenced interpretation. For example, both methods of interpretation can be incorporated into statements, such as: "On the Ruler Reading subtest, Ms. Salazar's score at the 25th percentile, when compared to general population norms, indicated that she could only measure and draw lines down to a quarter of an inch." In a more dynamic, prognostic assessment, the evaluator would take the time to teach the participant how to read a ruler and administer the subtest again to see if learning took place, noting the method of instruction. If particular fine measuring skills are needed by the consumer, then goal-specific remediation or accommodation can be recommended.

Dexterity Tests. Dexterity is the "adroitness or skill in using fingers, hands, arms, and shoulders, sometimes in combination with other body parts. It is usually measured by observing performances on various work activities, such as work samples, or by administering standardized performance tests" (Dowd, 1993, p. 8). A dexterity test is a timed performance-based measure of various types of finger and manual manipulation, and eye-hand coordination. It is considered to be an aptitude test but is being reviewed separately because of its unique and extensive use in vocational evaluation.

Dexterity tests (also referred to as performance tests) either assess hand use or tool use at both fine and manual levels. The Crawford Small Parts Dexterity Test measures fine finger and hand dexterity with tools (small screwdriver and tweezers); and the Hand Tool Dexterity Test (by Bennett) measures manual dexterity of hand, arm, and shoulder using larger tools (screwdriver, pliers, and wrench). Since individuals who have never used tools before do not perform as well on tool-oriented dexterity tests as people with experience, non-tool-oriented dexterity tests are often preferred for an unbiased assessment of general dexterity. Tool-oriented dexterity tests should be reserved for individuals with experience using tools or who seek training or employment in jobs requiring the use of related tools. The Purdue Pegboard is an example of a non-tool fine finger dexterity test and the Minnesota Rate of Manipulation Tests (MRMT) is an example of a non-tool manual dexterity test.

It is important to remember that dexterity tests are a measure of timed dexterity—how quickly someone can perform an activity requiring dexterous ability. In addition, previous experience in a job or activity involving dexterous skills will tend to increase performance on related dexterity tests. Likewise, practice effect (improvement resulting from repeated administration of a test in close time intervals) will have an effect on dexterity test scores. For this reason, dexterous ability can best be observed using tests, work samples, and situational or community-based assessments that provide sufficient opportunities for finger and/or manual involvement. In conjunction with performance scores, the evaluator can determine through observation if the person is fast and accurate, slow but accurate, or slow with difficulty in grasping, moving, aiming, and/or placing an object. Observation of frustration, attention to detail, motivation, retention of a sequence of activities, organization, and problem-solving can also be observed during the administration of dexterity tests. Many evaluators also include range-of-motion, strength, and motor coordination tests and activities under this category, especially those used to assess the functional abilities and limitations of persons with physical and motor impairments.

Intelligence Tests. Intelligence "is the global capacity of the individual to act purposefully, think rationally, and deal effectively with the environment" (Power, 1991; Wechsler, 1981, in Power 1991, p. 87). Power (1991, p. 87) further states, "Intelligent behavior is as much a function of drive and incentive as the more traditionally conceived components of intellectual ability, such as abstract and logical thinking, reasoning, judging, and retaining knowledge." Intelligence tests are also considered to be aptitude tests that measure general learning ability (or general mental ability), but they are usually classified separately from other aptitude tests. The more well-known Level C intelligence tests, such as the Wechsler Adult Intelligence Scale-Revised (WAIS-R) and the Stanford-Binet Intelligence Scale (SB) are restricted in use to licensed psychologists and psychological associates for clinical diagnosis. These and other Level C intelligence tests are designed to measure verbal (left brain) and performance (right brain) ability through a series of different cognitive and motor subtests. This level of intelligence testing is only used in rehabilitation or transition when there is a need to diagnose the possible existence of mental retardation, a learning disability, or other cognitive/motor impairment.

Level B intelligence tests, which are available to vocational evaluators for individual or group administration, are geared to a brief screening of either verbal or performance ability. Evaluators, counselors, educators, and psychologists frequently compare IQ scores obtained from Level B and C intelligence tests to the standard scores from achievement tests to determine the possible existence of a learning disability (i.e., one or several achievement scores that are one or more standard deviations lower than an average IQ score). Although intelligence tests are a poor predictor of general employability, they are a better predictor of the level of traditional placement in training, education, and employment. The following examples of Level B intelligence tests have been classified as either verbal or performance measures.

Verbal Measures:

- Otis-Lennon School Ability Test-6th Edition (OLSAT—formerly the Otis-Lennon Mental Ability Test)
- Peabody Picture vocabulary Test-3rd Edition (PPVT-III)
- Shipley Institute of Living Scale (SILS)
- Slosson Intelligence Test-Revised (SIT)
- Wonderlic Personnel Test

Performance Measures:

- Culture Fair Intelligence Test
- Raven's Progressive Matrices (Standard and Advanced Progressive Matrices for Adults)
- Revised Beta Examination—Second Edition (Beta-II)
- Tests of Nonverbal Intelligence-3 (TONI-3)

In situations where an individual's verbal skills are not strong, performance measures can be used and may indicate the consumer's ability to develop verbal skills (e.g., someone with limited English-speaking proficiency, or someone who has had limited education or quality learning experiences). Verbal measures are particularly useful when direct placement into academic courses, formal education, or training is being considered.

Interest Tests/Inventories. Terms like self-awareness, motivation, drive, need, and level of interest describe the constructs of vocational interest inventories (Power, 1991). Interests are often a reflection of our values, attitudes, personality, and to some degree, our aptitudes. Interest Tests are one of the most widely used instruments in vocational evaluation and career counseling. They are often given at the very beginning to set a vocational tone for the evaluation and to identify any personal goals that can be used in the development of the evaluation plan. Because interest tests are self-report inventories of personal likes and dislikes, their classification as a psychometric test has been questioned. Interest inventories are available in written and picture (non-reader) versions. Each test item may consist of two or three choices of work activities (written or pictorial) that allow the examinee to choose the most preferred, and sometimes the least preferred, activity in the set. Another format provides only one work activity (written or pictorial) at a time and examinees rate their level interest on a Likert-type scale (e.g., from very disinterested to very interested).

Results of an individual's high and low "tested interest" areas should be compared to "expressed interest" (statements made during the interview or contained in the file), and "manifest interest" (what was observed during evaluation, or performance on a related job or school subject; Power, 1991; Pruitt, 1986; Siefker, 1996; Super, 1949, in Power, 1991). When all three are consistent (expressed, tested, manifest), a career or vocational decision has been internalized. When one or all three are inconsistent, or inventory profiles are relatively flat (i.e., no significant difference in interest category levels throughout the inventory), then career exploration and counseling would be warranted. High- and low-interest areas should also be compared when exploring employment options. For example, if someone scores high in management and low in computation, then jobs in human services management would be preferred by that person over jobs in fiscal management. There are some Workers' Compensation and Social Security evaluations that do not focus on interest but on what exists in the local economy that an injured worker would be able to do, regardless of personal preference. Some of these evaluations may also focus on wage loss and lost earning capacity unrelated to interest in the job.

The following examples of interest inventories are divided into written and picture interest inventories. Written interest inventories:

- Campbell Interest and Skill Survey (CISS)
- Career Assessment Inventory (CAI)
- Career Decision-Making System (CDM-R)
- Career Occupational Preference System Interest Inventory (COPS—available in a variety of versions from intermediate to professional)
- Kuder Occupational Interest Survey (KOIS)
- Ohio Vocational Interest Survey—2nd Edition (OVIS II)
- Self-Directed Search (SDS; available in standard and low reading versions; also covers self-report of abilities)
- Strong Interest Inventory (SII)
- Vocational Research Interest Inventory (VRII)

Picture interest inventories:

- Career Occupational Preference System—Picture Interest Inventory of Careers (COPS-PIC)
- Geist Picture Interest Inventory—Revised (GPII-R)
- Reading-Free Vocational Interest Inventory—Revised (R-FVII)
- Wide Range Interest-Opinion Test (WRIOT)

Versions of interest tests are available for students in a range of grades from junior high to college, for adults both vocational and professional, and for individuals who are mentally retarded. Tests can be self-administered and scored by the examinee, hand scored by the evaluator, or computer administered and scored. Profiles generally cluster specific interest scales under broader occupational themes. Some interest profiles will contain attitudes and/or values scales as well.

Interest inventories are not as useful for individuals who have limited knowledge of or experience with the world of work, and who may not understand the jobs or activities contained

in the test. In addition, a lack of definitive validity studies on interest tests has brought their accuracy into question.

Learning Style Tests. VEWA defines learning style as "the way in which an individual learns new material. Learning style is usually defined in terms of the sensory modalities (e.g., visual, auditory, tactile, and kinesthetic) by which the person learns the fastest" (Dowd, 1993, p. 17). Learning assessment is the "determination of the potential to learn by identifying what teaching or behavioral change techniques are most effective" (Dowd, 1993, p. 17). The ability to understand, remember, and recall a set sequence of information essential to success in the classroom, on the job, or in the community, is a key element in targeting preferred (or primary) learning styles. The assessment of cognitive and learning styles has become a very important part of the vocational evaluation process. CARF requires that it be available for use when necessary; and schools require a learning style assessment with all students with learning disabilities, so that classroom accommodations can be provided.

Each personal way of dealing with information and experience, which forms the basis of learning style, can be related to the conditions, content, modes, and expectations of learning as well as to the stimuli and elements of the learning environment (Blakemore, McCray, & Coker, 1984). Dunn, Dunn, and Price (1979) identified five major factors (or stimuli) that affect learning: environmental (e.g., sound, lighting, temperature), emotional (e.g., motivation, persistence, structure), sociological (e.g., working alone or in a team with peers or authority figures), physical (e.g., time of day, mobility, presentation format), and psychological (e.g., analytical/global, reflective/impulsive, cognitive style). Many learning style inventories, such as the CITE Learning Styles Inventory, identify (a) how a student gathers information (auditorily, visually, with language, numerically, or kinesthetically), (b) the student's preferred working conditions (alone or with others), and (c) his/her expressive preferences (verbal or written)" (Blakemore et al., 1984, p. 49). Other test formats use an assessment of brain dominance (left brain versus right brain learning), or an identification of values and temperaments (sensing/intuiting, thinking/feeling) that influence how individuals learn.

Learning style instruments come in two basic forms: self-report tests and performance-based tests. **Self-report tests** can be obtained in either paper-pencil or computer formats, and are quick and easy to administer and score. They require readers to rate their preference for statements that describe conditions, situations, and study/learning approaches with which they are most comfortable (e.g., I study best alone; I learn more from listening; I like to study with background noise). For low readers or individuals who have had limited or unsuccessful learning experiences, self-report instruments will not be particularly accurate. **Performance-based tests** require the evaluatee to engage in a series of activities that involve looking at or hearing a series or sets of letters, colors, and/or geometric patterns and recalling the information. The sets become progressively longer, and recall of a series can occur immediately after the presentation and again at the end of the test. The evaluator can assess short- and long-term memories and the level of sequencing (i.e., how many items be remembered in their correct order).

Following are examples of learning style instruments listed by self-report and performance-based formats. Self-report tests:

- CITE Learning Styles Inventory
- Learning Style Inventory (Dunn, et al.)
- Productivity Environmental Preference Survey
- TLC Learning Style Inventory (Hanson & Silver)
- Vocational Learning Styles Media Kit
- Your Style of Learning and Thinking

Performance-based tests:

- Pathfinder (formerly the Trainee Performance Sample, assesses at the trainable level)
- Learning Efficiency Test–II (LET-II)
- Perceptual Memory Task (PMT, assesses at the educable level and above)
- Personnel Tests for Industry–Oral Directions Test (PTI-ODT)

A more informal process of learning style assessment will be discussed later in the book. If a formal assessment and identification of preferred learning style are requested, or a learning problem is suspected, then an evaluator may choose to use a standardized learning style test early in the evaluation process. These results can be verified through informal observations of how well individuals follow instructions on other tests, work samples, and situational assessments. On the other hand, if during the evaluation an informal assessment uncovers a possible learning problem, standardized learning style instruments can be used to identify strengths and limitations in learning style. Appropriate accommodations in administration and instructional style can be explored during the remaining evaluation, and noted in the final staffing and report. As Leconte & Rothenbacher (1987, p. 164) put it:

"As in recommended practices for interest assessment, it is important to look beyond formal test instrument results and use observations and other informal techniques to substantiate findings. In other words, evaluators are encouraged to synthesize the results of tested, expressed, and manifested learning styles into a unique individual profile."

Temperaments and Work Values Tests/Inventories. Temperaments are "the adaptability requirements made on the worker by specific types of jobs. Temperaments became one of the components of job analysis because it was found that different job situations called for different personality traits on the part of the worker" (Dowd, 1993, p. 27). The U.S. Department of Labor (1991b) included ten factors under the heading of Temperament, such as: working alone, expressing personal feelings, dealing with people, performing repetitive work, performing under stress, performing a variety of duties.

Work values are defined as "an intrinsic value placed on a construct, internal or external, of the worker, such as creativity, independence, altruism, attitude toward and pride in work, and so on. Identified strengths in values may help in vocational exploration and/or job placement" (Dowd, 1993 p. 33). It has been argued that there is little difference between temperaments and work values, because they are both used to supplement interest information. When temperaments and work values are consistent with tested, expressed, and manifest interests, greater reliance can be placed on the vocational decision made by the consumer. However, when there are little, if any, expressed or tested interests, results from temperaments and work values inventories can be

used as a starting point for career exploration. For example, the individual who states "I don't know exactly what I want to do, but I want to work by myself," may lead the evaluator to explore jobs or environments where contact with others is minimized (e.g., night security guard, accountant, computer programmer, on-line office at home).

These self-report instruments classify the tested range of temperaments or work values from their highest to lowest ranking, or on a profile with dichotomous values/temperaments on either end of the scale (e.g., introvert to extrovert). Examples of work values and temperaments inventories include:

- Career Orientation Placement and Evaluation Survey (COPEs)
- Minnesota Importance Questionnaire (MIQ)
- Myers-Briggs Type Indicator (MBTI)
- The Salience Inventory (SI)
- The Values Scale (VS)
- Temperament and Values Inventory (TVI)
- Work Temperament Inventory (WTI)
- Work Values Inventory (WVI)

Other Tests. There is a broad range of standardized tests that cannot be classified in one of the previous eight categories but are useful to vocational evaluators. They include instruments, the Dvorine Color Vision Test (sometimes classified under aptitude) and the PDI Employment Inventory, and various standardized behavior rating scales, such as the Becker Work Adjustment Profile (BWAP), Prevocational Assessment and Curriculum Guide (PACG), Vocational Assessment and Curriculum Guide (VACG), and the AAMR Adaptive Behavior Scales—Residential and Community. Also, various emotional state, work personality, and counseling tests/inventories, such as the Eight State Questionnaire (8SQ), FIRO-B Awareness Scale, Gordon Personal Profile-Inventory, Hogan Personality Inventory—2nd Edition, Manson Evaluation—Revised (ME), Million Index of Personality Styles, Motivation Analysis Test (MAT), Occupational Stress Inventory, and the Work Personality Profile can be used when such assessments appear relevant to rehabilitation, transition, and employment.

There are far too many tests to list in this section that can provide useful information to vocational evaluators and consumers. The Rehabilitation Resource publication *Tests and Test Use in Vocational Evaluation and Assessment* (Siefker, 1996) reviews a variety of tests often used in the field. Many other books are available that give an overview of tests and measurement theory (Anastasi & Urbani, 1997; Cronbach, 1990; Drummond, 1996; Lyman, 1991), and that review tests commonly used in assessment, counseling, and human services (Kapes, Mastie, & Whitfield, 1994; Keyser & Sweetland, 1984–1994; Kramer & Conoley, 1992; Maddox, 1997). Refer to the Appendix section for a selected list of test publishers/marketers. A copy of their most current product catalogs can be requested at no charge, which gives descriptions of available tests and prices. Specimen sets are often available for review at a lower cost than complete test packages.

Not everyone can profit from psychometric testing (Power, 1991; Thomas, 1991). There are times when tests can underestimate potential and screen certain individuals or groups out of appropriate opportunities. Some of the circumstances that adversely affect testing include memory or processing problems, motor difficulties, low-performance speed, difficulty with the English language, cultural difference, and test anxiety. For example, individuals who are clinically depressed do not process information quickly and should be given power tests (untimed tests) rather than speeded tests whenever possible. Obtaining and reporting both a timed and untimed score on a timed test would also yield meaningful information. Evaluators must determine what barriers will prevent psychometric tests from accurately assessing an individual's current potential, and make appropriate accommodations. When this is not feasible, they must choose other instruments (e.g., work samples) or techniques (e.g., situational assessment and/or OJE) that will provide a more valid assessment. As Owings (1992, p. 176) describes it:

The dichotomy is valid test scores versus valid assessments of individuals. They are not the same. Despite previous admonitions, tests can be successfully modified to obtain better information about the client—not necessarily better test scores. There is an enormous difference in the vocational usefulness of accurate information versus accurate test scores. If the test is inappropriate for the client, correct use of it will produce valid scores but not necessarily information that will be useful in predicting job success.

Work Samples and Systems

What are Work Samples? As the name implies, a work sample is simply a "close simulation," a "mock-up," or a "sample" of work (Neff, 1985). More specifically it is:

A well-defined work activity involving tasks, materials, and tools that are identical or similar to those in an actual job or cluster of jobs. Work samples are used to assess a person's vocational aptitude(s), work characteristics, and/or vocational interests. There are several specific types of work samples: Cluster Trait, Job Sample, Simulated, and Single Trait (Dowd, 1993).

Hugo Munsterberg has been credited with developing the first work sample in the early 1900's (Nadolsky, 1973; Pruitt, 1986). It was a model of a streetcar used to evaluate applicants for operator positions with the Boston Railroad Company (Bregman, 1969). Considered to be one of the first attempts at personnel selection for a particular job, Munsterberg also attempted to compare scores of applicants to their performance as operators (Rosenberg, 1973).

As mentioned earlier, work samples are initially more expensive to purchase, and generally take longer to give than psychometric tests. But with these disadvantages come advantages. Since work samples take longer than many psychometric tests, they provide an opportunity to observe task-related behaviors, involve the evaluatee in hands-on career exploration and decision-making, and try out various accommodations and modifications to determine what might improve learning and performance (Kaiser & Modahl, 1991; Power, 1991; Pruitt, 1986; Thomas, 1991). Work samples can be used as situational tools to assess stamina, evaluate improvements in learning and performance over repeated trials, and engage in work adjustment

to modify unacceptable work behaviors. Because they look more like work than a test, Nadolsky (1973, p. 3) found that culturally disadvantaged "clients who received vocational evaluation services viewed work samples as being less threatening than psychological tests and responded in a positive manner to the work sampling procedures. In general, through the use of work samples, both the client and the counselor received information about the client's work behavior and vocational potential that was highly relevant and previously unavailable to them."

Types of Work Samples. A work sample is based on a job analysis, or other occupational information, and is a closer approximation of work than a psychometric test. The Vocational Evaluation and Work Adjustment Association (1975, p. 55) identified four types of work samples, which include:

- an actual job itself moved into the evaluation unit,
- a simulation of an actual operation,
- a trait sample, which assesses a single factor, such as finger dexterity, and
- a cluster trait sample, which measures a group of traits.

The "actual job" or job sample, and the "simulation" or simulated work sample have high face validity (i.e., they look similar to work activities). These are often referred to as content-based or criterion-referenced instruments. On the other hand, the "trait sample" or Single-Trait Work Sample, and the "cluster trait sample" or Cluster Trait Work Sample, are more abstract and do not readily resemble a real or simulated work activity (i.e., they look more like a test). These are referred to as construct-based or norm-referenced instruments.

Training assessment samples are similar to work samples and are used to assess the potential for training in an area where formal preparation is required. Someone cannot be employed as a Registered Nurse, for example, without completing training and becoming registered. Since it is not feasible to develop a nursing work sample, a two-phase approach would be warranted—a cognitive and a performance evaluation. The first phase (the cognitive evaluation) would require an assessment of the mental and academic abilities needed for nursing (e.g., verbal and mathematical achievement or aptitude) and an ability and interest in using the common language of the chosen professional field; in this case, medical terminology. Having an evaluatee read the first chapter of a medical terminology text and take a written test to assess retention and application would help both consumer and evaluator explore interest and potential.

The second phase, the performance evaluation, would require that a series (or cluster) of tests, work samples (e.g., a vital signs work sample), and/or situational assessments (e.g., reading and completing medical charts, making a bed) be used to assess the performance aspects of a nursing job. If an individual does not currently have the potential (or motivation) to master medical terminology and succeed in a rigorous educational program but demonstrates interest and potential during the performance phase, then an entry-level job or on-the-job training as a nurse aide might be considered. In relation to long-range career development, it could be recommended that the consumer pursue training, possibly as a licensed practical nurse at a local community college or training hospital, following a year or two of successful employment as a nurse aide. This allows additional time to become familiar with medical terminology and

procedure and decide if there is sufficient interest and motivation to seek further career training. If interest and potential surface during the cognitive phase but not the performance phase, other medically related jobs could be explored with the consumer.

A training assessment sample can be created by standardizing the medical terminology activity and choosing an appropriate cluster of related cognitive and performance instruments and techniques. Training assessment samples can be developed to cover terminology in electronics, computer programming, accounting, engineering, psychology, or other technical and professional fields. More applied activities, such as using terminology in case studies or problem-solving exercises (e.g., a lab experiment, reading a technical graph or schematic), should also be incorporated into training assessment.

Basic skills samples are commonly used to assess functional skills essential to independent living, training, and working. These include, but are not limited to, telling and using time (e.g., clocks, calendars, bus schedules, appointment schedules), money handling (e.g., making change, budgeting, writing checks), recognizing signs and survival words, using maps, reading dials and gauges (e.g., stoves, washing machines, automobiles), measuring (e.g., linear, volume, weights), and using the telephone and telephone book. Many evaluators design their own assessment devices or purchase standardized basic skills instruments, such as the Street Survival Skills Questionnaire (SSSQ), and the Social and Prevocational Information Battery (SPIB), described in the previous section on psychometric tests. If locally developed basic skills samples are not normed, then they are classified as situational assessment activities.

Work Sample Development and Standardization. A work sample can represent an entire job, or one or several tasks of a job (or course). A card filing work sample may be designed to assess the skills needed for a file clerk position, or it can assess one of the skills (i.e., card filing) required of a secretary or clerk-typist. It may not be feasible to include all tasks of an elaborate job into a single work sample; therefore, a combination (or cluster) of instruments and techniques will be needed to assess all essential job duties. There are also compounding factors that limit the broad application of a work sample to identical jobs in the same or different work environments. All jobs with the same title: (a) do not possess the same job duties, (b) do not place corresponding value to the same duties, and/or (c) do not use the same technology on similar duties in different environments.

For example, there are three general performance criteria for the job of a cashier (or cash register operator): speed, accuracy, and use of technology. A high volume of customers often requires cashiers in a grocery store to work faster than cashiers in a small specialty store where volume is not as great, and where other tasks (e.g., waiting on customers, stocking shelves) are equally important. Cashiers in all environments are required to accurately operate the cash register and make change; however, the medium of exchange differs. In grocery stores, just about any medium of exchange (just short of bartering) is used, including cash, checks, credit and debit cards, coupons, and food stamps. On the other hand, some small stores and restaurants will only accept cash and credit cards, but no checks.

Technology also varies greatly. Cash registers in some fast food restaurants only require the operator to press keys that correspond to the item ordered (e.g., large drink key, small French

fries key, cheeseburger key), and the tax is automatically totaled with the sale. Scanners and bar code readers on many new cash registers have made entering correct prices easier. Some cash registers in department store chains are similar to computer terminals and require a variety of codes to be entered (e.g., sales clerk number, item inventory number) before a sale can be made. Cash register technology will continue to improve to the point where the job of a cashier may become obsolete. If one were to develop norms for and validate a cashier work sample, what job, criteria, and technology would be used? This dilemma in standardization not only affects vocational evaluation but training as well, and the use of work samples to generalize performance to a variety of different work environments calls for skill and caution on the part of the evaluator.

In order to evaluate the ability to succeed in a particular job or course, the evaluator must analyze the job tasks or classroom activities and select instruments and techniques that relate to the tasks/activities in question. Again using the example of a cashier, an evaluator must first know what the job entails. This can be accomplished through the review of a local job analysis (e.g., grocery store cashier) or a more general job description available in occupational information documents, such as the *Dictionary of Occupational Titles* (DOT; U.S. Department of Labor, 1991a). From there, instruments and techniques can be chosen to assess the "objective" functions (e.g., machine operation, manual dexterity, money handling) and the "subjective" functions (e.g., communication and interaction skills, standing, reaching, and lifting).

The best way to evaluate for potential as a cashier is through a supervised community-based assessment (on-the-job evaluation). However, when such opportunities are not feasible, cash register operation and change-making work samples can be used. They provide relatively high content orientation and face value (i.e., close relationship to the job) for improved career exploration, decision-making, and modification/accommodation purposes. As a final consideration, a variety of construct-oriented instruments can be clustered together, such as a clerical aptitude test that measures speed and accuracy in matching letters and numbers, a manual dexterity test to assess the ability to manipulate a keyboard, and a math test to evaluate change-making. The latter method lacks realism and provides less content match, requiring more subjective judgments on the part of the evaluator and evaluatee. Therefore, mixing content and construct instruments (e.g., an adding machine operation work sample, a change-making basic skills instrument, and a clerical matching aptitude test) would offer the best of both approaches. Developing a cluster of instruments and techniques around a job or course will ensure that all essential tasks and performance areas are covered. A single work sample or test cannot assess all of the aptitudes, physical demands, temperaments, behaviors, communication needs, social requirements, and environmental conditions of a particular job (Power, 1991). Clustering of appropriate instruments and techniques that can address these varied issues is essential.

In situations where all of the essential job tasks or course activities cannot be assessed, the evaluator will need to focus attention on key essential tasks. Three essential tasks must be considered: (a) the most time-consuming task, (b) the most difficult task, and (c) the most important task ("Americans with Disabilities Act of 1990," 1991b; Connolly, 1975; U.S. Department of Labor, 1991b). If these three areas can be addressed in the evaluation, there is a high likelihood of accurately assessing potential in individuals who have the ability to generalize skills or learning style. There may be more than one essential task that shares the same

characteristic (e.g., they are both considered the most time consuming). Likewise, there may be a task that has more than one characteristic (e.g., it is the most important and the most difficult).

Similar to psychometric tests, work samples are standardized. Work samples should have industrial norms or standards for comparison to employee or applicant populations (Botterbusch, 1981; CARF, 1996; McCray, 1980; McFarlane et al., 1988; Power, 1991; Stout Vocational Rehabilitation Institute, 1977). Although disability norms in and of themselves provide little opportunity for comparison to working populations, employed client norms can be highly useful (Berven & Maki, 1982). Industrial standards in the form of predetermined time standards are available on some work samples and systems (Hume, 1973; Shinnick, Black, & Decker, 1983; Vactor & Hubach, 1979). Two predetermined time methods used to standardize work samples are Methods-Time-Measurement (MTM, MTM2, MTM3) and MODAPTS (MODular Arranged Predetermined Time Standards).

These and many other predetermined time techniques were originally developed by industrial engineers to determine the most cost-effective way to assemble and package a product on a work line. Ergonomic principles and body mechanics are used to determine how long it takes the "average" worker to perform a series of movements on a specific industrial or office job. Once a series of movements is identified for a task, their predetermined, or standard, times are added together to determine how long it takes to perform each work task and the total job. This information is then used to set production quotas and determine labor costs. Percentile scores on tests and predetermined time percentages are different. When the norm table of a standardized test is used, the 99th to 100th percentile represents optimum performance on the test items. With a predetermined time standard, 100% Standard or 100% IN (Industrial Normal) refers to the performance needed by a competitive worker to meet the expected production quota. Predetermined percentages can range well above 100% (e.g., 150%).

When standardized work samples are used as designed, they can yield pertinent information on current functioning. However when used prognostically, they can evaluate improvement in performance that is only available through a dynamic assessment. If the standardized approach does not initially result in a positive outcome, evaluators should determine what affected performance and make appropriate modifications/accommodations to overcome the problem in subsequent administrations. The evaluator must never forget that it does not matter as much how an individual "scored" on a work sample, but rather what the person got right and wrong and how performance could be improved if the sample was administered again. Criterion-referenced rather than norm-referenced assessment is the "key" to a creative, flexible, and successful work sample-based evaluation. If modifications or accommodations serve to improve performance, then recommendations for similar changes on the job or in the classroom can be made. If performance does not improve on a work sample as a result of the prognostic approach, then other work samples or instruments should be selected and used.

Commercial Work Sample and Evaluation Systems. Vocational evaluators can develop and standardize their work samples (Botterbusch, 1981; McCray, 1980; Stout Vocational Rehabilitation Institute, 1977), or purchase commercially available work samples and evaluation systems (Brown et al., 1994; McFarlane et al., 1988). The first work sample systems

developed specifically for use in vocational/work evaluation were the TOWER and JEVS work sample systems (Pruitt, 1986; Rosenberg, 1973). The TOWER (Testing, Orientation, and Work Evaluation in Rehabilitation) system began development in the 1930s at the Institute for the Crippled and Disabled (now the International Center for the Disabled). In 1958, the Philadelphia Jewish Employment and Vocational Service began work on the JEVS work sample system. Due to the limited training available for evaluators, the TOWER and JEVS systems provided training for purchasers of their system. This training focused on all aspects of the evaluation process, including interviewing, administration, behavioral observation, scoring, interpreting results, and report writing. TOWER and JEVS were selling more than a well-organized collection of work samples, but a process of evaluation as well.

Another early system, the THOMASAT, was developed by the Highland View Hospital in Cleveland to evaluate the cognitive-motor functioning of individuals for jobs performed in a sheltered workshop (Rosenberg, 1973). The TOWER, JEVS, and THOMASAT incorporated a variety of work samples or activities to evaluate a wide range of tasks and job functions. Although these three systems are no longer being marketed, they were originally developed to evaluate and predict job placement and success of adults with disabilities and disadvantaged youth. One of the earliest single work samples still available, the Pennsylvania Bi-Manual Work Sample, was developed by the McDonald Training Center in Florida (Pruitt, 1986). Today there are approximately 18 work sample and evaluation systems commercially available (Brown et al., 1994).

Commercially available **work sample systems** and **evaluation systems** are composed of a group of individually designed and standardized work samples, tests or activities that share the same developmental philosophy and norm groups. They also share similar methods of administration, scoring, and interpretation. This "universality" allows for the comparison of the results of all instruments within the system or battery. This type of comparison is more difficult with independent tests and work samples developed with different philosophies, norm groups, and approaches to scoring and interpretation. Universality carries over to both work sample systems and evaluation systems; however, there is a difference between the two.

Work sample systems (also referred to as work sample batteries) are composed of standardized instruments that resemble work or work-related activities. Therefore, they have high face value and content orientation, which readily lend themselves to both norm-referenced and criterion-referenced interpretations. Activities, such as card filing, message taking, proofing/editing, adding machine operation, data entry, sorting, assembly, tool usage, electrical wiring, and sewing machine operation, are often found in many work sample systems. Since they look like work, evaluatees relate to them more as a work activity rather than a test. Thus testing anxiety is reduced and the consumer is more motivated to participate (Pruitt, 1986). On work samples lasting more than 20 minutes, work-related behaviors can be observed, and job-related modifications attempted. Examples of some commonly used work sample systems (or work sample batteries) include Micro-TOWER, Skills Assessment Module (SAM), System for Assessment and Group Evaluation (SAGE), Talent Assessment Program (TAP), VALPAR Component Assessment Systems, Vocational Evaluation Systems (VES), Vocational Information and Evaluation Work Samples (VIEWS), and the Vocational Interest Temperament Aptitude

System (VITAS). These and related systems/batteries represent the oldest and most traditional approach to vocational evaluation.

Some commercial work sample systems must be purchased in their entirety, and it is recommended that all instruments in the system be administered to provide the most comprehensive interpretation possible. With other systems, the evaluator can buy one or several work samples and use them independently or in combination with other evaluation instruments. Most all of these systems either require training for purchase (depending on the skill of the evaluator) or offer it as an option. Similar to the original TOWER system, the SAVE (Systematic Approach to Vocational Evaluation) system is sold as an evaluation manual that contains all forms and information for building, administering, and scoring the work samples listed in the manual. The evaluator purchases the materials and supplies locally that are needed to build all or selected work samples from the manual.

Work samples within a system may take anywhere from ten to 45 minutes to administer. Total battery administration may last from a half-day to nearly a week, depending on the length and number of work samples in the system (batteries can have anywhere from ten to 28 individual work samples). For 1:1 ratios, a participant can take all or parts of a system depending on individual needs and the types of referral question(s). With higher ratios, they can be administered two different ways. The first is a group administration where everyone in the group takes the same instrument at the same time. This requires that the evaluator has as many systems as there are people in the group (e.g., three systems for a 3:1 ratio). One administration can be given to the entire group for each work sample, followed by a group discussion of their results and interests in the sample just taken.

In the second method, two or more individuals are placed on different work samples in a battery at the same time. Over the course of the evaluation, all participants may eventually take the same work samples but at different times. Most systems do not have a set order in which work samples must be administered. This is up to the discretion of the evaluator and the availability of the instrument.

Evaluation systems are composed of a series of standardized tests or activities that are more abstract than work samples. These construct-oriented instruments generally use a norm-referenced approach and result in percentile scores or occupational codes (e.g., aptitude codes). Terms, such as abstract reasoning, verbal ability, numerical ability, visual tracking, finger dexterity, manual dexterity, hand strength, eye-hand-foot coordination, spatial relations, and form perception are often used to describe the instruments contained in most evaluation systems. Examples of some evaluation systems include APTICOM, Career Evaluation Systems (CES), Career SCOPE, Hester Vocational Evaluation System (MVE), Key Educational Vocational Assessment System (KEVAS), McCarron-Dial Evaluation System (MDS), and Vocational Transit. Although the Computerized Assessment (COMPASS) is classified here as an evaluation system, it uses a criterion-referenced rather than a norm-referenced approach to scoring. Some of the systems look very much like a computerized aptitude test battery and can be used successfully with moderate to higher functioning individuals.

These newer-generation evaluation systems are usually sold as a package (individual instruments are not sold separately). Most of them take a day or less to administer, and several only take a few hours. Training is either required or optional, depending on availability and evaluator need. Although many work sample systems use a computer for scoring and report writing, nearly all of the evaluation systems require a computer for administration, scoring, and report writing. Some evaluation systems may not have high face value to work or be as easy to modify as work samples (except Vocational Transit); however, they are generally quicker to administer and score. Some evaluators use the shorter evaluation systems as a tool for deciding if a work sample evaluation would be beneficial, and what instruments should be administered.

Not all batteries, or instruments within batteries, can be easily classified as a work sample system or evaluation system. Some individual instruments and batteries fall somewhere in the middle ground of the continuum. Discretion must be used in choosing appropriate instruments to ensure that they do not intentionally screen individuals out, but at the same time, are not so easy that they insult the intelligence of the participant and underestimate potential. In addition, these systems have good standardization, and many report a variety of norm groups, reliability, and validity studies.

Review of Commercial Systems

The publication *Vocational Evaluation Systems and Software: A Consumer's Guide* (Brown et al., 1994) provides a description of nearly all of the commercial work sample and evaluation systems on the market today. It is available from The Rehabilitation Resource listed in the *Resources* section of this book. Although the Brown et al. (1994) publication does not list the more recent CareerScope and the Wide Range Employability Sample Test (WREST) that was reviewed is no longer being marketed, this publication is an excellent starting point for narrowing down evaluation and work sample systems to be considered. The publication also contains a section on how to assess and choose a system. Some of these considerations include: (a) purpose of the system, (b) populations for which the system was developed, (c) administration method (to groups or individuals), (d) cost to purchase and maintain, (e) space needed to house the system, (f) time needed to administer the system, (g) scoring and interpretive strategies, and (h) availability of training and support. It also reviews 12 commercially available job search software systems frequently used by vocational evaluators. Following is a brief review of commercial evaluation and work sample systems (including the CareerScope) abstracted from the Brown et al. (1994) publication. These descriptions are by no means comprehensive, and the developers should be contacted directly for additional information on each system.

APTICOM. A computer-driven, hardware-oriented evaluation system consisting of ten aptitude tests, one interest inventory with 12 interest areas, and several language and math skills tests. The entire battery can be completed in under 2 hours.

Vocational Research Institute
1528 Walnut Street, Suite 1502
Philadelphia, PA 19102-3619
800-874-5387 or 215-875-7387

Career Evaluation Systems (CES). Three separate computer systems that score batteries of standardized tests include: (a) CareerView for average or above average persons with no physical impairments seeking career guidance (190 minutes), (b) VocScan for individuals with physical disabilities (250 minutes) and low reading levels (200 minutes), and (c) JobSupport for individuals who are mentally retarded (200 minutes).

Career Evaluation Systems, Inc.
6050 West Touhy
Chicago, IL 60648
312-774-1212

CareerScope. A software-based alternative to the APTICOM that uses a standard computer for administration and scoring of an aptitude and interest inventory. Both aptitude and interest components can be completed in under 2 hours.

Vocational Research Institute
1528 Walnut Street, Suite 1502
Philadelphia, PA 19102-3619
800-874-5387 or 215-875-7387

Computerized Assessment (COMPASS). A battery of 12 computer-based subtests, three work samples, and two surveys that yield 17-factor scores related to 11 aptitudes, as well as to reasoning, math, and language. The system can be administered in about 70 minutes.

VALPAR International Corporation
P.O. Box 5767
Tucson, AZ 85703-5767
800-528-7070 or 602-293-1510

Hester Vocational Evaluation System (MVE). The system is composed of eight apparatus-type and nine standardized paper-and-pencil tests that result in 19 ability factors and 17 personal characteristics. The administration time is approximately 3.5 hours.

Hester Evaluation Systems, Inc.
2410 Southwest Granthurst
Topeka, KS 66611-1274
800-832-3825 or 913-357-0362

Key Educational Vocational Assessment System (KEVAS). A computer-assisted system supplemented with performance-based hardware and standardized paper-and-pencil tests. Twenty-two areas of functioning are measured under three categories: psychophysical functioning, work-related competencies, and social and motivational functioning. A total of 3.5 hours is required for administration.

Key Evaluation, Inc.
673 Broad Street
Shrewbury, NJ 07702
201-747-0048 or 800-25-KEVAS (outside NJ)

McCarron-Dial Evaluation System (MDS). A series performance-based, standardized tests (including a paper-and-pencil test, and a behavior rating scale and inventory) designed to

assess five factors within the three basic dimensions of verbal-spatial-cognitive, sensorimotor, and emotional coping. The basic battery takes around three hours while the comprehensive battery requires up to five days, including 10 hours for behavioral observations.

McCarron-Dial Systems, Inc.
P.O. Box 45628
Dallas, TX 75245
214-247-5945

Microcomputer Evaluation of Career Areas (MECA). Composed of 15 microcomputer, work-oriented career exploration and assessment kits (e.g., automotive, business and office, health care, manufacturing). Each kit takes approximately 30 minutes to administer through the computer and simulated work activity.

Conover Company
P.O. Box 155
Omro, WI 54963
800-933-1933

Micro-TOWER. Consists of 13 self-contained, group-administered work samples under the five aptitude clusters of verbal, motor, numerical, spatial, and clerical perception. The administration time for all work samples is between 14.5 and 25 hours, including time for breaks and group discussions.

Micro-TOWER
ICD Rehabilitation & Research Center
340 East 24th Street
New York, NY 10010

Skills Assessment Module (SAM). Assesses 25 affective, cognitive, and psychomotor abilities using three paper-pencil tests and 12 hands-on work samples. The battery can be administered in 2.5 to 3.5 hours.

Piney Mountain Press, Inc.
P.O. Box 333
Cleveland, GA 30528
800-255-3127

System for Assessment and Group Evaluation (SAGE). The battery contains 17 test instruments and work samples consisting of five components: Vocational Assessment Battery of 11 aptitudes, Cognitive-Conceptual Abilities Test of general educational development, Vocational Interest Inventory, Assessment of Work Attitudes, and Temperament Factor Assessment. The total administration time is 4 to 5 hours.

Train-Ease Corporation
PESCO
21 Paulding Street
Pleasantville, NY 10570
800-431-2016

Systematic Approach to Vocational Evaluation (SAVE). Package A assesses 16 worker trait groups (for the mentally retarded and academically deprived) and Package B expands the assessed worker trait groups to 46, for broader use. A manual is sold with no equipment but with information on building 47 work samples. The entire battery takes 15 to 20 hours to administer.

SAVE Enterprises
16 Downing Street
Rome, GA 30161
706-295-6407

Talent Assessment Program (TAP). Composed of 10 performance-based tests and activities grouped into three categories: Visualization and Retention; Discrimination; and, Dexterity. The administration time is 2.5 hours or less.

Talent Assessment, Inc.
P.O. Box 5087
Jacksonville, FL 32247
904-260-4102

VALPAR Component Assessment Systems. Contains 19 separate work samples and activities covering areas, such as small tools use, clerical comprehension, problem-solving, assembly, sorting, range of motion, drafting, and physical capacity. The administration time is 15 to 90 minutes each, depending on the work sample.

VALPAR International Corporation
P.O. Box 5767
Tucson, AZ 85703-5767
800-528-7070 or 602-293-1510

Vocational Evaluation Systems (VES). It contains 28 separate, audio-visually administered, work sample carrels. Examples include bench assembly, drafting, electrical wiring, sales processing, cooking/baking, engine service, cosmetology, and office services. Approximately 2.5 hours are required for each work sample.

New Concepts Corporation
2341 South Friebus Avenue, Suite #5
Tucson, AZ 85713
800-828-7876 or 602-323-6645

Vocational Information and Evaluation Work Samples (VIEWS). It consists of 16 work samples grouped into the four lowest worker skill groups: Materials Sorting, Clerical Matching and Counting, and Assembling; Machine Feeding; Routine Tending; and, Fabricating. The battery is designed for the mentally retarded and takes between 15 and 20 hours to administer.

Vocational Research Institute
1528 Walnut Street, Suite 1502
Philadelphia, PA 19102-3619
800-874-5387 or 215-875-7387

Vocational Interest Temperament Aptitude System (VITAS). It contains 21 work samples related to work groups from the DOL's Guide to Occupational Exploration. The battery is designed for the educationally and/or culturally disadvantaged and takes approximately 15 hours to administer.

Vocational Research Institute
1528 Walnut Street, Suite 1502
Philadelphia, PA 19102-3619
800-874-5387 or 215-875-7387

Vocational Transit. This computer-based evaluation system consists of four electronic test modules that assess the lowest level of General Educational Development, and the four aptitudes of motor coordination, manual dexterity, finger dexterity, and form perception. It is designed to evaluate low functioning individuals in around 90 minutes.

Vocational Research Institute
1528 Walnut Street, Suite 1502
Philadelphia, PA 19102-3619
800-874-5387 or 215-875-7387

Most of these work sample and evaluation systems are both norm-referenced and criterion-referenced. The majority is related to the Department of Labor's occupational coding and classification systems created for the use with the *Dictionary of Occupational Titles (4th Edition)*; (U.S. Department of Labor, 1991a), the *Revised Handbook for Analyzing Jobs* (U.S. Department of Labor, 1991b), and related publications. These include, but are not limited to, the Department of Labor's data/people/things codes, 11 aptitudes, General Educational Development (reasoning, math, and language), Physical Demands, and Temperaments. Almost all of these systems offer computer-generated profiles and/or reports, and many of the software programs are capable of printing a list of job titles with DOT codes that relate to the results of that particular battery.

Conclusion

Vocational evaluators are fortunate to have such a unique variety of tools (instruments, techniques, and strategies) at their disposal. Given the limits of the evaluation environment, deciding what instruments to purchase and use requires sensitivity and sound judgment; especially when considering the most accurate yet efficient way to meet the needs of the consumer and referral source. Evaluators must also be aware of their limits in using certain standardized tests, and routinely apply ethical guidelines when choosing, storing, administering, scoring, and interpreting any standardized instrument. The ability to use work samples and evaluation systems in lieu of or in addition to psychometric tests strengthens an evaluator's ability to creatively incorporate techniques into the evaluation experience—and to offer the most comprehensive and valid evaluation possible.

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CHAPTER SEVEN

Techniques of Evaluation

Introduction

As mentioned in the previous chapter, vocational evaluators have access to a wide variety of instruments and techniques, singularly or in combination, to meet the challenges of a diverse range of disabilities and other barriers to employment. Although they can act as "stand-alone" evaluation services, they have greater value and accuracy when used as part of a comprehensive and systematic vocational evaluation process (Botterbusch, 1978; Kell, 1989; Weinberger, 1984). The use of other instruments and techniques (e.g., interviews, functional assessment, standardized tests, work samples, behavior observation) ensures that the most appropriate situations/sites are chosen for the client given existing skills, interests, and information needs. This chapter will provide an overview of selected evaluation techniques, including functional assessment, situational assessment, community-based assessment, curriculum-based assessment, ecological/environmental assessment, behavioral observation, and transferable skills assessment.

Functional Assessment

Defining Functional Assessment. Functional assessment can be initiated almost any time during the beginning of the evaluation process. Its primary purpose is to give team members a basic overview of participant functioning in a wide range of activities and areas. Crewe and Athelstan (1984, p. 3) state, "In simplest terms, functional assessment is a systematic enumeration of vocationally relevant strengths and limitations." Halpern and Fuhrer (1984, p. 3) write that "Functional assessment is the measurement of purposeful behavior in interaction with the environment, which is interpreted according to the assessment's intended uses." The main feature that separates functional assessment from other rating approaches is the use of descriptive statements. For example, rather than using a below average-to-above average rating scale to describe functioning in the area of "making change," the following statements can be substituted, with one being chosen that best represents an individual's ability:

1. Cannot make change at all.
2. Can make change up to \$1.00.
3. Can make change up to \$5.00.
4. Can make change up to \$20.00.
5. Can make change beyond \$20.00.

Some functional assessment instruments may instead use the same Likert-type scale to rate all functional activities. For example, a uniform scale may read as follows:

1. The ability to perform the activity is unknown.
2. Cannot perform the activity even with support.
3. Can perform the activity with constant support.
4. Can perform the activity with occasional support/follow-up.

5. Can perform the activity without support/follow-up.

In these situations, the functional statements must be very task specific (e.g., can correctly use a screwdriver; can add and subtract whole numbers with a calculator), rather than general (e.g., can use tools; can use a calculator).

Functional vocational assessment can be accomplished through file review, during counseling or interviewing (consumer, family, employers, teachers, other professionals/staff), and through behavioral observation at home, in the evaluation unit, in the classroom, and at the work site. The evaluator may wish to start filling in the functional assessment form during file review or at the initial staffing, if held. Questions left unanswered can be addressed during the interview(s) or throughout the remaining evaluation process. The form can help direct the assessment and indicate when a more thorough evaluation is needed to answer specific questions.

Functional Assessment Rating Forms

There is a variety of different functional assessment processes and forms commercially available. Some evaluators have developed their own forms or modified existing ones to meet their specific needs. Whatever approach is used, it must be comprehensive and functional. Two such forms/procedures are the Functional Assessment Inventory (FAI) (Crewe & Athelstan, 1984), and the Consumer Profile Form (CPF) (Brooke, Inge, Armstrong, & Wehman, 1997). Although both forms are designed to do relatively the same thing, their subtle differences make them particularly useful for different populations. Table 1 lists the various categories contained on each form.

Table 1
A Comparison of Functional Assessment Inventories and Consumer Abilities

Functional Assessment Inventories	Consumer Abilities
1. Ability to Learn	1. Availability
2. Ability to Read and Write in English	2. Transportation
3. Memory	3. Strength—Lifting and Carrying
4. Spatial and Form Perceptions	4. Endurance (without breaks)
5. Vision	5. Orienting
6. Hearing	6. Physical Mobility
7. Speech	7. Independent Work Rate (no prompts)
8. Language Functioning	8. Appearance
9. Upper Extremity Functioning	9. Communication
10. Hand Functioning	10. Appropriate Social Interactions
11. Motor Speed	11. Unusual Behavior
12. Ambulation or Mobility	12. Attention to Task/Perseverance

13. Capacity for Exertion	13. Independent Sequencing of Job Duties
14. Endurance	14. Initiative/Motivation
15. Loss of Time from Work	15. Adapting to Change
16. Stability of Condition	16. Reinforcement of Needs
17. Work History	17. Family Supports
18. Acceptability to Employers	18. Financial Situations
19. Personal Attractiveness	19. Discrimination Skills
20. Skills	20. Time Awareness
21. Economic Disincentives	21. Functional Reading
22. Access to Job Opportunities	22. Functional Math
23. Requirements for Special Working Conditions	23. Independent Street Crossing
24. Work Habits	24. Handling Criticism/Stress
25. Social Support Systems	25. Acts/Speaks Aggressively
26. Accurate Perception of Capabilities and Limitations	26. Travel Skills
27. Effective Interaction with Employers and Co-workers	27. Benefits Consumer Needs
28. Judgments	(a) None
29. Congruence of Behavior with Rehabilitation Goals	(b) Sick Leave
30. Initiative and Problem-Solving Abilities	(c) Medical/Health Benefits
	(d) Paid Vacation/Annual Leave
	(e) Dental Benefits
	(f) Employee Discounts
	(g) Free/Reduced Meals
	(h) Other

The CPF is designed to be used with severely disabled individuals who could profit from supported employment services. It contains rating categories related to work availability (e.g., will work weekends, evenings, part-time, full-time), accessible methods of transportation, and other factors that are critical to supported employment placement. It has a companion Job Analysis Form that is used to conduct a "functional" job analysis on a particular position. CPF ratings on consumers can be directly compared to the "functional" requirements of the job to determine who is currently the best employment/training candidate and what specific limitations that would affect job performance need correction or accommodation. This is a highly useful technique for evaluating a participant's ability to be employed in a particular job since it incorporates a functional job analysis as part of the overall assessment process. Most all functional assessment forms can, and should, be adapted and used for job analysis when considering placement in a particular job or choosing appropriate OJE sites. In addition, functional assessment forms should also be modified to meet the specific needs of the populations being served. For example, the Supported Employment Technical Assistance Project (1989) at Michigan State University modified the 1986 version of the CPF to create the

Employment Screening Form-Revised for Persons with TBI. This 33-item form more accurately addresses the functional skills and deficits of persons with head injury than does the CPF.

The FAI uses two different forms that permit (a) ratings by the professional (known as the Functional Assessment Inventory) and (b) self-ratings by the consumer (referred to as the Personal Capacities Questionnaire or PCQ). Although both forms have the same questions, the wording on the PCQ has been simplified and converted to the first person to make reading and self-rating easier. In situations where consumers are unable to read or understand the questions, their families can assist them in completing the PCQ. Family perception and attitude concerning the consumer's level of functioning can also be determined through the completion of a separate PCQ. If the evaluator does not have time to use the FAI, then the PCQ can be used in its place. Although no research has been conducted on the accuracy of consumer self-ratings using the PCQ, or on comparing ratings from the FAI to the PCQ, it should give the evaluator some sense of what the consumer and/or family perceives as being functional strengths and limitations. If these differ from the evaluator's ratings of the participant on the FAI, reasons for the discrepancies can be explored.

In situations where the PCQ is to be completed by consumers and/or their families, it could be mailed to them with the acceptance and scheduling letter with a request to fill out the form the form and return it on the first day of evaluation. The evaluator can then find out who completed the form and ask the participant to explain various responses. Portions of forms that can be accurately completed by an employer, teacher, or other professional not directly involved in the vocational evaluation can be mailed to that person for completion. The form can also be completed by the evaluator or other team members during the file review, staffing, and/or the intake interview. The FAI and PCQ can serve as a systematic guide in the prevocational and vocational evaluation processes. Ideally, comparing consumer (or family) self-ratings to those made by the evaluation team will allow for the identification of rating discrepancies and the consideration of possible reasons for their existence. This is an especially important issue in situations with a lack of awareness or acceptance of the disability, and resulting problems, by the individual and/or family. Before problems can be successfully rectified, all persons involved must be willing to recognize the problems and agree to deal with them.

An important part of a functional assessment with injured workers, typically not addressed in rating forms, is pre-injury and post-injury functioning. Rather than merely checking the appropriate statement, codes representing pre-injury and post-injury functioning can provide the evaluator with useful information on what skills have been affected and may need improvement or accommodation to return to previous employment. Consumers or staff could be asked to place a "B" in front of the statement that represents ability before the injury, and an "A" in front of the statement that best represents ability after the injury. For example, for the item "Independent Sequencing of Job Duties" on the CPF, the "B" rating might be placed next the statement "Performs seven or more tasks in sequence," and the "A" rating might be placed next to "Performs two to three tasks in sequence." In this case, it is easy to see just how much an individual has lost and must regain (or have accommodated) to return to pre-injury functioning levels.

The FAI is available from The Rehabilitation Resource, and the CPF is contained in the publication, *Supported Employment Handbook: A Customer-Driven Approach for Persons with Significant Disabilities*, which is available from the Rehabilitation Research and Training Center in Supported Employment. Also available from The Rehabilitation Resource is the publication, *Goodness of Fit: A Guide to Conducting and Using Functional Vocational Assessments* (Wheeler, 1996). Refer to the resource section of this publication for their addresses and telephone numbers. Following is a sample of additional functional assessment rating forms and processes.

- Transition Planning Inventory (pro-ed)
- Transition to Work (TWD) Inventory (The Psychological Corporation)
- Vocational Integration Index (pro-ed)

Many behavioral and performance rating scales such as the PACG, the VACG, and the Becker Work Adjustment Profile, listed in the section *Review of Standardized Tests* (under "Other Tests"), can also be used as functional assessment instruments.

Situational Assessment

Definition and Purpose. The *Glossary of Terminology for Vocational Assessment, Evaluation and Work Adjustment* (Dowd, 1993, p. 25), defines situational assessment as:

The systematic observation process for evaluating work-related behaviors in a controlled or semi-controlled work environment. Although any type of task or situation may be used, real work is most often used in order to add relevance. The element distinguishing situational assessment from other types of assessment is the capability of systematically varying demands in order to evaluate work-related behaviors (e.g., social skills, quantity of work, and use of materials).

Historically, situational assessment can be traced back to the Old Testament, Hippocrates, the industrial revolution, and World War II when it was used to screen individuals for underground activities overseas (Neff, 1985; Pruitt, 1986). Around the mid-1950s, a situational assessment was used in the subcontract and prime manufacturing production settings of sheltered workshops (Neff, 1985; Pruitt, 1986; Sax & Pell, 1985; Vocational Evaluation and Work Adjustment Association, 1975). It was one of the most commonly used evaluation techniques, employed by 78% of all rehabilitation facilities (Dunn, 1973; Sankovsky, 1969). Clients within these traditional rehabilitation facility settings were paid to engage in mostly assembly, packaging, and custodial service contracts provided to the facility by local business and industry and through special federal set-aside contracts.

Today, almost any tool in vocational evaluation that is used to assess behavior as well as improvement through modification and accommodation can be called a situational assessment or situational tool. For example, when a work sample is modified, the integrity of its standardization is compromised, and the situational assessment approach must be applied. In this circumstance, the norm-referenced approach for the interpretation of results will not be as useful

as the criterion-referenced approach (Lustig & Saura, 1996). Although someone may be able to successfully perform individual tasks on structured tests and work samples, introducing an involved sequence of tasks and other elements such as noise, pressure, or unfamiliar faces into an unstructured, work-related environment may result in a very different outcome (Corthell, 1986, 1987). Placement in settings that permit the observation of a wide range of job-specific activities and behaviors will help determine how well a person with a severe disability (e.g., traumatic brain injury, chronic mental illness, or mental retardation), can handle change and cope with unexpected problems (Fewell, 1989; Musante, 1983; Weinberger, 1984).

In the past, situational assessments and on-the-job evaluations (also referred to as community-based assessment) were considered to be separate techniques. Today, however, there is very little difference between the two, and they are both frequently classified under the general term "situational assessment." CARF (1996) combined the two concepts under "situational assessment" in both definition and application. CCWAVES (1996) has classified them under the heading **Situational and community-based assessment** (refer to the previous chapter on standards). In order to provide a better understanding of the two techniques, their similarities and differences will be clarified in two separate sections. This section will address situational assessment as a technique applied primarily in the evaluation unit and on facility, hospital, and school campuses, in close proximity to the unit. The following section will cover on-the-job evaluation and address applications of the technique in actual employment sites within the community.

Dynamic Assessment. Prior to supported employment, one historical difference has been that situational assessment was considered a more "dynamic" (or prognostic) assessment technique than on-the-job evaluation (OJE). The dynamic process of situational assessment offered a controlled environment in which to explore accommodations and modifications that had a positive impact on performance and behavior; a technique now employed in community-based assessments as well.

Harris (1991, p. 142) considers that the general objective of a dynamic assessment is to modify or adjust the evaluatee's learning and subsequent performance strategies. In cases where the ability to generalize is limited (e.g., mental retardation, brain injury) or education, work, or life experiences have been restricted, finding out what a person can do after individualized instruction or accommodation would provide more useful information on what services could improve functioning. In a static assessment, evaluators are "fundamentally concerned with WHAT the evaluatee does behaviorally and in relating these 'whats' to job demands" (Harris, 1991, p. 143). Emphasis is placed on the "demonstrated competencies"—what the person can do now with no intervention during or after the evaluation. However, in reference to dynamic assessment, Harris (1991, p. 143) further states that:

Attention is being shifted towards processes and assessment methods that attempt to manipulate task variables in order to discern or control "causes" of poorer performance. In dynamic assessment we are trying to grasp the HOW of performance; to diagnose/control/correct the "breakdowns" to either correct/rehabilitate or to restructure the work environment/task in order to accommodate the "breakdown."

A situational assessment provides an excellent opportunity to conduct a dynamic (i.e., prognostic) evaluation. This same dynamic process can be used with work samples, and to a limited degree, with psychometric tests when they are used as situational techniques. Neff (1985, pp. 178–179) identified a number of questions that can be answered through a flexible, well-supervised situational assessment:

- Can the potential worker work at all?
- Can he conform to customary work roles?
- Can he take supervision?
- Can he get along with co-workers?
- Can he handle an ordinary working day?
- How does he respond to demands to increase his productivity or improve his quality?
- Does he work better alone or in the presence of others?
- Under what kind of supervision does he work most effectively?
- Does he get so preoccupied with quality that he cannot produce at acceptable rates, or does he try to work so fast that his quality suffers?
- What are his strengths and weaknesses as a worker?

There are several important advantages to using situational assessments (and community-based assessments) for consumers with severe disabilities (Botterbusch, 1978; Fewell, 1989; Kell, 1989; Weinberger, 1984). They provide a controlled environment in which to explore and modify approaches to both learning and performance. They also incorporate instruction/training, adjustment/management, and modification/accommodation into the assessment to determine what works best for short-term and long-term success. As problems are encountered, various modifications can be attempted to determine if and how a correction can be accomplished. A situational assessment can also be used to assess interest and work personality (Dunn, 1973).

Length. Although situational assessments do not usually require special equipment, over and above what is required to perform the job skill being assessed, they are rather lengthy (one-half day to six weeks). Peters, Koller, and Loyd (1995) described a project in Missouri that provided two-week situational assessments to students with specific learning disabilities, to evaluate functional and social skills needed for school, work, and social settings. Situational assessments within community rehabilitation programs (rehabilitation facilities) are the longest form of in-house evaluation because they rely on the use of production, service, and training areas within the facility as the environment for the assessment. For example, a rehabilitation facility in Michigan used its 12-week training program to provide most of the situational assessments (Vohlken, 1987).

Fewell (1989) described a situational assessment program in a rehabilitation hospital in North Carolina for individuals with traumatic brain injury (TBI). The evaluation unit, the volunteer program, and regular work sites within the hospital, as well as previous work sites of the consumer were used to conduct situational assessments. In one case, a situational assessment lasted four hours a day, intermingled with other rehabilitation services, in three different hospital sites over six weeks. One of the goals of situational assessment was to increase self-awareness of the individual concerning personal strengths and limitations (Fewell, 1989). In a study of

vocational evaluation services in Georgia, on average, it was found that workshop/situational assessments took between seven to eight days for general disabilities, five days for sensory impaired consumers, and slightly more than 13 days for individuals with TBI (Brown, McDaniel, & King, 1995). The 13.33-day average for participants with TBI allowed for the assessment of work tolerance, stamina, and distractibility—areas of critical importance to this population.

Situational assessments conducted in local jobs are also quite lengthy and will be covered under the section on community-based assessment. One situational activity or site cannot assess an individual's full range of behavior, performance, interest, and work personality as related to the overall labor market. This is due, in part, to the limited number of work, environmental, and social experiences that can be offered by one site.

Applications and Environments. Situational assessment can be provided as part of a more comprehensive evaluation. Psychometric tests, work samples, and/or evaluation systems can be administered first to determine the specific need for situational assessment (i.e., what is an appropriate and motivating work activity, what particular areas of behavior and performance should be observed, what kind of in-house or community-based environment would be best?). On the other hand, situational assessment can also be used as a standalone technique, or as the primary evaluation tool, especially with individuals who do not perform well on standardized tests or work samples. A national survey of facilities, administrators, and practitioners involved in the assessment of individuals who are psychiatrically disabled, identified situational assessments as the number one evaluation method in CARF accredited facilities and psychosocial rehabilitation facilities (Hursh, Rogers, & Anthony, 1988). Situational assessment sites identified in this study included mechanical and industrial occupational clusters as well as clerical and service-related activities.

Situational assessment can be performed in natural work settings in the community, or in simulated settings within the vocational evaluation unit and adjacent environments (e.g., a school campus or facility grounds). When community job sites were used for situational assessment, job tryouts for industrially injured workers and individuals with traumatic brain injuries have varied from unskilled to professional and technical jobs previously held by the participants. Although community-based situational assessments vary considerably, they have often been limited to unskilled and semi-skilled jobs with consumers who have little or no work experience. Situational assessments in community rehabilitation programs and school systems have been provided in assembly and packaging work areas, custodial and food services, and in other clerical and maintenance positions throughout the building or campus that do not compromise confidentiality or safety.

In fixed evaluation units, evaluators can create situational work activities (e.g., inventory of unit supplies and equipment, filing non-sensitive material, sweeping and cleaning, and delivery). With regard to return-to-work evaluations conducted in rehabilitation hospitals and work hardening centers, a job analysis is conducted and used to create a simulation of the targeted job in the center. This job-specific situational assessment is used to help increase stamina while exploring accommodations prior to an actual job tryout. In-house situational assessments are generally supervised by vocational evaluators, teachers, or work area/facility supervisors. In the community, although vocational evaluators may provide some supervision,

situational assessments are usually provided by job coaches (employment specialists), co-workers, employers, or job site supervisors.

Two types of in-house situational assessment activities can be developed by vocational evaluators: pre-established and extemporaneous activities. In cases where specific jobs are widely available (e.g., custodian, fast food worker, dishwasher), evaluation units may have a pre-established in-house situational activity, which is routinely maintained for instances when such an assessment is needed. If the participant demonstrates interest and potential through the situational assessment, then an OJE in a similar area within the community could be considered. This is a good procedure to follow when the evaluator wants to ensure that the job site evaluation will be a reasonably positive experience for the consumer and employer.

Pre-established situational assessments can also be developed to provide a means of evaluating individuals in areas not covered by existing instruments. For example, if a unit does not possess the commercial equipment specifically designed to assess whole-body-range-of-motion skills required in most service occupations, then a situational assessment activity can be developed and maintained that fulfills this need (damp mopping a floor, wiping windows or tables, stocking shelves, etc.). In addition, since most commercial work sample systems do not contain instruments that specifically evaluate for placement in service occupations, situational assessments can be developed to focus on community job demands to meet this important local need. Regardless of the reason for their development, these more permanent forms of situational assessments should be based on a systematic analysis of available community activities and should be documented on a task-specific rating form.

The other type of in-house situational assessments does not rely on pre-developed activities but on the extemporaneous creation of tasks needed to meet the individual evaluation needs of each consumer. Given the unique differences in the functional skills and limitations of individuals with disabilities, situations can be replicated to meet specific needs. For example, to assess the extent of an orientation skill deficit in a person with a stroke or head injury, a map of the facility can be given to the participant with instructions to follow a specified route. Later, the consumer could be asked to follow the same route without the use of the map. Various instructional and memory prompting strategies could be presented to determine how the individual best learns and remembers the route.

For those consumers who are interested in returning to previous employment, situational assessment activities resembling their job tasks can be created and supplemented with other assessment instruments and strategies to identify specific abilities, needs, and accommodations/modifications. Situational assessment results that demonstrate less than competitive potential in a previous job can be used in the counseling process to help the consumer choose and accept more realistic vocational alternatives. If the situational assessment and other evaluation results indicate a potential for returning to a previous job, then an on-the-job evaluation can be conducted, incorporating the contingencies identified through the situational assessment process.

In cases where previous jobs are to be replicated in-house, an analysis of the tasks and other pertinent information (e.g., work pressures, time or quality requirements, type of

supervision) should be collected. Use of the Job Site Evaluation Rating Form (see *Appendix B*), to be discussed later in this chapter, or a similar job analysis and rating form should be considered. Although job site evaluation is the preferred method of collecting specific work-related performance information with a participant, these community-based sites are not accessible at times. In some instances, employers may not be interested in participating in an OJE of a previous worker, the consumer may feel uncomfortable being evaluated around co-workers, or the location of the business or industry may not be convenient to the evaluation unit. However if situational assessment results indicate potential, OJE can serve as excellent training and modification opportunity as well as a way of demonstrating to the employer that the person is capable of returning to work. Regardless of employment outcome, if positive feedback regarding the experience is shared with the evaluatee, it can help preserve a feeling of self-worth.

Within transition, "situational assessment can be used to collect data on students' interests, abilities, social/interpersonal skills, and accommodations/needs in school-based work sites, community-based work sites, and vocational education programs" (Sitlington, Neubert, Begun, Lombard, & Leconte, 1996, p. 87). The use of school libraries and front offices as well as tryouts and simulations in vocational classes offer excellent on-campus situational experiences.

On-the-Job Evaluation

Definition and Purpose. The *VEWAA Glossary* (Dowd, 1993, p. 21) defines on-the-job evaluation as:

A planned experience in a work situation through which the individual, under supervision, learns to perform the job tasks. It is frequently arranged between the school or rehabilitation agency and the employer with remuneration going to the employer either as full or partial reimbursement for wages paid the individual. It may or may not lead to employment.

An earlier version of the *VEWAA Glossary* (Fry & Botterbusch, 1988, p. 10) provided a slightly different definition of on-the-job evaluation:

An evaluation technique where the client performs the actual job duties in a real work situation. Performance is supervised and evaluated by the employer in coordination with evaluation staff. There are a predetermined beginning and ending date. It is not necessarily intended to result in employment.

One of the most important components of a comprehensive vocational evaluation for individuals with chronic mental illness, serious head injuries, and severe developmental disabilities is the exposure to real work offered through community-based assessment. It provides one of the best opportunities to assess a consumer's task mastery and vocational potential within the context of a multifaceted work environment. Properly applied, OJE can evaluate how individuals with severe disabilities handle and adapt to the complexities, variations, stresses, and subtleties typically found at a work site. The behavior patterns that may be present in a job setting can best be observed in a more natural work-related environment rather than a structured testing situation (Diller & Ben-Yishay, 1989).

Botterbusch (1978) systematically describes the major uses of a job site evaluation, which is outlined as follows:

1. Assessment of Work Performance (or can the client do the job)
 - General Work Skills
 - Specific Performance Potential
 - Specific Skill Testing (what skills were retained after TBI)
2. Assessment of Work Behavior (or does the client have the necessary behavioral skills)
3. Assessment of the Work Environment (or can the client take it)
 - Physical Demands
 - Environmental Conditions
 - Work Tolerance (stamina, endurance, and fatigue)
4. Assessment of the Self (or how to get clients to know themselves)
 - Orientation to Real Work
 - Vocational Interest
 - Reality Testing
5. Assessment of Job Seeking Skills (or can clients get hired on their own)

Kell (1989) listed a slightly different set of advantages of OJE that emphasized self-awareness and encouraged change and improvement. They include:

- job exploration,
- surveying personal job preferences,
- development of beneficial work habits and realistic expectations,
- development of work related social skills, and
- a chance to improve one's self-esteem.

He also quoted a statement by Weinberger (1984, p. 253) regarding the important outcomes of job site evaluation "with head injured patients:"

The evaluator was able to assess the types of specific work skills that the patient was capable of performing and devise an effective method for the patient to learn tasks while compensating for cognitive deficits. This information was invaluable when placing the patient in competitive employment.

In addition to the above uses, OJE can assess communication, socialization, and decision-making skills needed to work effectively and cooperatively with co-workers and supervisors. Self-awareness can also be increased through the performance of functional tasks in an integrated, real-world setting (Killough-Butler & Gauldin, 1995). The remainder of this section will highlight the process for developing and providing community-based assessments.

Application and Length. OJE is an excellent method for determining if an injured worker is capable of returning to a previous, or similar, job as well as identifying the specific types of modifications and accommodations needed to maintain employment. In cases where a

return to a previous job is being considered, an evaluation in the same job but at a different employment site may need to be considered, especially if the person feels uncomfortable being evaluated around co-workers and friends. However, if employment in the previous job is not realistic, then a similar (or different) job with the same employer could be considered.

Community-based assessments provided by school-to-work transition programs are generally developed and monitored by a vocational evaluator, transition specialist, job coach, or work-experience coordinator. Work experience programs have been available to special needs and vocational education students for many years and have occasionally taken on the responsibility of community-based assessment as well. Within the school-to-work transition model, sites for conducting community-based assessments are highly varied. Clark and Kolstoe (1990) recommend that home, school, community, and work environments are used since the same assessment questions can be answered in all four environments. Sitlington et al. (1996, p. 88) feel that assessments in community settings "can also be conducted in recreation sites, community sites (e.g., uses a bank facility), and simulated or real sites that require independent living skills (e.g., home economics lab, family home)." Work is not always the ultimate criterion for students who are still in school, and assessment in the diversity of areas that are typically addressed in an education or transition plan should also serve as the environments for conducting community-based and situational assessments.

Krankowski and Culbertson (1993) reviewed a case study of an individual with traumatic brain injury where the OJE lasted one week. Fry and Ruddy (1987) reported on a project called "Community-Based Time-Limited Vocational Assessments" in which consumer evaluations were not to exceed 120 hours and where the assessment activity would eventually become secondary to productivity. A job site evaluation may take several days, several weeks, or in some cases, several months, depending on the needs and functional level of the participant. Whenever possible, it should require consumer involvement for at least 20 hours a week near the end of the experience to evaluate long-term abilities and problems in a routine working situation. The longer the OJE, the more accurate and detailed the results. Fee-for-service restrictions and time limits frequently placed on evaluation services by referral sources will often dictate the maximum duration of OJE. Occasionally, duration and cost regarding OJEs can be renegotiated with the referral source. Refer to the section on Situational Assessment for more information.

Community-based assessments can serve as a stand-alone technique, especially when other evaluation instruments and techniques prove less beneficial, and when supported employment is being considered as the primary placement model. OJE can also serve as an appropriate conclusion to a comprehensive vocational evaluation process where the initial results identify a potential job(s) that can be validated through OJE (Hursh & Price, 1983). The initial evaluation process is a useful, cost-effective tool for identifying prospective jobs in the community and the accommodations that can be applied at the job site to maximize learning, performance, and behavior. This can be accomplished through the application of other evaluation techniques such as learning style assessment, basic skills assessment, work sample evaluation, and in-house situational assessment. In addition, social survival skills, such as, reasonable grooming and hygiene, verbal and behavioral appropriateness, and independent transportation skills that would impact on employment, should be assessed before OJE placement (Costello & Corthell, 1991). Through this pre-placement evaluation, time in OJE can be more efficiently used

developing and assessing interest and potential, rather than exploring options for dealing with behavior, learning, and accommodation problems. It will also ensure that both the employer/supervisor and consumer have a positive experience during community-based assessment.

Types of OJEs. Both temporary and permanent OJE sites can be developed. A temporary site is one that is chosen and tailored to the specific needs of a particular consumer. Jobs held by workers upon injury are a typical example of temporary sites that can be used for OJE. Injured workers who want to return to the position held at the time of injury can engage in an OJE in that job. This could eventually lead to employment in the same or related position with the same or different employer. Another temporary OJE site involves placement in a specific job for which the consumer has expressed an interest, and that has never been used by the evaluation service in the past. In cases where a participant has never worked before, has been out of work for an extended period, or desires employment in an area unrelated to previous employment, finding the right job may mean developing new and previously unused sites and employers. These are the hardest and most time-consuming OJE sites to develop.

Permanent sites are those that have been carefully developed with an employer and are available for repeated use. A variety of different employment sites can be acquired and maintained that ensure a broad base of opportunities for participants. Employers and consumers must be fully aware that placement in an OJE site is not a guarantee of employment, and if a participant is hired, the OJE site will remain open to other consumers. Regular contact with site employers and supervisors is important to maintaining the site. Although establishing permanent community-based assessment sites is easier and more efficient than constantly creating temporary sites, an evaluator or staff member must be assigned to developing, maintaining, and servicing the site. Since this process is so time-consuming, a staff member should be assigned full-time or part-time, depending on the number and frequency of use of the sites, as the community-based assessment coordinator.

Site Development. As discussed in the section Situational Assessment, some evaluation units are located on school, hospital, and facility campuses that allow for the use of job sites near the unit. If such on-campus opportunities are not available, units may need to rely more on community-based sites. Regardless of the site setting, Kell (1989) identifies three central processes or steps involved in any OJE program:

1. Development of the OJE site in the community,
2. Proper evaluation of the client on the job site, and
3. The maintenance of the OJE site for current and future considerations. The evaluator will need to think in terms of an on-going relationship with the employer that needs to be appropriately nurtured. The object is always the successful termination with the client—not the employer or business.

Botterbusch (1978) provided a detailed step-by-step approach to the effective development and use of on-campus and community-based job sites for assessment. Following are the recommended steps.

1. Decide where to establish OJE sites—what is needed in relation to skill level, labor market composition, and consumer population served. Developing a diverse range of job sites and locations will help to represent similar diversity in local employment opportunities.
2. Contact employers where sites could be developed. Evaluators will have their best luck contacting large and small companies that routinely hire individuals with disabilities, employ their own job coaches, and provide subcontracts to rehabilitation facilities; or where there are high turnover rates, and where the owner or executives are on rehabilitation facility/transition boards or advisory committees. Also contacting service organizations (e.g., Chamber of Commerce, Lions Club, Rotary Club, or local manufacturer and personnel organizations) to give a presentation, and using the media to feature a story on your community-based assessment program and its need for sites, may generate new opportunities.
3. Establish the job site. Set up an appointment to tour the facility and pick appropriate jobs. Conduct a job analysis, develop the evaluation process and forms, and train key evaluation or company staff in how to facilitate the OJE (depending on which staff are used). It may not be possible to conduct an OJE on an entire job, and developing a set of meaningful activities may be a good alternative. Issues regarding consumer pay, safety, liability, union involvement, and key contact persons in the company and unit must be resolved prior to placement. The evaluation staff should provide instruction of involved staff (immediate supervisors and co-workers) in how to conduct the OJE and how to work with and treat consumers who are placed at the site. Setting start dates for consumers and agreeing on the dress code and work rules for the participant must be well established. The length of the OJE (daily and overall), transportation, follow-up, reporting, and emergency issues and procedures must also be clarified for the overall OJE and each participant. The job site coordinator who is going to teach the job to the consumer should learn it first. If an in-house vocational evaluation is used prior to OJE placement, the job analysis should be used to plan a task-specific evaluation process including appropriate instruments and techniques.

Prior to placement, the evaluator must make sure the consumer is willing to participate in OJE and agrees to perform the job and tasks in question (Killough-Butler & Gauldin, 1995). In some cases, families may be reluctant to have a member participate in OJE for reasons of safety or fear of a negative experience. An assessment should be conducted with the family and significant others regarding their perceptions of the consumer's overall abilities and behaviors, their attitudes about the consumer's potential to work independently, and their level of support for the consumer working (Costello & Corthell, 1991). Families should be oriented as to the nature of and reason for the OJE placement, and be willing to provide support.

Evaluators will need to orient consumers to the site including job duties, length, transportation, the supervisor, rules and regulations, work hours, break schedule, lunch, and pay, if any. On the first day, they accompany or meet the participant at the site, provide a tour of the site, introduce the supervisor and coworkers, and teach the consumer the job. Even if someone else at the site does the orientation, training, and OJE, it would be best for the evaluator or an evaluation staff member to be present when the consumer arrives on the first day. Consider providing consumers (and their families) with a tour of the chosen site prior to OJE, especially if

there is a fear of the OJE process. If consumers do not know what they want to do, a tour of available and appropriate sites offer an opportunity for career exploration and the ability to make an informed choice of sites (especially if more than one site is used for the OJE). If tours are not feasible, pictures or videos of the sites with a brief description are good alternatives.

Deciding who will conduct the OJE is a critically important step. The traditional, in-house vocational evaluation process does not always allow for flexibility in scheduling. It is difficult to be in the unit and at an OJE site at the same time. Since they are so labor intensive, engaging in OJE will call for creativity in scheduling and transportation, and also financially in terms of billing and quotas. Therefore, if an evaluation service is going to make community-based assessment a significant component of its service delivery model there must be a full commitment to financially supporting the process, especially in hiring or reassigning staff to the task. Without such a commitment, evaluators will need to rely on situational assessments that can be provided in-house or on campus by someone else. Community-based assessment can be assigned to placement specialists, job coaches, work adjustment specialists, instructors, work supervisors, or vocational evaluation aides or technicians as long as it does not interfere with the job duties already assigned.

It is important to remember that sites should be chosen that are safe, accessible, and whose supervisors and workers are supportive or, at a minimum, accepting of the participant worker. The site should allow time for the consumer to learn and perform all tasks required in the job being performed, as opposed to engaging in "make-work" activities. The OJE should be able to assess how well the evaluatee was able to remember tasks from day to day, how many tasks and combinations of tasks could be performed, communication and interaction dynamics, physical capacities and stamina, and behavioral strengths and problems encountered. While at the job site, physical, instructional, and behavioral modifications can be attempted, discussed with the employer, supervisor, and consumer, and prescriptions outlined in the report and incorporated into future placement. Real work is the key to assessing the person holistically and ecologically.

Although job site evaluations are time-consuming and expensive, they provide information not available through less realistic means. In addition to these and other concerns, the issue of remuneration for beneficial work activity must be addressed. Department of Labor regulations governing when participants should be paid during community-based assessment are changing and are interpreted differently from office to office.

As mentioned earlier, two key ingredients must be included in the effective development and use of a job site evaluation. The first is a detailed analysis of the job site, including the tasks to be performed, order of the tasks, criteria for task mastery, behavior requirements at the work site, environmental conditions, communication and socialization needs, and availability of supervision. The second ingredient is the development of a form that can be used by the site supervisor, a co-worker, or the evaluator. The form should be based on those essential job tasks and characteristics identified in the job analysis, and provide sufficient detail to allow anyone to reliably use it. Once these two criteria have been met, then an accurate assessment can be made of the participant's abilities, behaviors, and supervisory needs as they relate to similar characteristics of the job site. Discrepancies can then be addressed through the rehabilitation,

training, and accommodation processes. A sample form and procedure are described in the following section.

Job Site Evaluation Rating Form. The Job Site Evaluation Rating Form contained in the appendix section of this publication is a modification of the Evaluation by Tasks rating form included in the Botterbusch (1978) publication *A Guide to Job Site Evaluation* (editor note: available from <https://eric.ed.gov/?id=ED186742>). The form has been revised to allow for an employer "goal" rating as well as a consumer "progress" rating so that quick comparisons can be made in participant progress toward employer expectations. This brief form is an example of a simple rating instrument that evaluators can modify and use for rating job site performance and behavior. In an attempt to minimize paperwork (a constant problem for vocational evaluators), a single form has been developed that will allow for the collection of a wide range of information by either the vocational evaluator or site supervisor. Following is an explanation of how to complete and use the different sections of the form.

There are six spaces under the Job Tasks/Critical Vocational Behaviors section in which to record the different tasks and behaviors that comprise the job identified in the Site/Location space at the top of the form. Many jobs will need only a brief statement of each task; for example, obtains push broom, dust pan, and trash can from storage room; removes furniture from room to be swept; sweeps dirt in room to doorway; sweeps dirt into dust pan and empties dirt into trash can; or returns materials to storage room. Additional pages can be used if the tasks exceed six. In situations where the consumer has difficulty following tasks, then elements of tasks can be listed instead; for example, find room at end of hall with STORAGE printed on the door; open door and turn on light; place 28-inch push broom and metal dust pan in the large red trash can with wheels; push trash can out of storage room, turn out lights, and close door; or push trashcan to the end of hall to Room 101; etc. After all tasks or elements have been enumerated, behaviors and performance characteristics that are critical to the job, and issues with the consumer can be listed; for example, grooming and dressing; communication with customers; punctuality; or ability to deal with stress.

Under the sections for *Supervision*, *Quality*, *Quantity*, and *Other* are the *Avail* (availability of employer) and *Goal* (goal of employer) categories. Using the levels listed under *Supervision Required*, the evaluator enters a corresponding number under *Avail* that represents the level of supervision available to the consumer at the job site. The *Availability* statements are described in parentheses after each *Supervision Required* statement. Each task/element and behavior description will receive an availability rating. For example, interview and work sample evaluation results indicated that Bob, our 19-year-old evaluatee with a head injury, was both interested in and capable of profiting from a job site evaluation at a fast food restaurant.

Since a site was not already available, one was carefully chosen and a job analysis performed. From this job analysis, tasks and critical vocational behaviors were listed on the form, and each task assigned a supervisory availability rating. The ratings, which were consistent with the job analysis, indicated that the *supervisor is usually available to worker* (a rating of three) for all activities performed inside the restaurant. However, when the consumer was required to take garbage to the trash container behind the building or to sweep the area outside the restaurant, a rating of four was assigned since the *supervisor is rarely available to worker*.

This meant that the participant worker did not need to meet the supervisory ratings any higher than those listed for *supervisory availability*.

Goal ratings are obtained and listed from a job analysis just like the *availability* ratings and establish job-specific goals that the consumer must reach in order to be successful on that particular job. Such ratings will differ from job to job depending on job analysis results. Since many individuals with disabilities can be easily discouraged by unrealistic or esoteric goals, actual job requirements can be entered on the form for each task and expectations shared with the participant prior to placement. Regular progress can be monitored and discussed with the individual throughout the job site evaluation to maintain interest, motivation, and self-correction. The *availability* and *goal* ratings serve as the job-specific objective, whereas the *client* ratings document progress toward the objective. Although the form allows only for three participant ratings (with rating dates entered at the top of the form), it can be modified or an additional one used when rating opportunities exceed the three spaces provided. In addition to *Supervision*, three more sections are listed on the form: *Quality*, *Quantity*, and *Other*. The *Other* section permits the rater to add a critical factor to the form that is not currently addressed. Again, the form can be modified or additional forms used if more specialized sections are needed. Room is also provided at the end of each task line for making specific comments as needed.

From an interpretive standpoint, final ratings of consumers can be compared to employer availability and goals ratings. Those employer/supervisor expectations that have not been met by the participant worker during the job site evaluation can be formulated into recommendations for instruction, modification, accommodation, or support. This is only an example of one rating form and should not be considered the sole method of evaluating job site performance. The content of the job analysis and issues pertinent to the specific disability will dictate what forms and techniques are required. As mentioned earlier, this form can also be used for rating situational assessment activities. If employer availability/goals are unknown, then this part of the form can be left blank. In addition, supported employment programs may find the form beneficial in reducing paperwork and documenting consumer progress.

Curriculum-Based Vocational Assessment

The *VEWAA Glossary* (Dowd, 1993) provides the following three definitions for curriculum-based vocational assessment (CBVA).

1. A continuous assessment process used to answer questions about the instruction and special service needs of individual students as they enter into and progress through specific vocational education programs.
2. A process to determine the career development and vocational instruction needs of students based on their ongoing preference within existing course content and curriculum; identification of students' career/vocational strengths and weaknesses for the purpose of making decisions affecting career/vocational programming and instruction.
3. The collection and use of information obtained within the context of a curriculum or intervention program; the assessment of students on the content of a curriculum (pre and post) to determine both the extent of progress of the students and the need to change or

modify the curriculum. [The assessment feeds directly into curricular or program decision-making, thus making it highly functional (Clark & Kolstoe, 1990, p. 98)].

Curriculum-Based Assessment (CBA) was originally developed as an ongoing method to assess what a student specifically learned from a curriculum, especially in academic areas such as reading, written expression, spelling, and math (Sitlington et al., 1996). It is also used today by teachers to assess the degree to which a student has mastered curriculum content in a variety of courses such as science, history and social studies, including academic proficiency in dictionary skills, study skills, and other academic survival skills (Idol, Nevin, & Paolucci-Whitcomb, 1996). Ultimately, it can be used to improve learning outcomes (Cohen & Spruill, 1990). Although CBA may rely on teacher-made or standardized tests to assess mastery, it is considered to be more an approach rather than a specific method or test (Sitlington et al., 1996). In the first chapter of their book *Curriculum-Based Assessment: Testing What is Taught*, Salvia and Hughes (1990) describe an eight-step model for CBA, which includes:

1. Specify reasons for assessment,
2. Analyze curriculum,
3. Formulate behavioral objectives,
4. Develop appropriate assessment procedures,
5. Collect data,
6. Summarize data,
7. Display data (tables and graphs), and
8. Interpret data and make decisions to revise the curriculum or plan.

Curriculum-Based Vocational Assessment (CBVA) is a variation of CBA with an emphasis on a "student's career development, vocational, and transition-related needs based on his or her ongoing performance within existing course content" (Sitlington et al., 1996, p. 84). Performance in vocational education courses, school or community-based work experience sites, and, to some degree, academic classes can be used to gather appropriate assessment information. The resulting information can be used for career exploration, and to develop appropriate instructional and curriculum modifications and supports essential for success in vocational education classes and on-the-job. Sitlington et al. (1996, p. 84) presented three general phases in the CBVA process, developed by Albright and Cobb (1988):

1. ***Assessment during program placement and planning.*** This includes activities prior to and during the first few weeks of the student's participation in a vocational program. Information gathered during this phase assists in program selection, program placement, and program planning.
2. ***Assessment during participation in a vocational program.*** These activities monitor the student's program, determine the appropriateness of the program and service delivery plan, and evaluate the success of the student's program.
3. ***Assessment during exiting of a program.*** Assessment activities in this phase occur near the end of the student's program. Information gathered in this phase assists the team in

identifying the special services needed to help the student make a successful transition into employment and/or postsecondary education and the best program(s) for the student.

Student portfolios can also be incorporated into the CBA and CBVA process (Sitlington et al., 1996). Portfolio assessment involves the systematic collection and evaluation of papers, projects, letters, rating forms, course tests, and other pertinent curriculum-based materials related to performance in courses and work experiences. Much like portfolios used in art and photography, portfolios used in CBVA are a representation of an individual's level of mastery of a particular skill or subject. Portfolios will be covered in more detail under the section on empowerment and informed choice, later in this book.

Ecological/Environmental Assessment

Simply defined, "ecological is a term used to describe a framework for assessment and intervention; it reflects an underlying assumption that individuals interact with their environments and that both change as a result of interaction" (Dowd, 1993, p. 9). Therefore, ecological assessments examine the interaction between an individual and an environment. Szymula and Schleser (1984) indicate that "an ecological systems approach explains behavior as a multisystem interaction involving the individual, family, school, occupation, and society." Along similar lines, Pancsofar (1986) emphasizes that the ecological assessment process should address (a) the individual, (b) significant others, (c) the physical environment, and (d) culture (e.g., attitudes about disability). Another term used to describe this process is "environmental assessment." Moos (1979) identified four major domains in the interaction between the individual and environment that are addressed through environmental assessment: (a) the physical setting, (b) organizational factors, (c) the human aggregate within the environment, and (d) the social climate of an environment (Salomone, 1996).

Three overlapping steps are involved in this process: (a) assessment of the individual, (b) assessment of the environment, and (c) assessment of congruence between an environment and an individual (Parker & Schaller, 1996). The assessment of an individual may include a wide use of instruments and techniques, with an emphasis on situational and community-based assessments where work environments can be introduced into the assessment process. Hagner and Dileo (1993) emphasize that the assessment outcome may be geared more to a work setting and the ability to satisfy certain personal needs and wants, rather than identifying a particular job title. The assessment of the environment may involve identifying and analyzing certain jobs in the community to determine their specific tasks and performance standards, social and environmental characteristics, naturally occurring cues and reinforcers, physical demands, and interpersonal skill requirements. The last phase, assessment of congruence, refers to the match between the individual and the environment, which may require accommodation/modification in instruction, the environment, and/or behavior in order to ensure success.

When considering issues of person-environment fit, the ecological (or environmental) assessment is often subsumed under situational or community-based assessments (Szymula & Schleser, 1984). In fact, the best way to understand an individual's behavior is to use an ecological assessment approach to evaluate behavior in the social environment in which it occurs (Kell, 1989; Szymula & Schleser, 1984; Wehman, 1981).

Behavioral Observation

Behavioral observation is an ongoing process that spans the entire evaluation process from the consumer orientation to the exit interview. To begin the process of behavioral observation, a review of the file may provide a historical perspective of past behavior, disability, and environmental background. To understand behavior in the context of disability, evaluators need to have a working knowledge of the functional (i.e., medical and psychosocial) aspects of the disability and recognize how they influence behavior. Understanding how culture and environment (i.e., ecological conditions) affect behavior are important considerations when recording, rating, and interpreting behavior. With more severe disabilities or behavioral problems, observation will often yield more useful information, especially in situational and community-based assessments, than can be obtained from scores on standardized instruments. As mentioned earlier, the assessment of manifest interest relies heavily on the use of behavioral observation. In fact, assessment of interest in individuals with severe mental disabilities relies on the ability to observe personal reactions to different work activities; for example, facial expressions, body language, attention to task, or frustration tolerance.

There are two primary reasons for conducting behavioral observation: the influence of behavior on success in learning, living, and working environments; and the negative effects of certain disabling conditions on behavior. In numerous studies with employers concerning what factors influence job success and failure, behavior was consistently found to be more critical than other variables such as skill level and job performance (Botterbusch, 1984). Behavior may be the most critical return-to-work factor for individuals with mental illness, TBI, and other cognitive deficits (Thomas, 1989). Burton, Chavez, and Kokaska (1987) conducted a survey of 133 employers who had hired youth with disabilities, to determine which of 22 employability skills they considered to be most important. A seven-point Likert-type scale was used, which ranged from *most important* to *least important*. Table 2 shows the Top Eight of the 22 employability skills ranked by percentage of importance:

Table 2
The Top Eight Employability Skills Ranked by Importance

Employability Skills	Percentage of Importance
1. To be on time	76.7
2. Dependability	71.4
3. Pride in work/job	64.7
4. Respect for authority	57.9
5. How to get along with others	52.6
6. Enthusiasm	40.6
7. Good grooming	39.8
8. On-the-job training	34.6

The first seven variables related to behavior and the eighth to skill. In addition, slightly more than one-third of the employers rated on-the-job training as most important, which was the highest skill/performance ranking. In contrast, slightly more than three-fourths of the employers rated *to be on time* as the most important behavioral ranking. This study is consistent with many similar studies revealing strong employer emphasis on critical vocational behaviors.

With regard to the influence of disability on behavior, two types of behaviors may be present. The first are those behaviors directly related to the disability (e.g., flat affect, confusion, disinhibition, short attention span), and the second are those resulting from coping or defense mechanisms and from difficulty accepting or adjusting to the disability (e.g., denial, anger, frustration). Although some behaviors such as hostility and the assumed lack of motivation could be classified under either behavior type, it is the accurate observation and recording of the behavior that takes immediate precedence over interpretation and classification. In either case, behaviors that interfere with the individual's ability to function, or that may serve as strength to build upon, must be fully evaluated and described in the report.

Equal emphasis should be placed on observing and recording both positive and negative behaviors. Simply focusing on negative behaviors introduces an adverse bias into the results and does not take into account the influence of positive behaviors on success. Evaluators should highlight positive behaviors while concentrating on ways to modify, accommodate, or manage negative ones. This concept applies to both conducting a prognostic evaluation and formulating prescriptive recommendations.

An examination of the consistency in behavior throughout different situations is one indication of the severity of the disability. Severe impairment increases the need to focus more on behavioral issues during the evaluation (Thomas, 1989). Observed behaviors should be described in terms of their frequency of occurrence, their duration, their magnitude (or severity), and their recency so that the extent of any problem behavior can be thoroughly assessed. In order to identify the situation in which the behavior occurred, behavior notations should be recorded on score forms used for the test, work sample, situational assessment, or OJE where the behavior was observed. Then as score forms are reviewed, possible patterns in behavior can be identified.

As mentioned earlier, the behavior patterns that may be found in a job setting can best be observed in a more natural work-related environment rather than a structured testing situation (Diller & Ben-Yishay, 1989). Although work samples provide a simulated environment for promoting and observing related behaviors, situational assessments and OJEs provide the most realistic settings. However, behaviors noted in less realistic assessment environments can provide behavioral cues that can be targeted for further observation in more work-oriented assessment situations.

Another important consideration in the observation and notation of behavior is assessing the subtleties of nonverbal communication. Two important issues must be addressed (Miller, 1988; Wright, 1989). First, is the confusion of nonverbal communication (e.g., body language and posture, facial expressions, gestures, and voice tone) sending a mixed message when compared to other behaviors or to what is being said? Second in this situation, what messages are

consistent with the true feelings of the participant? Since nonverbal communication tends to more honestly reflect the individual's thoughts, this should be explored in more depth with the consumer. Unfortunately, many persons with a disability engage in nonverbal miscommunication since they are unable to appropriately read or relay nonverbal messages. Individuals with certain kinds of head injuries and cognitive deficits may experience this problem, especially as it relates to a lack of self-awareness. It should be described in the report so that its negative impact on working, learning, or social situations can be minimized or eliminated. If this appears to be a problem, the evaluation could focus on the expressive or receptive nonverbal communication problem (e.g., nonverbal subtleties, such as tone of voice, stance, humor, sarcasm, speed of processing, and response).

Not to be ignored are the nonverbal signals that evaluators send to their evaluatees. Even when evaluators frequently express encouraging and supportive remarks, if their nonverbal communication is inconsistent with the verbal message, then the consumer may not feel that the relationship is open and honest. The evaluator must learn to instill a feeling of trust and support both verbally and nonverbally. This will go a long way in motivating and encouraging the consumer as well as in establishing a better rapport.

Evaluators should carefully note not only presented behavior but also any changes in behavior as a result of their intervention. Thomas (1989, p. 62) states, "In addition to assessing work-related behaviors and methods of gaining behavioral compliance, determination of possible reinforcers to be used to shape good work and social skills are important to address."

Transferable Skills Assessment

Havranek, Grimes, Field, and Sink (1994, pp. 61–62) provide the following definition:

Transferability of Skills is when skilled or semi-skilled work activities done in past work can be used to meet the requirements of other skilled or semi-skilled work activities. Transferability of skills is most probable and meaningful when (a) the same or lesser degree of skill is required, (b) the same or similar tools and machines are used, or (c) the same or similar raw materials, products, services are involved.

Further, Havranek et al. (1994, p. 62) describe transferability as a "general process of identifying traits and skills (as demonstrated through previous jobs) that can be matched to similar trait and skill requirements in other, but similar jobs. The similarity of job matching is obtained primarily through the identification of jobs that exist within the same or similar occupational category and workgroup(s). Transferability is essentially the process of identifying jobs that are consistent with the worker's capabilities, considering that the worker's capacity to perform work may be reduced due to disease or injury."

When a work history exists for an injured worker, the transferability of skills process will rely on past job tasks and activities to create a profile for analysis. When a work history does not exist, a vocational evaluation/assessment process can be used instead. In some cases, work history data can be supplemented with evaluation/assessment results especially when work

history is limited or dated, or when the functional impact of a recent disability is unknown and makes the development of an accurate profile difficult.

This is one of the shortest processes of assessment. In some cases, a file review and an interview with the injured worker is all that is needed. When sufficient education, work history, and disability information is available, contact with the individual may not be required. However, the exclusive use of work history to search for comparable jobs may underestimate job potential in individuals who have worked below their ability levels. In these cases, supplementing job history information with vocational evaluation/assessment results will provide a more accurate picture of individual potential.

Field and Field (1992, pp. vii–viii) and Havranek et al. (1994, pp. 62–63) identify the following seven steps in the transferability of skills process.

Step 1. Identify the jobs in the client's work history.

Step 2. Find the *Dictionary of Occupational Titles Codes* (for the identified jobs).

Step 3. Profile the jobs (on a worksheet using worker traits and other related factors such as *Work Field and Guide for Occupational Exploration Codes*).

Step 4. Create a Pre-Vocational Profile (PVP) (or Unadjusted Vocational Profile, UVP, to represent pre-injury job functioning).

Step 5. Create a Residual Functional Capacity (RFC) Profile (Adjust the PVP using available medical, psychological, and/or vocational data. Use evaluation/assessment data if necessary). The RFC profile reflects the worker's current (residual) level of functional skills and capacities related to work potential.

Step 6. Find similar or related jobs (during the search, stay within the occupational area first, Work Field second, and worker trait RFC profile third).

Step 7. Check local labor market (conduct a job search using the RFC profile for suggested jobs in the relevant labor market).

The process can be done manually or by computer (Cutler & Ramm, 1992; Olson, 1992). The manual process employs the use of job classification documents such as the *Dictionary of Occupational Titles* ("Americans with Disabilities Act of 1990," 1991), *Guide for Occupational Exploration* (U.S. Department of Labor, 1993), and the *Classification of Jobs* (Field & Field, 1992). Pencil-paper profiles such as the VDARE (Vocational Diagnosis and Assessment of Residual Employability) (Sink & Field, 1981), or self-developed forms can be used to create a transferable skills profile and job list (Saxon & Spitznagel, 1995). Computer software is also available to search local and national job banks using RFC profiles (Brown, McDaniel, Couch, & McClanahan, 1994). This process can also be used with job changers who have no disabilities, and who desire to explore job opportunities that are similar to current and past work history. In this case, Step 5, the creation of the RFC profile can be eliminated. The use of transferable skills analysis as an interpretive technique will be covered under the chapter on interpretation.

Conclusion

A prognostic vocational evaluation relies on the systematic, thoughtful, and well-planned use of a variety of techniques. This is particularly true when it is found that evaluation and assessment

instruments do not adequately yield useful information. A dynamic assessment process relies on techniques, such as functional assessment, situational and community-based assessment, curriculum-based assessment, behavioral observation, and interviewing. Depending on the consumer and information needs, techniques can be used in conjunction with a variety of evaluation instruments or as stand-alone methods.

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