



TOOLS OF EVALUATION

SPECIAL ISSUE

2015

VECAP

Vocational Evaluation and Career Assessment Professionals



VEWAA

Advancing the fields of vocational assessment and vocational evaluation, work readiness and adjustment services

**VOCATIONAL EVALUATION
AND CAREER ASSESSMENT PROFESSIONALS JOURNAL**

AND

**VOCATIONAL EVALUATION AND WORK ADJUSTMENT
ASSOCIATION JOURNAL**

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*Vocational Evaluation and Career
Assessment Journal*

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EDITORIAL

The Tools of Vocational Evaluation

The story of the development of this joint issue is reflective of our past, present, and hopefully of our future. Pruitt (1986) noted that VEWAA became a professional division of the National Rehabilitation Association (NRA) in 1967, which is a good milestone date. VECAP was established in 2003 (vecap.org). Both organizations have vocational evaluation as a foundational underpinning and the members use tools in the practice of their profession. Fast forward to the 2011 NRA Conference in Chicago when a chance conversation occurred between Randall McDaniel, incoming Co-Editor of the VEWAA Journal and Steve Sligar, Co-Editor of the VECAP Journal about the possibility of a joint effort between the two organizations. Later, Andrea Nerlich, Co-Editor of the VEWAA Journal, joined the conversation. After more discussion between the editors and their respective boards of directors, a collective decision was made to go forward with a joint journal and select a theme.

A survey of the VECAP members (Ahlers-Schmidt, 2010) indicated a strong interest in information on the tools used by practicing evaluators. In 1972, a national task force had been created to examine the field of vocational evaluation that subsequently published “The Vocational Evaluation Project Final Report” with seven different sections (Crow, 1975). One section, The Tools of the Vocational Evaluator, lists three types of tools: situations (i.e., on-the-job evaluation, work samples, psychometrics), resources (e.g., occupational and client information, job analysis) and applied tools (i.e., interviewing, observing, and reporting). Forty years following that seminal publication, the timing seemed right to select “Tools of Evaluation” as the overall theme of this joint journal. With respective board approvals for this collaboration, the editors of the VEWAA and VECAP journals were off to a good start. As part of examining the Tools of Evaluation, the editors decided this special edition should focus on three areas, i.e. assessment tools, methods, and technology. Around these three focus areas, the editors solicited co-authors to produce two manuscripts for each area.

In the spring of 2014, a joint call for contributors on these topics was issued with an overwhelming response from rehabilitation professionals who wanted to participate in these writing teams. The editors produced a rough outline of each manuscript that was shared with the writing teams and a writing team leader was selected for each manuscript. The writing volunteers were eventually organized into five teams and the writing began. Andrea Nerlich took the lead with Randall McDaniel and Steve Sligar providing assistance during the writing, peer review, and editing processes. Further support was provided by Vanessa Perry, VECAP Journal Managing Editor, who designed the cover and layout, and Nancy Simonds, VECAP Journal Co-Editor, who proofread the special issue. The key to the success of this effort lay with the teams listed below.

- Chad Betters and Steve Sligar contribute the results from their research on tools used by vocational evaluators in state vocational rehabilitation programs.
- Lee Ann Rawlins-Alderman, Robin E. Dock, Megon Steele, and Leslie Wofford

provide a thorough discussion of current vocational assessment methods.

- Bryan S. Austin, Carl W. Sabo, Amanda K. McCarthy, Matthew E. Sprong, and Lauren N. Noble describe interviewing as an assessment tool.
- Frances Smith, Pamela Leconte, William E. Garner, and Veronica I. Umeasiegbu provide an overview of current technology used in vocational evaluation.
- Randall S. McDaniel, Scott Beveridge, Christian Chan, and Jeremy Cushen review potential future technology and its probable impact on vocational evaluation.

The editors of this first combined VEWAA and VECAP journal are proud of this collaborative effort and similar to the 1972 task force—a diverse group of vocational evaluators from around the country pulled together to discuss tools for evaluation.

Andrea Nerlich
Co-Editor, VEWAA

Randall S. McDaniel
Co-Editor, VEWAA

Steven R. Sligar
Co-Editor, VECAP

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**VOCATIONAL EVALUATION AND WORK ADJUSTMENT
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TOOLS OF EVALUATION, SPECIAL ISSUE

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The Tools of the Trade: A National Study on Tool Utilization in Vocational Evaluation

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Abstract

The results from a national study are presented. Key employees from 14 state vocational rehabilitation programs identified tools used by vocational evaluators in their day-to-day practice. There were 433 individual tools listed with 197 (45.5%) psychometric tests representing eight constructs: achievement, aptitude, career planning/development, intelligence, personality, vocational interest, work values, and “other.” There were 236 (54.5%) work samples listed (14 complete commercial work sampling systems, 59 individual samples from commercial systems, and 153 evaluator-created work samples). Listings of the most frequently reported tools are provided. Results indicate that tools are similar to those described in three seminal works, warn of the danger of defining the field by its tools, and identify potential ethical violations.

Keywords: Vocational Evaluator, Evaluation Tools, Work Sampling, Psychometric Testing

The Tools of the Trade: A National Study on Vocational Evaluation Tool Utilization

Benjamin Franklin stated: *The best investment is in the tools of one's own trade.* Vocational evaluators use a variety of tools to accomplish their job, which is to empower clients to choose a career. Three seminal works on vocational evaluation contain descriptions of tools. The Vocational Evaluation and Work Adjustment (VEWAA) Project (Crow, 1975) participants stated there are three types of tools: situations (i.e., on-the-job evaluations,

work samples, and psychometrics); resource (i.e., occupational and client information, job analysis, and audio-visual); and applied (i.e., interviewing, observing, and reporting). Pruitt (1986) listed ten components of a vocational evaluation: “occupational information, work samples, situational assessment, community based assessment, psychological testing, special projects, observation, A-V material, client information, feedback sessions, and interviewing” (p. 22). Pruitt also emphasized the importance of work samples and using actual tools from the job. Thomas (1999)

described three categories of tools: instruments (i.e., tests and work samples); techniques (e.g., situational or community-based assessments); and strategies (i.e., accommodations, modifications, and learning style assessment to identify supports). This study sought to identify tools used by vocational evaluators in their day-to-day practice.

Methods

This analysis is a component of a larger benchmarking study focusing on employment conditions for vocational evaluators working within the state vocational rehabilitation (VR) system (Sligar & Betters, 2012). A 32-item survey was created and data collected from June 2010 to April 2011. The specific questions related to this analysis were “Is there a list of tools (e.g., tests, work samples, specific techniques) used by vocational evaluators? If yes, will you share it with us?” The survey was administered by research assistants (RAs) who were trained to follow a protocol of how to identify participants, record responses, and follow-up to obtain lists of tools and other information.

The target sample was employees of the 64 general, blind, or combined VR programs in the United States. In order to collect statewide information, purposeful sampling was used. An incumbent with statewide responsibilities for the VE program was sought in each state’s central office. This position was typically a program specialist. The RA recorded the VR contact person’s information and responses in Survey Monkey, an online survey tool. Descriptive statistics were used in the data analysis. The study has Institutional Review Board approval through East Carolina University.

Results

As indicated in the original benchmarking study (Sligar & Betters, 2012), 63 of the 64 state vocational rehabilitation programs provided data. Of the 63 reporting programs, 26 programs employ vocational evaluators. When specifically looking at tools used by vocational evaluators working within the state vocational rehabilitation system, 24 programs maintain a listing of tools that their evaluators utilize when working with clients. When asked, 14 (12 general/combined and 2 blind services) of the 24 programs shared their list.

Upon combining the lists for all 14 programs, there were 433 individual tools identified. The 433 tools consisted of 197 (45.5%) psychometric tests that included 171 from various constructs: achievement, aptitude, career planning/development, intelligence, personality, vocational interest, and work values. Another 26 psychometric tests were also identified, which were grouped as “other” given they did not fall into the previously recognized constructs. There were also 236 (54.5%) work samples provided, including 14 complete commercial work sampling systems, 59 individual samples from commercial systems, and 153 evaluator-created work samples, which can also be considered specific task-related samples. The following data represents, by construct, the most frequently used tools and the number of the 14 reporting state vocational rehabilitation programs utilizing the tools.

Achievement

Achievement testing measures clients’ knowledge from formal learning and life experiences (Power, 2013, p. 269). A total of 32 achievement instruments were

identified, with top five by frequency indicated in Table 1. Additional achievement tools that were also mentioned include the Woodcock-Johnson (three programs), the Nelson Denny Reading Test (two programs), and the Gates-MacGinitie Reading Test (two programs).

Aptitude

Aptitude testing assesses “individuals’ skills and abilities” (Parker, 2008, p. 123). The 14 programs listed 41 measures of aptitude, with the top five by frequency provided in Table 1. Notable aptitude instruments also included the Minnesota Ability Test Battery (four programs), the Purdue Pegboard (four programs), the Crawford Small Parts Dexterity Test (three programs), and the SRA Test of Mechanical Concepts (two programs). Although the Purdue Pegboard is also considered by some vocational evaluators as a work sample, it was reported as an aptitude tool by the respondents, and therefore was included in this section of the analysis.

Career Planning/Development

Formal career assessment uses psychometric instruments to help a client develop an inventory of “personal and environmental characteristics” that facilitate career choice (Power, 2011, pp. 207–208). A total of 17 tools were mentioned, with the top four by frequency provided in Table 1. Additional career planning/development tools that were included were the Career Maturity Inventory, the Student Styles Questionnaire, the College Survival and Success Scales, and the Career Development Inventory, each utilized by one program.

Intelligence

Intelligence is the capacity to utilize mental abilities, such as memory, abstract reasoning, and analogic reasoning, in order to solve novel problems (Power, 2013, p. 193). There were 14 instruments used by the programs, including the top four by frequency provided in Table 1. Other intelligence tools included the Kaufman Brief Intelligence Test, the Slosson Intelligence Test, and The Test of Nonverbal Intelligence, each utilized by one program.

Personality

Personality assessment is used to quantify “influences that explain a person’s behavior in a specific situation” (Krug, 2008, p. 153). Nine personality measures were reported with the top four by frequency provided in Table 1. The Taylor-Johnson Temperament Analysis and the Tennessee Self-Concept Scale were both used by one program.

Vocational Interest

Vocational interest indicates a “preference for work environments and outcomes” (O*Net, n.d.a) and the use of inventories empowers clients to make informed career choices (Fouad, Smothers, Kantamneni, & Guillen, 2008, p. 216). The 14 programs listed 43 vocational interest tools, with the top five by frequency provided in Table 1. Other notable measures included the Picture Interest Survey (four programs), the Geist Picture Interest Inventory (two programs), the Strong Interest Inventory (one program), and the Campbell Interest and Skill Survey (one program).

Work Values

Work values are “global aspects of work that are important to a person’s satisfaction” (O*Net, n.d.b) and these instruments assess the work values construct. There were 15 instruments shared,

with the top five by frequency provided in Table 1. Additional tools used to measure work values included the World of Work Inventory, Work Values, Personal Audit, and the Entrepreneurial Readiness Inventory, each used by one program.

Table 1

Top Five Psychometric Tools by Frequency for Vocational Evaluation Constructs

CONSTRUCTS	TOOLS	# OF PROGRAMS
Achievement	Wide Range Achievement Test (WRAT 3/WRAT 4)	3/7
	SRA Arithmetic/Reading/Verbal Forms	5/5/2
	Test of Adult Basic Education	7
	Adult Basic Learning Examination	5
	Wonderlic Basic Skills Test	4
Aptitude	Career Ability Placement Survey	7
	Career Scope	6
	Computer Operator/Programmer Aptitude Battery	5
	Differential Aptitude Test	5
	Revised Minnesota Paper Form Board Test Series	5
Career Planning*	Barriers to Employment Success Inventory	6
	Asset Career Skills	3
	Career Exploration Inventory	3
	Career Thoughts Inventory	2
Intelligence*	Beta III	6
	Raven’s Progressive Matrices	3
	MECA Emotional Intelligence Profile	2
	Shipley Institute of Living Scale	2
Personality*	Myers Briggs Type Indicator	5
	Hogan Personality Inventory	2
	Holland Code Exercise	2
	16 Personality Factors	2

Table 1 (continued)

Top Five Psychometric Tools by Frequency for Vocational Evaluation Constructs

CONSTRUCTS	TOOLS	# OF PROGRAMS
Vocational Interest	Self-Directed Search	12
	Career Assessment Inventory	9
	Becker Reading-Free Interest Inventory	8
	Career Occupational Preference System	8
	Wide Range of Interest Opinion Test 2	6
Work Values	Career Orientation Preference Evaluation Survey	6
	Work Motivation Scale	3
	Becker Work Adjustment	2
	Work Orientation and Values Survey	2
	Work Preference Match	2

*These constructs had fewer than five tools with a greater than one program frequency.

“Other”

Instruments categorized into “other” include psychometric instruments that did not fit with the previously mentioned constructs. Overall, the instruments within this group served as various measures of a client’s functionality. Although there were 26 instruments mentioned, the majority of the tools were used by only one program each. Instruments that were used by more than one program are included in Table 2.

Work Samples

Work samples are “generalized work like tasks that are administered under specific instructions” (Power, 2011, p. 246) that measure a person’s work capabilities (Power, 2013, p. 275). In the collected tool

data, work sampling clearly separated into two different categories: commercial work sample systems and specific work samples from these systems, and evaluator-created work samples. Among the 14 state vocational rehabilitation programs, 14 commercial systems were reported, with the top eight systems (those used by more than one program) provided in Table 3. Commercial work samples were also reported as individual measures as well, since a single component (e.g., Valpar Component Work Sample [VCWS] #9) may be used by a program, but not the entire VCWS system. When looking at the data, 59 individual samples from various commercial work sampling systems were reported by the 14 programs.

Table 2
 “Other” Psychometric Tools by Frequency

TOOLS	# OF PROGRAMS
Transition to Work Inventory	3
Daily Living Skills Inventory	2
Emotional Behavior Checklist	2
Kenexa Prove It!	2
OASYS*	2
Offender Reintegration Scale	2

*Although not a psychometric test, it was reported as such by two programs.

Discussion

Table 3
 Commercial Work Sampling Systems by Frequency

SYSTEMS	# OF PROGRAMS
Valpar CWS	7
JEVS	3
Minnesota Clerical Test	3
Aviator 3000	2
Gilbertson Basic Accounting Work Sample	2
McCarron-Dial	2
Tower Clerical Series	2
VITAS	2

Evaluator-Created Work Samples

The 14 programs also reported 153 evaluator-created work samples, which appeared to serve as specific task-related measures. The tasks varied from basic skills (measuring) to simple tasks (e.g., dusting, mopping, Bissell [vacuuming], silverware wrapping) to semi-skilled jobs (e.g., bike repair, oil/lubrication, small engine assembly).

The discussion focuses on three areas. First is a comparison of tools used with the seminal works. All three authors (Crow, 1975; Pruitt, 1986; Thomas, 1999) included psychometric tests and work samples as tools used in vocational evaluation. The results indicate this is still the case today with a close split between work samples (54.5%) and psychometric tests (45.5%). Second is the continuing need to be aware of the profession being identified by its tools (Thirtieth Institute on Rehabilitation Issues [30th IRI], 2003). The IRI scholars cautioned that using one approach or method “...can be quite restrictive, especially for those who are severely disabled or represent an ethnic minority” (p. 233). Despite the variety of tests and work samples listed in the survey, the respondents did not report other tools, such as measures of physical capacity or situational assessment.

The third area has two parts that fall under the *Guidelines for Professional Conduct for the Professional Vocational Evaluator* (RPVE; Registry of Professional Vocational Evaluators, 2011). First is that the tests and work samples used are within the limits of competence (p. 4), which means the vocational evaluators must have the educational background to use tests and work samples. Evaluators meet this

requirement though additional training may be required to enhance the evaluator's skills. Additionally, evaluators meet the vendor's minimal requirements to purchase various tests. The second part, use and selection of the instruments (p. 4), is of greater concern especially in regards to norms and standardization. The evaluator is in a caveat emptor situation with many of the tests. Not only must the evaluator determine if the test measures the construct needed but must factor such characteristics as disability and ethnicity into the decision to select. Some tests have different editions, such as the Wide Range Achievement Test 3 and 4 (Wilkinson & Robertson, 2006) and both the newer and older editions are apparently in use. Other instruments, such as the Crawford Small Parts Dexterity Test that was discontinued in April 2011 (Pearson Canada, 2014), are reported as still in use. The RPVE Guidelines (2011) indicate that using outdated tests is unethical.

Even more disconcerting are the commercial work sample systems. The respondents listed the Jewish Employment and Vocational Services Work Samples or JEVS, which is no longer available. The JEVS became the Vocational Interest Temperament, and Aptitude Scale (VITAS) that is also no longer supported by the vendor (Vocational Research Institute, 2011). Valpar International only supports VCS #9 Whole Body Range of Motion (Valpar International, 2014) and the other VCWS are still available from BASES of Virginia (<http://www.basesofva.com/about/>). Valpar has developed new products such as the Joule, a functional capacity evaluation, and Pro3000, a modular assessment, database, and reporting system (<http://www.valparint.com/>). Simwork Systems has Sim Work Samples and the ERGOS II Work Simulator System (<http://www.simwork.com/Home.aspx>). None of the new products were mentioned.

The continued use of older systems when newer technology is available impedes delivery of services that are state of the art.

Limitations

This study has several limitations. First, this study's goal was to benchmark utilized tools within state vocational rehabilitation programs, and therefore can only depict the currently used tools at the time of data collection. Second, data was collected via a telephonic survey, which inherently has potential concerns regarding internal validity. Third, there is an assumption that the individual from each state vocational rehabilitation program who provided the data did indeed provide correct information. Although highly unlikely, there is a possibility that a listing of tools that are currently not utilized was accidentally sent rather than a current listing.

Finally, delimitations in the study must be noted. The data was delimited to state vocational rehabilitation programs that were willing to participate. One state chose to not participate. No data from community-based or private sector rehabilitation programs was collected, and therefore tool utilization within these two arenas is not addressed.

Future Research

Additional future research on vocational evaluation tool utilization is warranted. While a listing of tools was generated, the frequency of each tool's use would reveal more of the actual day-to-day practices of the vocational evaluator. Tool availability also needs to be studied to determine if a common protocol can be developed. Community-based and private sector vocational evaluation needs to be examined in order to see what differences, if

any, exist compared to state vocational rehabilitation programs. As indicated in the article for the larger study conducted by Sligar & Betters (2012), an exact replication of this study would be advantageous, as changes in tool utilization could be noted given the benchmark established with this data. Future research should also examine how variance in tool utilization among state vocational rehabilitation programs may or may not influence vocational rehabilitation services, including any impact on successful closures. What role does psychometric testing vs. work sampling play in promoting successful vocational outcomes? How do evaluator-created work samples assist in the process?

Conclusions

There are two conclusions from this study: one is troubling and the other is positive. The identification and implied use of older editions or even discontinued tests and work samples is troubling. This practice may be more reflective of current decreased funding levels that leads vocational evaluators to use older, available tools, rather than a conscious decision not to add new items to the inventory. Regardless, the practice of using potentially out-of-date tools is not only unethical but also limiting to the collection of accurate data about clients' interests, aptitudes, and the other constructs described in this paper. Vocational evaluators must continue in their role as educators (Thirtieth Institute on Rehabilitation Issues, 2003) in order to advocate for the necessary tools to continue to provide excellent services.

The second conclusion is that vocational evaluators have a variety of tools. There were 433 identified by 14 programs. If the other programs had shared their lists, then more tools would probably have been

identified. Considering the 433 tools, vocational evaluators are able to use a variety of different tools to collect data and this variance adds to the usability and accuracy of the results (Thirtieth Institute on Rehabilitation Issues, 2003).

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Steven R. Sligar, EdD, CVE, PVE, serves as an Associate Professor and Coordinator of the Graduate Certificate in Vocational Evaluation in the Department of Addictions and Rehabilitation Studies at East Carolina University. He has a master's in Rehabilitation and Special Education with a specialization in vocational evaluation from Auburn University and doctorate in Adult Education and Human Resource Development from Northern Illinois University. Presently, he serves as a subject matter expert for a national grant with Ohio State University to develop career tests for persons who are deaf and use American Sign Language. He is also the co-editor of the Vocational Evaluation and Career Assessment Professionals Journal and President of the NC chapter of the Vocational Evaluation and Work Adjustment Association.

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Current Vocational Assessment Methods

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Abstract

The vocational evaluation process is an organized and individualized approach for accurately predicting the consumers' vocational functioning potential, developing meaningful vocational objectives, and ultimately, finding successful employment. This process is a multifactorial, individualized assessment with an ultimate goal of meeting the specific needs of the unique consumer. While a variety of vocational evaluation methods exists, each method and its related assessment tools is selected based on the specific needs, and tailored to answer the referral questions for the identified consumer. The appropriateness of the methods used in each unique evaluation will depend on the functional strengths and limitations, past experiences, educational background, and specific needs of the consumer. Psychometric, work sampling, informal, and observational assessment methods are frequently used within the vocational evaluation process for different purposes and in a variety of situations. The authors discuss the strengths and limitations of current vocational assessment methods, and provide examples of application to the field.

Keywords: Vocational Evaluation, Testing, Work Samples

Current Vocational Assessment Methods

The vocational evaluation process involves the use of multiple methods of gathering information that will assist the consumer in efficient vocational decision-making (Frey, 1984; Havranek, Field, & Grimes, 2005). This process is an ongoing activity that leads to a successful plan for employment. The vocational evaluation process is an organized and individualized approach for accurately predicting the

consumers' vocational functioning potential, developing meaningful vocational objectives, and ultimately, successfully finding employment. Referrals for vocational evaluations can span from asking about the skills and aptitudes of a consumer for a particular job to identifying specific interests within the wide world of work.

The vocational evaluation process is a multifactorial, individualized assessment to meet the specific needs of the unique consumer. While a variety of vocational evaluation methods exists, each method and

its related assessment tools is selected based on the specific needs and tailored to answer the referral questions for the identified consumer. The appropriateness of the methods used in each unique evaluation will depend on the functional strengths and limitations, past experiences, educational background, and specific needs of the consumer. Psychometric instruments, work sampling, informal, and observational assessment methods are frequently used within the vocational evaluation process for different purposes and in a variety of situations. Within this article the authors discuss the strengths and limitations of vocational evaluation methods, including examples of application in the field.

Psychometric Assessment in the Vocational Evaluation Process

Psychometric assessment is one method within the multidisciplinary, as well as interdisciplinary, vocational evaluation process (Flansburg, 2011; Havranek et al., 2005; Leconte, 1994). Psychometric assessment includes a set of formal, structured measures that have been scientifically researched and tested to ensure that they are fair, reliable, and valid. They are administered and scored in a standardized manner, allowing for comparison to a norm group of similar populations who have completed the measures in the past. Since objectivity is key to using these assessments, a good psychometric measure provides fair and accurate results each time it is given. Psychometric assessment commonly includes personality profiles, reasoning tests, motivation questionnaires, and ability assessments to determine disability status, vocational rehabilitation services eligibility, and vocational needs (Condon, Gandolfo, Brugnaro, Thomas, & Donnelly, 2004; Flansburg, 2011; Havranek et al., 2005).

Fundamentals of Psychometric Assessments

Within the vocational evaluation process, the most common psychometric assessments cover the categories of intelligence, aptitude, educational achievement, personality, and temperament. Psychometric assessment typically precedes other types of assessment methods to satisfy the need for collection of information relevant to eligibility for vocational rehabilitation (VR) services, disability status, basic academic achievement levels, and functional capacity (Havranek et al., 2005). Due to the education, training, and supervised experience required for most psychometric assessment measures, a master's prepared rehabilitation counselor or vocational evaluator may not have the credentials to administer, score, and interpret these measures (Power, 2013; Robinson & Drew, 2014). However, the rehabilitation counselor and vocational evaluator must be competent in understanding this data to be able to integrate it with the data obtained by other assessment methods in the vocational evaluation process. If a vocational evaluator is unsure whether his or her credentials meet the national requirements for administering psychometric assessments, he or she can review the requirements available at the American Psychological Association's web page (www.apa.org) or contact the test publisher.

Frequently, psychometric assessment measures are the only way of obtaining certain kinds of information. Basic reading, spelling, writing, and math skills are commonly assessed through psychometric assessment measures. The legal definition of some disabilities varies by state and is based on IQ scores from specific psychometric measures that are accepted as incrementally

valid data. Eligibility determination for some state VR agencies requires that information be obtained through tests that are considered psychometric measures (Campbell & Fox, 2002). Although many traits measured by a psychometric instrument are abstract in nature (e.g., reasoning, temperament, emotional functioning), these instruments often identify vocational assets and limitations that are not determined by other assessment methods. Psychometric assessment measures are commonly used to clarify a consumer's functional capacity for worker traits, such as general education achievement (e.g., verbal reasoning, math computation, reading, numerical reasoning, and written language), aptitude for general learning ability, verbal traits, and numerical processing (Havranek et al., 2005; Power, 2013).

Psychometric Assessment Limitations

One criticism of psychometric assessment use is that it is removed from assessing ability for jobs and a poor predictor of employment success for persons with certain disabilities (Anthony & Jansen, 1984; Brown, McDaniel, & King, 1995). These tests often measure cognitive abilities rather than the psychomotor abilities and work behaviors that are more closely related to skills used on the job (Geisinger, Boodoo, & Noble, 2002). Frequently, psychometric measures have not included individuals with disabilities in the normative sample population, and individuals with disabilities are being compared to peers without disabilities. Psychometric assessment measures are also considered ineffective in evaluating people with disabilities who have low literacy levels (Power, 2013).

Jobs are often ruled out for individuals with disabilities within the psychometric assessment process due to comparison with established or normed

performance levels. This use of cut-off scores can unfairly restrict vocational options for many individuals with disabilities (Choubon, Stewart, & McGrew, 1991; Lightner, 1994). Thomas (1994) noted that the use of standardized tests may offer questionable validity for many individuals with disabilities due to low reading levels, test anxiety, accommodation needs, and lack of concreteness, which was not considered with the normative sample of comparison. Psychometric assessment measures may be discriminatory and may actually screen out individuals with disabilities (Lightner, 1994).

Although several psychometric measures offer alternative administration guidelines for individuals with certain disabilities, the premise behind the psychometric assessment process (standardization, reliability, validity) often presents a significant disadvantage to the vocational evaluator (Geisinger et al., 2002). The standardized administration of psychometric assessment measures is frequently violated for individuals with disabilities when modifications and/or accommodations are applied during the assessment process (Campbell & Fox, 2002). Modifications or accommodations influence the normed comparison and interpretation of many psychometric assessment measures, yet valuable data may be obtained about the consumer (Geisinger et al., 2002; Robinson & Drew, 2014; Warschausky, et al., 2011). However, Warschausky and colleagues (2011) identified measurement stability between select standard and modified versions of psychometric measures when the source of the modification and/or accommodation involved the use of assistive technology with children ages 6 to 12 who had cerebral palsy.

Section Conclusions

Psychometric assessment, within the vocational evaluation process, is commonly used to gather specific information about the consumer as the results relate to his or her employment potential. For example, if the consumer's cognitive abilities and academic achievement are below average based on psychometric assessment measures, the rehabilitation counselor may not want to consider employment that requires a 4-year college degree for this consumer. Although psychometric measures are frequently used to determine eligibility for VR services (e.g., psychological evaluations), these assessment measures may be modified or adapted for the purpose of gaining useful information, rather than mere comparison with a normative sample. The use of psychometric assessments provides the consumer and the rehabilitation professional with vocationally relevant information to facilitate more accurate vocational planning, decision-making, and career development.

Work Sampling in the Vocational Evaluation Process

In addition to more traditional testing methods, many professionals include work samples in their overall rehabilitation evaluation and decision-making processes. One of the best ways to assess an individual's job potential is to have the person complete tasks he or she will be asked to perform in a potential work environment. Work samples are typically used to assess current skills and abilities. Based on the premise of behavioral consistency—where the way a person acts in a simulated situation is assumed to be the same as he or she might perform on the job—work samples can also be used to analyze the ability to learn new skills. Work sampling is seen as a fact finding

mechanism, utilizing instantaneous and unbiased observations at random times. These pieces of work are performed to make inferences surrounding the functional capacity of the individual in the areas of vocational aptitude, worker characteristics, and vocational interests (Corthell & Griswold, 1987; Nadolsky, 1981). The main objective of work sampling is to determine productivity by using the proportion of activities observed to estimate the actual activities performed during working hours, while assessing job skills potential and work related behaviors. Further, work samples include essential functions of the jobs that they represent, which assists the evaluator in identifying a consumer's potential for a specific type of job or area of work.

Historically, work sampling—also referred to as activity sampling or ratio delay study—reflects a work measurement technique, with early proponents such as L. H. C. Tippett and R. L. Morrow (Pruitt, 1986). Snap reading method was the first term used, referring to its most important feature of taking activity snapshots. In 1952, the work sampling term was first used by C. L. Brisley, where it originated within the industrial engineering and management fields. Later, the method was extended to the health care industry and other areas. Today, work sampling is one of the most appreciated work measurement methods because of the speed, low cost, limited training requirement, and accuracy it provides in the vocational evaluation process.

To determine strategically the suitability of developing work samples for a given job area, the vocational evaluator must consider the labor market the sample will assess, as well as whether or not the skills required for the job are possessed by the consumer. Each work sample should focus on an array of activities and components of the actual job setting. Work activities,

materials, tools, layout, and physical conditions of the work sample must resemble the actual jobs as closely as possible. Further, the work sample should be developed for maximum applicability and be strong in content validity. The single most important criterion for a good work sample is content validity, and this valid approach incorporates job analysis, task analysis, standardization of instructions, layout, and scoring (Power, 2013).

Types of Work Samples

There are several types of work samples. Some applied work samples are samples of work that have been taken in entirety from an industry or business and brought into the evaluation unit for the purpose of determining an individual's interests, skills, and abilities to perform a particular job. These jobs are noted as replicating a segment of essential work factors emerging from the community (Power, 2013; Pruitt, 1986). Other work samples include both single and cluster traits. A single trait sample is seen as assessing a single work trait or characteristic that may have relevance to a specific job or many jobs, but is intended to assess a single trait in isolation. In contrast, cluster traits contain a number of traits inherent to a job and/or a variety of jobs. These types of traits, based on an analysis of occupational grouping and traits necessary for successful performance, are intended to assess the consumer's potential to perform various jobs and are assessed inclusively. As noted by Power (2013), the differences among these types are a matter of emphasis with all disclosing specific abilities, with results emerging from a series of work samples combined to inform both the evaluator and the consumer of the overall profile of performance.

Work Sampling Advantages

There are several major advantages of the work sample method. This method is the closest approximation of the reality of work that can be achieved in the evaluation setting. It can provide exposure to and experiences in a wide variety of jobs while not only assessing skills, but also revealing aspects of the consumer's personality, interests, and attitudes toward the world of work. Further, performance of work-related activities and concrete tasks can provide direct feedback to both the evaluator and the consumer regarding issues of worker performance, as performance identical to work is required in a work sample system. Additionally, it can be advantageous when an evaluatee's motivation is considered in relation to performance standards of the actual job, with the individual responding more naturally to work-related than abstract-related tasks. Finally, as noted by Power (2013), the use of work sampling can eliminate cultural, educational, and language barriers in the assessment of overall vocational potential, as individuals realize that they are working on practical tasks that are directly related to the vocational planning process.

Work Sampling Limitations

A criticism of work samples is that they lack a theoretical basis and are related to an empiricist and Western view of the individual and work (Searle, 2003). Work samples must be carefully designed to test specific items, as the lack of standardization may result in dissimilar results in diverse environments. Further, problems may emerge when more attention is paid to face validity (i.e., how relevant a test appears) than content validity (i.e., how accurately a test measures the skill it is designed to measure) in the evaluation process. In any

concern for fairness, work samples are of particular value as they have both higher face validity and greater fairness for all participants (Lievens & Klimosky, 2001). Further, there exists a limited comparison between the environment in industry and the work sample setting. This comparison could be due to rapid changes in technology that may make work samples inapplicable or irrelevant based on the current workforce (Enders, 2002). Finally, work sampling is based on a quantitative measurement. It can offer qualitative insights, like the quality of work, individual's strengths and weaknesses, or distinguishing between aptitude and achievement, therefore making inferences possible concerning the overall total experience of the individual throughout the evaluation process.

Section Conclusions

Traditionally, work samples have been used when traditional paper-and-pencil tests or psychometric assessments were not viable options in the evaluation process. Because of the cost and time attributes, work sampling and other related methods have been used mainly when evaluating physical tasks. More recent research (e.g., Hagner, 2010; Peer & Tenhula, 2010; Thirtieth Institute on Rehabilitation Issues [30th IRI], 2003) looks at the possibility to encompass, also, the application of these methods to measure behavioral, cognitive, and affective aspects of work for individuals with disabilities. Assessing the qualitative aspects of processes, such as communication skills, problem solving, professional behavior, or ethics, often requires the examination of behavior from multiple cognitive and affective levels. This application of work sampling in assessing these aspects allows evaluators the ability to explore more broadly an individual's contribution to the evaluation outcome, while fully taking into

account the complexities of the multiple layers of disability.

Informal Assessments in the Vocational Evaluation Process

Informal assessments are those which are less dependent on standardized development and structure (Power, 2011). Informal assessments include, but are not limited to, observations, interviewing sessions, self-report inventories, and even preference questionnaires. Establishing rapport between an evaluator and a consumer is a significant part of the overall evaluation process. Depending on how the evaluatee feels about standardized testing, the evaluator may be perceived as intimidating, resulting in a rocky foundation for the entire process. Informal assessments are often used as techniques to establish rapport and create a relaxed, but effective environment.

An experience most people share is test anxiety, and this issue is prominent in the vocational evaluation process, as the individual may look at the process as another area in which to test, perform poorly, and be labeled (30th IRI, 2003). In some instances the vocational evaluation process has been viewed as lengthy. This process, for some, may seem time-consuming due to differing situations. These situations may include long waiting lists for evaluations, lack of availability of a qualified evaluator, lack of the presence of an evaluator in the area, or any number of other situations that cause this process to be time-consuming. No matter the elapsed timeframe, an effective and individualistic assessment approach can save the evaluator time, as well as change the person's perception of the entire process, therefore making the overall process well worth the wait.

Fundamentals of Informal Vocational Assessments

Building rapport in the evaluation process is critical in order to understand fully the impact of the overall evaluation on the individual with disabilities. Though the evaluatee may appear to be comfortable and have a well-rounded understanding of the services she or he is receiving (e.g., needs and preferences), the evaluatee may often share in the context of the evaluation feelings and/or concerns that may not have been voiced during the initial intake interview. Often, evaluatees are reluctant to voice concerns due to their personal bias regarding the process, or a concern over losing this service in the future. When considering these issues related to consumer hesitancy in the assessment process, utilizing an informal assessment approach may be one of the ways the professional can bring underlying issues to the surface in order for them to be addressed fully in the overall assessment process. Keeping in mind that there are multiple ways to assess a consumer using informal techniques, the use of multiple informal methods may provide the evaluator qualitative information regarding consumer preferences in order to understand more fully transferable skills and abilities, and to assist the individual in the selection of his or her overall vocational goals. Once these underlying issues or experiences emerge, the evaluator and the evaluatee can address and use these together as they move forward in the overall evaluation process.

Examples of Informal Assessments

There are numerous examples of informal assessments. These range from improvised tasks to alternative ways of demonstrating competency. The latter is often referenced as authentic assessment and

includes techniques such as graphic organizers, performance products, and live performances. (For more information and discussion of these tools see Scott, 2000.) Following are two tools used in evaluation: one is interviewing (see article by Austin et al., in this Special Issue) and the other is an example of an emerging technique.

Interviews. The initial interview is a foundational area of an evaluator's training, and becomes the cornerstone of the assessment process (Power, 2013). Intake interviews are the first step in determining a starting point from which to clarify known information, discover new information, and begin the overall process of acknowledging individual preference. By presenting the individual with the opportunity to voice his or her concerns and preferences, the evaluator demonstrates to the individual that the process facilitates empowerment to make informed decisions regarding future vocational goals. Further, this type of assessment allows the evaluator to obtain descriptive data on the individual's emotional, behavioral, and social issues, thus providing further insight into the individual's motivations regarding rehabilitation planning and ultimate path in life.

SWOT analysis. Another area that could be used to support individuals to resolve their concerns are work trials, also referred to as the Strengths, Weaknesses, Opportunities, and Threats, or "SWOT" analysis (see http://www.mindtools.com/pages/article/newTMC_05_1.htm for an example). Strengths (S) and Weaknesses (W) are considered to be internal factors over which individuals have some measure of control. Further, Opportunities (O) and Threats (T) are considered to be external factors over which an individual may have little or no control. Using this method could build on the consumer-evaluator/counselor

relationship by providing one-on-one attention to the individual, which actively demonstrates evaluator involvement in working towards a successful vocational outcome. A SWOT analysis can be an important informal tool for understanding and analyzing the thoughts and environment of the individual. Its key purpose is to identify the strategies that will create an understanding of the resources, and capabilities, in the consumer's personal environment. Therefore, SWOT serves as a foundation for evaluating the internal potential and limitations, and the probable/likely opportunities and threats from the external environment. It provides a context and view of positive and negative factors inside and outside of the individual that could affect successful vocation outcomes. An understanding of the individual's environment assists the evaluator in forecasting and predicting trends, and demonstrates the overarching need to include the evaluatee at every level in the vocational evaluation and decision-making process.

Informal Vocational Assessment Advantages

When informal assessments are tailored to a consumer's functional needs, strengths, and preferences, the ultimate goals of vocational evaluation may be enhanced. Vocational assessment has often depended principally on aptitude testing, job analysis, work sample techniques, and systematic use of behavioral observations (30th IRI, 2003).

Informal assessments can assist in establishing evaluator-consumer rapport, but what makes this possible are the true advantages of informal assessments (e.g., lower consumer test anxiety, more relaxed administration). An evaluator must continue to seek and find informal methods of

assessment that will be effective in evaluating all types of individuals with disabilities. With the use of informal methods, the evaluator will be able to obtain needed information, and can demonstrate to the consumer that this evaluation process can be flexible but structured at the same time (30th IRI, 2003). Using this structure a consumer has the opportunity to disclose information and promote openness in the overall evaluation process.

Informal Vocational Assessment Limitations

Disadvantages of informal assessments center on two concerns. The first concern emerges in the form of non-standardized assessment forms and techniques, which in turn allow information to be subjectively interpreted. Standards are put in place to ensure structured rules and boundaries for administering, scoring, and interpreting of assessments. Assessments deemed informal are not viewed as having consistent measures that can be validated. Therefore, concerns emerge surrounding the utility of the results. The second area surrounds issues of the interpretation of the assessment. Informal assessments are seen as being subjective, and are often criticized because results may be erroneously identified as "factual" data. Subjective information or writing is based on personal opinions, interpretations, points of view, emotions, and judgment. As noted by Power (2013), the interpretation of the assessment information as the evaluator's personal reaction to the consumer's evaluation experience opens the evaluation to criticism, and can make this type of assessment ill-suited for the overall evaluation.

Section Conclusions

By breaking from the norm of standardized assessments, evaluators have the opportunity to explore skills and abilities in a different way with evaluatees who are trying to discover their transferable skills, especially if they are trying to return to the world of work. The evaluator must support the consumer's informal self-expression and encourage understanding that evaluation is not only about tests, but also personal experiences. By exploring informal assessments the richness of the individuals experience begins to emerge, and true understanding of skills and abilities from the consumer's perspective may emerge in the process. By having a holistic view of the individual through the utilization of the informal process, the evaluator will have the capability to match skills and abilities more fully, thereby encouraging consumers to maximize their rehabilitation potential and attain their highest level of functioning.

Community-Based Vocational Assessment Methods

Vocational evaluation is distinguished from other forms of evaluation by the presence of real or simulated work activities (Dowd, 1993). As support for inclusion of all groups, an emphasis on offering these activities within the community, rather than behind the walls of vocational rehabilitation facilities, is increasing. Community-based vocational assessment methods afford evaluators a view of consumers in real-world situations and rely on keen observations made during those situations. The quality of the documentation of these observations is critical, as it must later be interpreted and used for vocational planning. Community-based methods may include the observation and recording of actual or simulated work activities, as with situational assessments, on-the-job evaluations, or job try-outs. Also,

they may include activities of daily living that can be related to work, as is found with the process of Discovery (Callahan, n.d.a), discussed later in this article. Common across all community-based methods is the element of individualization. The key in this process of individualization is considering the consumer's unique needs, as well as the systematic approach to gathering and documenting the objective observations, and interpreting their relevance to future work activities.

Basics of Observation and Recording

Community-based activities during vocational evaluation allow the consumer to be assessed authentically during tasks relevant to work in settings that most closely resemble real life (Nerlich, 2012). Observation and documentation of a consumer's vocational behaviors and performance should be systematic and deliberate. The process should start with careful consideration of the vocational evaluation referral questions and information already gathered regarding the consumer (Pruitt, 1986). This consideration will affect the type of environments and tasks that are chosen for assessment. For example, a referral inquiring about the appropriateness of a skilled occupation for an individual with demonstrated average range academic skills would require a different approach than one seeking recommendations regarding supported employment options for an individual with complex layers of disability. Thorough understanding of the individual consumer, familiarity with potential community-based assessment sites, knowledge of the tasks available, and awareness of critical vocational factors for a wide variety of occupations lays the groundwork for planning meaningful, work-based observations in the community (Power,

2013). For those options that may not be overtly vocational, activities should be carefully chosen so that they are relevant to the goals of the overall assessment process and the individual.

Recording Tool

Once planned and executed, the use of a consistent recording tool is key to the success of community-based vocational assessment methods. An effective evaluator will keep referral questions in mind while observing work behaviors and performances that are exceptional, in or out of keeping with expectations, or significant to providing answers in any way (Pruitt, 1986). Task observation forms for each occurrence of observed activity should be completed using descriptive language, while avoiding opinionated and judgmental adjectives, or accounts of what the consumer did not do (Corthell & Lesnick, 1974). These forms should include information about the time and date, environmental factors, accommodations or modifications provided, and any relevant behaviors observed. Keeping recordings objective and factual allows the reader to synthesize accurately what occurred as a part of the vocational evaluation in its entirety (Pruitt, 1986). Today's evaluators have an advantage in the documentation process over their predecessors. The use of tablets and portable technology makes it possible to record observations on-the-go in an electronic format that can easily be added to reports when the evaluator returns to the office. The use of multimedia devices also allows vocational evaluators to capture footage of the tasks performed by consumers for a closer review at a later time, rather than having to rely solely on notes and memory.

Community-Based Assessment Options

Most often, community-based assessment options include activities that are the same or similar to an actual employment situation. Examples include situational assessments, on-the-job evaluations, and job try-outs. These methods often include the identification of comparative standards of performance by which a consumer's performance and behaviors are evaluated. Tasks typical to the vocational area being explored are presented along with instructions, expectations, and feedback. Other methods of community-based assessment practices include activities that are not overtly vocational, but are intended to lead to a more intimate view of what a person can do based on his or her ability to perform tasks in everyday situations.

Situational assessments. Situational assessment is a method that is useful for exposing inexperienced consumers to aspects of the world of work. Prior to job development, situational assessment can provide information about the consumer's preferences for work and interpersonal skills for community employment (Condon, Enein-Donovan, Gilmore, & Jordan, 2004). These short-term opportunities provide a naturalistic environment in which consumers can perform real work around actual coworkers, with feedback and supports. A variety of supports and accommodations, in a range of intensities and durations, can be tried, adjusted, and recorded according to the consumer's response to them. This method of assessment might involve a sampling of tasks across multiple community-based settings within a short span of time to give consumers reference points for more than one field or vocation. It can help consumers solidify employment preferences and interests, build confidence in abilities, as well as expose them to potential employment options (Power, 2013).

On-the-job evaluation. As an adaptation of situational assessment, on-the-job evaluation (OJE) begins with a particular job in mind and gives the consumer the opportunity to experience the full demands of the job to determine whether or not the job is a fit. Concentrated on a specific job, rather than a general occupation, the OJE provides feedback from an actual on-site supervisor (Hagner, 2010). While an evaluator's knowledge of a specific position usually comes from research and second-hand information, on-the-job evaluation offers the chance to receive feedback from a person who is a subject matter expert and regularly assesses performance of employees in the same position. On-the-job evaluations are comparative in nature, weighing the person's aptitudes, abilities, skills, and physical condition against the requirements of the job in question. At the end of this experience, predictions and recommendations are expected to be made about a person's potential for success in the given position. This method carries the concern that often consumer evaluations are done by job incumbents with little knowledge of evaluation standards who can insert their own bias in their assessment of the evaluatee.

Job try-outs. As another related method, job try-outs are usually longer evaluations that may extend from a period of weeks to months. When vocational evaluation is seen not only as a stand-alone service, but is utilized as part of the continuum of the vocational rehabilitation process, a job try-out can be arranged. The major difference between a job try-out and other forms of work-based assessment is the possibility of an actual offer of employment being made if the experience goes well. For a job try-out, there are likely to be more check-ins to gather information about a consumer's performance from a supervisor, and less one-on-one interaction between the

evaluator and consumer onsite. There should be a defined start and end date, complete with a deadline for when a hiring decision can be expected (Jordan, 2008). The emphasis is placed on giving the consumer and the site supervisor as accurate a picture as possible of what it would be like if the consumer were actually employed at the site.

Discovery. While work-based assessments within a community setting are widely accepted as an important tool for understanding work preferences, behaviors, and performance, other methods that are gaining popularity and acceptance stretch the use of observation to encompass life activities that may later be translated into work activities. One such method is Discovery, which has roots in the Employment for All movement. In his white paper *Discovery Is...*, Callahan (n.d.a) defines it as "a process that involves getting to know people" and "spending time with people, instead of testing or evaluating them, as a means of finding out who they are." That process excludes comparison as a rule, relying instead on the planning of and participation in various community and life activities with which the consumer is both familiar and unfamiliar to provide information for carefully documented behavioral observations. As with any observational method, the recording of accurate Discovery-based observations is paramount to its usefulness. Descriptive and objective language, limited use of adjectives, and the systematic recording of short bursts of significant behaviors should be recorded on activity logs. Callahan (n.d.b) even encourages the use of photography to capture imagery of the consumer during observations to enhance documentation; these observations are then translated into the contributions, conditions, and interests that a person demonstrates toward employment.

Rather than prescribing Discovery for a specific disability type, Callahan (2007) champions it for those with the most significant impact of disability as a means toward employment for all. The method has been used for those consumers who have not traditionally been successful in standardized testing, who have attempted employment several times and failed, or who need significant assistance to secure employment, including representation during job seeking and development. The information gathered can be used to answer referral questions about the appropriate type of employment for consumers, supports that must be in place for success, and consumer strengths. This observational lens has also been used to gain functional answers to questions of appropriateness for admission to residential training given a person's present strengths and needs, and to help vocational rehabilitation counselors better understand their consumers before developing residential service plans. As community inclusion continues to gain popularity and the terms job readiness and employability are slowly replaced with an assumption of a fully integrated work world, Discovery becomes more relevant to the field of vocational assessment.

Community-Based Assessment Advantages

Community-based assessment methods, while varying in specifics of technique, duration, and use, have advantages and disadvantages. These methods are based on observing the actual function of consumers in naturalistic settings, adding to the face validity of the evaluation process. In other words, the information gathered would appear to be directly applicable to determining how a person functions in work and life activities in the community. Because they can

generally be utilized by professionals with a good understanding of objective observation and writing techniques, a master's prepared evaluator has the skills to perform these observations with required corresponding documentation. The cost savings, per se, is that expensive tests are not required. Anecdotally, professionals have noted better rapport with consumers who receive more observation-based assessment, as it is conducive to taking more time with the consumer without the traditional stressors of test taking. It allows a show-me approach to assessment that consumers and families tend to appreciate and consequently are more motivated to participate in (Wiggins, 1993). Rather than relying on a single day's testing data, observational techniques can last days, or longer. This gives the evaluator information over a prolonged period of time, allowing the consumer to be seen during a wider variety of circumstances and experiences.

There are particular advantages for specific populations. Community-based assessment has been shown to be an important part of vocational evaluation for consumers with traumatic brain injury who may continue to perform well on standardized testing after an injury, but struggle functionally to put all the pieces together during real-life activities. Research has shown that these individuals feel the opportunity to try out work is paramount to the return-to-work process (Stergiou-Kita, Rappolt, & Dawson, 2012). Transition-aged high school students with disabilities benefit from situational assessments to try out different jobs before making decisions about their future and to identify strengths and areas of performance for improvement before entering the workforce (Trainor, Smith, & Kim, 2012). People seeking integrated, supported employment are well-served by work evaluations that focus on consumer work behaviors and adaptation to

feedback, the social aspects of the job that will need to be considered in employment, and development of natural supports in actual work situations (Power, 2013). Individuals who experience communication and interpersonal needs associated with autism spectrum disorders find it beneficial to participate in job try-outs that give them a chance to show what they can do in jobs where the traditional hiring process may have excluded them (Jordan, 2008). Moreover, with the addition of customized employment as a defined best practice in the Workforce Innovation and Opportunities Act (WIOA), and an increased emphasis on services for high school transition age students, Discovery as a pathway to customized employment and situational assessments during high school becomes even more relevant to meeting the needs of vocational rehabilitation today (U.S. Department of Education, 2014).

Community-Based Assessment Limitations

Objectivity in this method is essential. Purposefully looking for relationships among apparently isolated behavioral events, considering the impact of the environment on the consumer's behaviors, and being able to recognize and compensate for influences of bias and personal values are all integral to being a successful observer (Pruitt, 1986). Observational evaluation is often a qualitative technique that can be easily affected by service provider opinion, bias, and misunderstanding about the purpose of the activities. So, while face validity may seem high, the usability of the documentation can easily be compromised by a poor observer. And for job try-outs or on-the-job evaluations where site supervisors make most of the judgment calls, subjectivity or rater bias can be

problematic (Hagner, 2010). Information can be interpreted incorrectly, especially when the interpretation fails to take into account that behaviors are the product of the person within a specific environment (Gilbert & Malone, 1995). As Pruitt (1986) noted, "observational sensitivity, as any other skill, is developed and improved through practice (p. 31)."

Also, the evaluator must understand that there are limits on the kinds of sites that can be arranged for community-based assessments. In particular, simulating jobs with higher levels of academic, technical skill, and cognitive requirements for situational evaluations are difficult. Provision of this method of assessment is also highly dependent on the availability of staff to perform observations, as it requires significant one-on-one attention (Hall, 2009). While at first glance, community-based methods may seem to reduce costs associated with expensive psychometric testing supplies, the hourly rates of evaluators can add up with prolonged observation. In general, time-consuming community-based assessment sites are more difficult to set up (Hagner, 2010; Power, 2013). Nerlich (2012) offered some guidance for best practices in securing community-based assessment sites. The time investment is substantial, ranging from several hours to several weeks, and the method lacks the relative comfort and convenience of in-office tests and measurements. Evaluators must also be sure the placement is in compliance with prevailing wage and hour regulations. However, in the end, making observations and allowing consumers to actually experience work and life activities may prove to be the most effective and useful.

Section Conclusions

Where does community-based assessment fit within the framework of individualized vocational evaluation? Observation of actual tasks related to employment confirms or changes the hypotheses formed during individualized vocational evaluation planning and testing. Using descriptive documentation, it puts a face to the consumer and breathes life into the process with action rather than scores. Observation can confirm consumer reports of work skills, preferences, and familiarity in specific work environments mentioned during an interview. Observational assessments can be used as a complement to psychometrics and work sampling or as a stand-alone service to answer questions of function related to specific employment interests, independent living, and transferrable skills. Paper-and-pencil measurements can only be enhanced by the addition of observational assessment. However, in individualized vocational evaluation there exists a paradigm where the parts are often best utilized in harmony, so preliminary testing can be helpful in determining the appropriateness of observational opportunities before their deployment (Hagner, 2010). Individualization of the vocational evaluation plan means that specific and appropriate observational assessments should be readily introduced to complement other methods of assessment. Certainly professionals who do not observe consumers in life or work activities risk missing the opportunity to experience the essence of who they really are outside the quiet and control of a testing room.

Final Thoughts

Work is one of the most central components in an individual's life. It has been confirmed by a number of authors that work transcends culture, socio-economics,

ethnicity, and gender (Szymanski & Parker, 2010). Work not only has the ability to provide safety and security, but it enhances intrinsic qualities, such as self-efficiency and self-worth. Given these factors, when an individual is unable to work, the impact can have a negative and often devastating effect on a person's physical health, mental health, and overall well-being. Vocational assessment and evaluation are often necessary in the vocational rehabilitation process to assist consumers in understanding their valued skills, aptitudes, and abilities when considering vocational outcomes. The vocational evaluation process is a multifactorial, individualized assessment to meet the specific needs of the unique consumer. While a variety of vocational evaluation methods exists, each method and its related assessment tools is selected based on the specific needs and tailored to answer the referral questions for the identified consumer. The appropriateness of the methods used in each unique evaluation will depend on the functional strengths and limitations, past experiences, educational background, and specific needs of the consumer.

Vocational evaluation has continued to evolve from its beginning in the vocational rehabilitation movement of the 1950s and 1960s (Pruitt, 1986). From the first graduating class of Vocational Evaluation graduate students at UW–Stout in 1968 and Auburn University in 1970 to the recent creation of the Registry of Professional Vocational Evaluators (pvregistry.org), and more currently the inclusion of vocational evaluation as a major standard for rehabilitation counselor education (Council on Rehabilitation Education [CORE], 2012), rehabilitation professionals have tried to answer consumer and referring counselors' questions in the most comprehensive and accurate ways possible. Methods have taken many forms

and have changed over time as best practices have emerged, and new methods continue to be developed in order to meet better the needs of consumers today. An overall shift toward real-world methods and a focus on function rather than diagnosis has driven a trend in consumer-centered observational techniques and the use of situational elements in community-based settings (30th IRI, 2003). Further, focusing on issues related to significant disabilities has provided a change in thinking from job-readiness to employment for all, and have necessitated that evaluators become more adept at identifying transferable skills and abilities. Technology has made it possible to evaluate these aspects more efficiently, but increased understanding of the impact of the methods used when providing vocational evaluation and assessment is key to ensuring the most comprehensive assessment outcomes.

While it is easy to become attached to a method of assessment and comfortable in its administration, an evaluator must hold to the value of individualization in evaluation (30th IRI, 2003). Each consumer is different and presents with individualized nuances, background, and specifics of functioning. Where one consumer may be served well with a work evaluation or work sampling only, another may require psychometric testing to discern an academic functioning problem and to predict success in post-secondary education. The key is to understand how informal and formal assessments work in tandem, not in competition with one another, to create a holistic picture of the individual. The assessment process should be unique to the consumer and pull from sound practices that will make it effective, efficient, and accurate. Like vocational rehabilitation's goal of employment for all, vocational evaluation should be an inclusive process.

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**Utilization of Interviewing as an Assessment Tool to
Enhance Vocational Rehabilitation Service Delivery:
Fostering the Therapeutic Alliance and Professionals' Judgment Accuracy**

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Abstract

An interview is an essential component of the vocational rehabilitation (VR) process (intake, eligibility, assessment, plan development, employment and follow-up, and case closure). Interviewing is primary to establishing professional-consumer rapport where professional judgments are needed to elicit vital data from consumers to develop an accurate consumer profile, determine appropriate rehabilitation goals, and ensure consumers are given valid information to inform their decision-making. Therefore, the purpose of this article was to describe how interviewing can be utilized by VR professionals as an assessment tool throughout the VR process. Recommendations for incorporating interviewing techniques as a means to build strong professional-consumer therapeutic alliances and more accurate professional judgments are provided. Specifically, Motivational Interviewing (MI) strategies of rapid engagement, debiasing techniques, and clinical supervision are proposed.

Keywords: Interview Assessment, Working Alliance, Motivational Interviewing, Counselor Bias, Clinical Supervision

**Utilization of Interviewing as an
Assessment Tool to Enhance Vocational
Rehabilitation Service Delivery:**

**Fostering the Therapeutic Alliance and
Professionals' Judgment Accuracy**

Interviewing is most often utilized in vocational rehabilitation (VR) as a method for collecting relevant information from a consumer for VR service provision (Power, 2013). Vocational rehabilitation is a program that provides supportive and individualized services to assist consumers with disabilities in obtaining and maintaining employment (Parker & Patterson, 2012). These services are provided to identify occupations that are compatible with a consumer's skills, abilities, and interests. Among state-federal VR programs and related providers (e.g., community rehabilitation programs, One-Stop Centers, mental health agencies) that provide direct services to consumers they serve, the need for effective interviewing is well documented (Berven, 2004; Drummond & Jones, 2010; Power, 2006, 2013; Shahnasarian, 2004). Therefore, interviewing is an essential function performed by VR professionals (e.g., rehabilitation counselors, employment specialists, vocational evaluators, career assessment specialists) and is of particular importance to career assessment and vocational evaluation professionals.

The interviewing process is beneficial because it provides an avenue for establishing VR professional-consumer rapport and for collecting data to build an accurate "working picture" or vocational profile of a consumer. For instance, the interviewing process can help VR professionals understand consumer concerns, goals, strengths, potential barriers, desired services, or even appropriateness for VR services, and be used to develop a realistic rehabilitation goal with a consumer. The VR research literature shows that strong VR professional-consumer therapeutic alliances (also referred to as working relationship, rapport, working alliance), often originally formed during the initial interview, are linked to positive

rehabilitation outcomes for consumers (Donnell, Lustig, & Strauser, 2004; Lustig, Strauser, Rice, & Rucker, 2002; Lustig, Strauser, & Weems, 2004; Strauser, Lustig, & Donnell, 2004). The therapeutic alliance can be defined as the agreement on goals, tasks and emotional bonds between the VR professional and consumer (Bordin, 1979). *Goals* of VR are established and agreed upon to address the purpose of why a consumer is seeking rehabilitation services. *Tasks* of therapeutic activities and/or responsibilities by both the VR professional and consumer are developed in a collaborative manner that is acted upon to achieve specified employment goals. *Bonds* describe the nature of the relationship to include differing levels of trust and attachment between the VR professional and the consumer. Consequently, the ability of VR professionals to establish such therapeutic alliances with their consumers from the onset of a VR professional-consumer initial interview is essential.

Additionally, VR professionals must work toward making accurate professional judgments during the interview to ensure they collect the essential consumer data necessary to form a valid consumer profile (Berven, 2008). Errors or bias in professional judgments can be detrimental for consumers and limit their opportunities, rehabilitative services provided, and outcomes (Rosenthal, 2004; Rosenthal & Berven, 1999). To aid in developing an accurate vocational profile, information obtained during the interview is often corroborated with information received from other sources (e.g., medical/psychological reports, standardized assessments, person-center planning; Hagner, 2010; Meyer et al., 2001).

Besides being a critical source of data to VR professionals, the interview also provides a method for consumers to learn about the VR process, such as how services

will be provided, possible outcomes of services, consumer rights, and consumer and VR professional expectations (Carlisle & Neulicht, 2010). In short, an effective interview involves an exchange of information that helps the VR professional and consumer prepare for and make informed decisions over the course of the VR process. Utilizing specific techniques to form a trusting professional-consumer relationship (i.e., therapeutic alliance) and valid vocational profile during the interview process will not only enhance service delivery, but will also promote appropriate rehabilitation goals and positive outcomes for consumers with disabilities (Austin & Leahy, 2015; Lustig et al., 2002). Therefore, the purpose of this article is to provide VR professionals with a discussion on how interviewing can be applied as an assessment tool throughout the VR process (intake, eligibility, assessment, plan development, employment and follow-up, and case closure) with a focus on establishing strong therapeutic alliances and making accurate professional judgments while working with consumers. Specifically, the use of Motivational Interviewing (MI) strategies of rapid engagement, debiasing techniques, and clinical supervision will be presented.

Interviewing throughout VR Process

Intake

The primary focus of the intake interview is for VR professionals to:

- develop a relationship with a consumer;
- share relevant agency information (e.g., informed consent process); and
- gather information to develop a working picture of a consumer and his or her needs to develop a

comprehensive and valid consumer vocational profile (Power, 2013).

Although interviewing skills (e.g., multicultural understanding, active listening, reflecting feeling, influencing) are essential during all phases of the VR process (Ivey, Ivey, Zalaquett, & Quirk, 2012), the intake interview provides a unique opportunity to utilize these skills to build a therapeutic alliance with a consumer and to assess a consumer's readiness for change early in the process (Wagner & McMahon, 2004). Thus, a reasonable expectation is that the intake interview and resulting strength of the therapeutic alliance may affect all subsequent VR professional-consumer interactions. For example, the professional-consumer therapeutic alliance has been found to be a factor in the achievement of positive consumer outcomes across helping professions (Horvath & Symonds, 1991; Martin, Garske, & Davis, 2000). Assuming that a VR professional-consumer therapeutic alliance *causes* these beneficial outcomes, VR professionals should try to maximize the therapeutic alliance with consumers. This may be achieved by:

- exhibiting behaviors such as empathy, warmth, respect, genuineness, and acceptance during the intake interview (Lustig et al., 2002); and
- balancing reflective statements (e.g., "It appears that this has been difficult for you") with instructional statements (e.g., "Let's review job interviewing skills").

Authentic reflective statements must be utilized to help consumers perceive that the VR professional is genuinely interested in helping and respects the consumer as an individual (Safran & Muran, 1998). Notably, many state VR professionals work from a solution-focused counseling orientation where the emphasis is on addressing a consumer's current needs with active

involvement from the VR professional (Trepper et al., 2010). Some may view a solution-focused orientation as discrepant with building the therapeutic alliance. However, despite a solution-focused framework, attempts at building a therapeutic alliance with consumers is achievable and of primary importance during the intake process.

Besides building rapport, interviewing skills can also be used to assess a consumer's readiness for change during the intake process. Formally or informally assessing a consumer's readiness for change early in the VR process will allow for actions to be taken in order to retain or refer the consumer (Wagner & McMahon, 2004). For example, during the intake process a consumer who indicates she/he has taken action to identify employment prior to the first appointment (i.e., internal locus of control) with the VR professional will likely have a different level of readiness than a consumer who believes that the VR professional's job is to identify jobs with little assistance from the consumer (i.e., external locus of control). A consumer who has taken prior action may need job-seeking skills training (e.g., interviewing skills, résumé development). A consumer with the perception that it is the VR professional's duty to identify jobs may need information about his or her roles and responsibilities.

Careful attention and follow-up on consumers' statements can help VR professionals design an individualized picture of a consumer's readiness to begin the VR process along with initial interventions that can help consumers progress towards their rehabilitation goals. Finally, a skilled VR professional must attend to not only what consumers vocalize, but also to the nonverbal indicators (e.g., eye contact, vocal tone, facial expressions) during all in-person interactions. A nonverbal communication assessment

administered by a VR professional can provide various types of information regarding consumers' feelings about the VR process and/or questions/information being sought. A consumer's nonverbal communication may confirm or contradict the thoughts/feelings being conveyed verbally by the consumer. Moreover, VR professionals must also be cognizant of and make accurate judgments about their own nonverbal behaviors and their effect on consumer responses—important to cultivating a supportive climate to encourage consumers to speak freely about their rehabilitation needs and goals (Ivey et al., 2012).

Eligibility

The eligibility requirements for VR services indicate that someone has a physical or mental impairment (i.e., functional limitations) that limit the person's ability to find, secure, and maintain employment (Parker & Patterson, 2012). Functional limitations that a consumer experiences may include limitations in mobility, communication, interpersonal skills, self-care, self-direction, work performance, or work skills. Interviewing skills can be applied during the eligibility process as a way to obtain valid, reliable, and comprehensive information about the consumer's functional limitations. Professional judgment errors and oversights made by VR professionals during this phase of the process could result in a consumer not receiving services (LeBlanc & Smart, 2007) or, when order of selection is in place, being forced to wait for services.

To improve accuracy of VR professional judgments during the consumer eligibility determination process, the interviewing skills of questioning (i.e., open and closed questions) is essential. More specifically, VR professionals should ask

consumers explicit questions that relate to their reported disabilities; and explore consumers' perceived disability-related barriers to employment for every eligibility criterion category (e.g., interpersonal skills, self-care, self-direction). For example, a VR professional may address the category of interpersonal skills by asking a consumer, "Can you tell me about more about your anxiety as it relates to work?" This type of related questioning for each criterion category will likely develop a more comprehensive and valid consumer profile and better ensure appropriate diagnostic reports (i.e., medical/psychological) and referrals to specialists (e.g., psychiatrist, audiologist) are sought and used for eligibility determination purposes.

Assessment

Once a consumer has been determined eligible for services, VR professionals work collaboratively with consumers and begin the vocational assessment process. Vocational assessment is important in assisting consumers to achieve employment and can improve the efficient use of financial resources that is oftentimes limited (Thirtieth Institute on Rehabilitation Issues [30th IRI], 2003). This phase requires interactive dialogue between the VR professional and consumer to mutually agree upon realistic and attainable rehabilitation goals. The VR professional-consumer therapeutic alliance sets the foundation of this assessment process and should be used to empower consumers and support them in realizing their vocational potential (i.e., strengths, interests, and aptitudes; Kosciulek, 2004; Power, 2006). This interview encounter further facilitates consumers' self-awareness; knowledge about work, job opportunities and resources; and ultimately, career goals in line with their indicated interests, abilities, and specified

rehabilitative and accommodation needs (e.g., on-the-job supports, rehabilitation technology; Power, 2006).

Vocational rehabilitation professionals also need to be accurate and unbiased in their assessment appraisals, which is critical to predicting consumer potential and identifying suitable rehabilitation interventions, services, and goals (Strohmer & Leierer, 2000). Vocational rehabilitation professionals must accurately evaluate the consumer-related information obtained to develop a valid vocational profile of a consumer. This involves evaluating a consumer's rehabilitation goal, job seeking skills, the likelihood of maintaining employment, and any environmental barriers (e.g., employer attitudes, job accommodation needs) that may exist. With regards to the rehabilitation goal, the VR professional (in collaboration with the consumer) must determine if there is enough information to decide if the consumer's employment goal is suitable. For example, if a consumer has identified a specific job that he or she would like to obtain, the VR professional needs to determine if the consumer understands the necessary prerequisites (e.g., abilities and aptitudes) and physical and learning capacities needed to perform the job, and identify whether this job exists within the local economy. Likewise, does the consumer understand the demands of the job and what to expect, and is any training needed to help the consumer acquire the skills necessary to be effective in the job?

When creating a vocational profile, VR professionals need to evaluate the job seeking skills of their consumers. As mentioned previously, observing the physical appearance of the consumer during the interview will allow a VR professional to evaluate whether job-seeking skills training is needed. For instance, a VR professional may have concluded that a

consumer was not enthusiastic, well-groomed, and not interpersonally responsive during the interview. When interviewing for employment, these factors are vital and may jeopardize a consumer's employability. Consequently, a VR professional needs to make an accurate judgment as to whether or not a consumer's job seeking skills are satisfactory or determine if more information is needed to make that decision.

Once a determination has been made that a consumer is qualified for work and has adequate job-seeking skills to obtain a specified job position, a VR professional must determine if enough information is available to assess whether a consumer will be able to maintain employment. Finally, the VR professional must evaluate if any environmental barriers exist that may impact the rehabilitation goal of a consumer. For example, a VR professional may internally ask the question, "Are there any health/physical restrictions that would preclude certain types of employment for this consumer (e.g., unable to work in environments with frequent exposure to pulmonary irritants, transportation barriers that may lead to tardiness or absenteeism)?" After VR professionals evaluate all relevant barriers that may affect a consumer's rehabilitation goal, rehabilitation services or interventions are targeted to eliminate or reduce such barriers.

Plan Development

Following completion of the vocational assessment process, the VR professional and consumer work together to develop the Individualized Plan for Employment (IPE). It is important for the IPE to be simple (understandable) and realistic (attainable) for consumers. Oftentimes the VR administrative requirements in completing an IPE make it confusing and hard for consumers to follow.

Hence, the written IPE document should be developed collaboratively with consumers and include consumers' language to increase their ownership of the IPE (having created it), clarity (about what to do), and therefore, follow through (actually doing what is specified in the plan). Consequently, during the interview process, the VR professional can gain benefit by:

- structuring time to meet and develop the IPE with a consumer during a face-to-face interview meeting;
- serving as facilitators or guides and asking questions that are centrally connected to agreed-upon employment goals and the rehabilitation services required to overcome disability and other related barriers to achieving such goals; and
- using consumers' language that can be typed directly into the IPE module of the computer-based case management system when listing the objectives and rehabilitative services that address the disability-related barriers (e.g., supported employment, rehabilitation technology) and other related barriers (e.g., benefits planning, college or university training) considered necessary for a consumer to successfully achieve his or her rehabilitation goal.

Employment and Follow-up

When a consumer is ready for employment, VR professionals should continue to utilize the interview as an assessment tool. A face-to-face interview at this phase of the VR process can better inform VR professionals' judgments related to a consumer's state of mind and readiness to work. Accordingly, VR professionals may best accomplish this task during the VR

professional-consumer interaction (interview) by:

- gauging consumer emotional readiness for employment;
- evaluating and supporting consumer readiness prior to employment, at the time it is obtained, and once a consumer starts employment; and
- focusing on a consumer's thoughts, fears, and expectations as he or she enters into employment.

To illustrate, the VR professional may ascertain how well any purchased adaptive equipment/software is working for the consumer and employer. Centered on the nature of answers provided by a consumer and information discovered from the interview, both VR professional and consumer can determine if any additional rehabilitation services or interventions are necessary.

Case Closure

At the time of VR case closure, VR professionals should have what could be described as an exit interview with their consumers. More precisely, VR professionals should draw out consumers' information regarding their:

- overall job satisfaction;
- comfort level of performing essential functions of the job;
- interactions with supervisors/coworkers/the public;
- integration into the workplace culture;
- tardiness or absenteeism issues;
- child care concerns (if applicable); and
- related disability management problems.

Vocational rehabilitation professionals can integrate and synthesize this information to determine the appropriateness of closing a consumer's case. If case closure is not

deemed appropriate, then a VR professional, in collaboration with the consumer, can determine what additional rehabilitation services are necessary to achieve a level of job stability that is agreeable to both the professional and consumer. Once a consumer is at a place in his or her employment that is deemed appropriate for closure, then the VR professional can outline case closure processes (e.g., post-employment services) and answer any remaining questions from the consumer prior to closure. For example, a VR professional may outline steps a consumer may need to follow to re-engage with the state VR agency or to request additional rehabilitation services if employment is terminated and/or disability-related issues arise. Again, it is of utmost importance, whenever possible, that the closure/exit interview between VR professionals and consumers take place face-to-face. This allows for full engagement between VR professionals and consumers at a potentially stressful time for consumers, thus enhancing the VR professional's ability to evaluate the consumer's state of mind and readiness for case closure.

Recommendations for Interviewing Techniques

Given that most encounters with consumers are limited in both time and frequency, an extraordinary amount of interpersonal skillfulness by VR professionals is necessary. Large caseload sizes and comprehensive rehabilitative service needs for consumers with significant disabilities are at odds with the administrative pressures VR professionals face to move consumers through the VR process (Kierpiec, Phillips, & Koscuik, 2010). By establishing a VR professional-consumer therapeutic alliance quickly, consumers may be more likely to self-

disclose pertinent information important to developing effective IPEs that can, in turn, lead to more accurate vocational profiles, greater satisfaction, and enhanced outcomes for consumers (e.g., employment; Lustig et al., 2002; Timmons, Schuster, Hamner, & Bose, 2002). Without a promptly established trusting relationship, critical consumer information may be overlooked (Berven, 2004). Missing important consumer information may then derail consumers' and VR professionals' rehabilitative efforts and lead to ineffective IPEs. This may, therefore, result in a greater likelihood of negative consumer outcomes that fall short of expectations, and quite possibly, substantial inefficiencies that can cost the VR agency time and money (Chan, Shaw, McMahon, Koch, & Strauser, 1997; Kierpiec et al., 2010). Hence, within each professional-consumer interview encounter, accurate VR professional judgments are vitally important (Berven, 2008). Vocational rehabilitation professionals must recognize when and how to adapt to meet each consumer's individualized needs in a culturally sensitive manner (Ivey et al., 2012). Such professional judgments are needed not only to formulate complete and valid vocational profiles, but to further establish strong therapeutic alliances that, ultimately, can enhance the quality of consumer outcomes (Austin & Leahy, 2015; Ivey et al., 2012; Lustig, 1996; Lustig et al., 2002; Strohmer & Leierer, 2000). Consequently, this prior discussion that has substantiated the importance of using interviewing as an effective assessment tool throughout the VR process, establishing strong therapeutic alliances, and making accurate VR professional judgments has led to the recommendations for interviewing techniques that follow below.

Rapid Engagement

Vocational rehabilitation professionals may want to incorporate *rapid engagement* (Miller & Rollnick, 2002) into their interviewing practice. This term is drawn from the counseling theory of Motivational Interviewing (MI) and maintains a philosophy congruent with the spirit of VR policy—taking a person-centered stance with consumers (Wagner & McMahon, 2004), where consumers are empowered to make informed choices that ultimately affect the direction of their rehabilitative planning and services (Kosciulek, 1999). Consumer motivation plays a vital role in this approach and can increase consumer involvement, self-determination, and development of goals. Motivational Interviewing seeks to obtain the maximum amount of vocationally applicable information in a realistic and reasonable period of time (Wagner & McMahon, 2004).

Rapid engagement can be defined as a focus on productive VR professional-consumer dialogue and factors (i.e., consumer issues) that make a difference in relation to employment (Rollnick, Butler, Kinnersley, Gregory, & Mash, 2010). MI has substantial empirical evidence to support its effectiveness and is emerging as a best practice in state VR agencies (Chan et al., 2012; Jackson & Franklin, 2014; Wagner & McMahon, 2004). However, the explicit focus and use of MI's rapid engagement framework and, thereby, the need for VR professionals to hone in on and adapt their interpersonal style and skills to establish a therapeutic alliance quickly within short time intervals (e.g., one hour, 30 minutes), may be particularly useful and most efficient. Likewise, this approach can be used to focus on employment from the first interface between the State VR agency and consumer, where a standard can be set about the structure of the relationship that revolves centrally around employment. Rollnick et al.

(2010) proposed a three-pronged approach to working effectively and efficiently with consumers including (a) using a guiding style, (b) employing MI techniques, and (c) encouraging change talk.

A guiding style integrates three core interviewing skills of asking, listening, and informing. VR professionals ask consumers open-ended questions that encourage consumers to think about how and why they may want to make career or employment-related changes in their lives. This helps orient consumers to focus on employment and encourages them to think critically about their commitments to make necessary changes to pursue their employment goals. Vocational rehabilitation professionals listen in a manner that expresses empathy toward their consumers. This is accomplished by using reflective listening statements and paraphrasing techniques that encourage consumers to proceed with sharing their stories from their lens or worldview. With permission from the consumer, VR professionals also provide information about possible rehabilitative services and employment-related opportunities. This behavior demonstrates respect for and belief in a consumer and facilitates hope for a better future.

The use of a guiding style may be additionally enhanced and thereby, more effective, if counselors utilize additional MI tools that can encourage consumers to further engage and make a commitment to the VR process, including:

- Help the consumer identify what he or she wants to change immediately, and evaluate the strengths and weaknesses of these decisions.
- Guide the consumer to prioritize what is most important. This will lead to appropriate resources being allocated and rendered.
- Ask the consumer if he or she understands the information

presented, or if clarification is needed. A consumer needs to completely understand the information, or an informed decision will not be made when he or she is involved in rehabilitation planning and service choice.

MI's central intention is to increase consumer motivation for change. Incorporating self-motivational statements (i.e., I want..., I can..., I will...) or promoting such change talk are behavioral examples of a consumer's motivation or commitment to behavioral change. Therefore, focusing on a consumer's language with clinical intention will increase consumer dialogue, particularly when discussing why or how a consumer wants to change.

Applying these interviewing practices within a short timeframe may appear simplistic; however, the effective application of these strategies may be easier said than actually accomplished. VR professional self-awareness and the ability to identify the need to adapt one's interpersonal style and skill to meet the unique needs of consumers can be challenging, especially when feedback on clinical performance may not occur often enough. The use of efficient questions is an art form that must be purposefully orchestrated in the moment with consumers and it takes explicit practice to master this rapid engagement approach. Vocational rehabilitation professionals must believe that a consumer has the ability to change and that an employment outcome is possible, allowing consumers to lead in the process of change and when making final decisions about their rehabilitative planning and services.

Such an approach may not be adopted or come as easy for some VR professionals. Accordingly, obtaining feedback from respected colleagues or

supervisors on one's clinical performance may be instrumental in learning and being effective in applying this approach. Vocational rehabilitation professionals interested in enhancing their interviewing skills in applying MI techniques should seek additional information and training resources, such as the Motivational Interviewing Online Training Resource (<http://motivationalinterview.org>) or the Technical and Continuing Education Center (TACE: <http://www.tace5.siu.edu/programs.aspx>). Such resources may enhance VR professionals' interviewing skills of reflective listening, questioning, and affirming consumer's strengths and intrinsic motivation for change.

Debiasing Techniques

One approach to enhance VR professionals' judgment accuracy is to integrate the use of debiasing techniques into their interviewing skill repertoire (Austin & Leahy, 2015). *Debiasing techniques* can be defined as "...the use of internal dialogues that serve as reminders to counselors to question their biases and use of other strategies or tools including scientific-based methods to improve clinical judgment accuracy" (Austin & Leahy, 2015, p. 32). Underlying this definition are techniques that can be used during the VR professional-consumer interview to improve the accuracy of VR professionals' judgments about the consumers they serve. Several of these techniques are described in detail below.

Use systematic and comprehensive interviews. To ensure important consumer information necessary for effective rehabilitation planning is not ignored and is gathered consistently across consumers, VR professionals are recommended to use a structured interview guide that intends to

capture essential consumer details (Garb, 1998). One example is the Integrated Structured Interview (ISI; McMahon & Watson, 2012). The ISI is meant to be applied during the interview to intermix effectively standardized interest tests (e.g., Self-Directed Search, Career Assessment Inventory) with narrative, meaning-making questions. For instance, the ISI can be used to interpret better John Holland's codes (i.e., personality-environment compatibility) to maximize consumers' interpretation of results and create new, positive stories about their future careers. (See McMahon and Watson [2012] for example of structured interview guide).

Attend to quality of professional-consumer relationship. Strong VR professional-consumer therapeutic alliances in VR have been associated with positive rehabilitation outcomes for consumers (Donnell et al., 2004; Lustig et al., 2002; Lustig et al., 2004; Strauser et al., 2004). Consequently, the therapeutic alliance should be an essential part of the VR process, which may also instill hope, active participation, and lead to increased consumer job satisfaction (Lustig et al., 2002). Most importantly, high quality therapeutic alliances are primarily established during VR professional-consumer interviewing encounters. Bordin (1979) believed that consumer readiness to accept particular goals, professional theoretical orientation, and professional or consumer personality characteristics must all be considered as interacting variables that contribute to the strength of the therapeutic alliance. Vocational rehabilitation professionals should, therefore, check in often with themselves and their consumers throughout the VR process to ensure rapport is maintained. The Working Alliance Inventory (WAI) can be a useful clinical tool as one way to monitor the helping relationship (Horvath & Greenburg, 1989).

Information to obtain the WAI can be found online at <http://wai.profhorvath.com/>.

Continuously evaluate and address own biases. Vocational rehabilitation professionals should consciously ask themselves this question, “How do I feel about this consumer based on his/her culture (e.g., race/ethnicity, disability, age, social-economic status, gender)?” (Garb, 1998). This type of internal dialogue is needed to prompt VR professionals to take explicit action to address actively their own personal biases to maintain their effectiveness and expand their competencies in working with culturally diverse consumers. Vocational rehabilitation professionals are referred to Middleton et al. (2000) for ideas on how to address and overcome their own cultural biases.

Adapt use of counseling style.

Vocational rehabilitation professionals must have the ability to identify accurately and meet the individualized needs of consumers based on their unique situations and cultures (Ivey et al., 2012). Use of Friedlander and Ward’s (1984) relational styles (i.e., attractiveness, interpersonally sensitive, and task oriented) is one model that can be conceptualized for application to match moment-to-moment changes of consumer’s needs (See Appendix located in Bernard & Goodyear [2009] for copy of Supervisory Styles Inventory that can be used as a guide for shifting professional styles).

Use multiple sources of assessment. An interview integrated with multiple modes of assessments/tests (e.g., community-based work assessment, career interest inventories, report from family/significant others) is best practice and most valid (Berven, 2008; Meyer et al., 2001). Vocational rehabilitation professionals need to synthesize all relevant pieces of assessment data and communicate this information to consumers in an accurate and sensitive manner (Whiston, 2009).

Vocational rehabilitation professional assessment appraisals of their consumers using multiple methods will likely lead to more effective IPEs and positive rehabilitation outcomes (Hagner, 2010).

Clinical Supervision

Due to the complex nature of interviewing within the VR process, the potential impact interviewing has on service delivery, and the skills needed to apply techniques presented (e.g., rapid engagement, debiasing techniques), VR professionals are encouraged continually to develop and refine their interviewing skills. Clinical supervision is a process that can be used as a method for working practitioners to enhance their skills as an interviewer (Aasheim, 2012). Clinical supervision is a process consisting of regular, ongoing, and supportive interactions between a junior member of a profession and a more senior member of a profession (e.g., field supervisor, senior rehabilitation counselor) where the interactions focus on enhancing the clinical skill set of the junior member, as well as protecting consumer welfare (Bernard & Goodyear, 2009; Herbert, 2004). Examples of activities completed during clinical supervision include (a) a VR professional and supervisor addressing the VR professional’s biases when working with a consumer who has a criminal history, (b) a supervisor modeling use of reflective statements for the VR professional, and (c) a VR professional working with a senior rehabilitation counselor to review an eligibility decision based on information collected during an initial interview. Clinical supervision includes many different types of interactions with a focus on enhancing the clinical skill set of the junior member while protecting consumer welfare; and interviewing skills can be enhanced through the use of clinical supervision.

Regardless of interview structure type (e.g., unstructured, structured, semi-structured) a VR professional uses, or phase of the VR process (e.g., intake, eligibility, assessment), VR professionals can utilize clinical supervision. Within the helping professions, clinical supervision has been linked to increases in counselor awareness, wellness, multicultural competency, and case conceptualization skills (Bernard & Goodyear, 2009). Increases in these areas are typically associated with decreases in professional bias (or professional judgment error), which contributes to more effective VR professional clinical decision-making and consumer assessment. Despite the potential benefits of clinical supervision, the advantage of incorporating clinical supervision within state VR agencies tends to be poorly understood and irregular (Herbert, 2004; Herbert & Trusty, 2006). Lack of time, lack of training, and limited contact between supervisor and VR professional have been cited by rehabilitation counselors as barriers to clinical supervision (Austin, 2012; Herbert, 2004; McCarthy, Michiels, Blissett, & Shemshedini, 2013).

To address some of the barriers to receiving clinical supervision, peer supervision has been found to be helpful and to supplement clinical supervision received from a formal VR supervisor (Herbert, 2012). In general, when arrangements are made for peers to work together for mutual benefit, they are considered to be engaging in peer supervision and this can also be referred to as peer consultation (Bernard & Goodyear, 2009). A peer supervision or consultation model encourages self-evaluation by decreasing reliance on the expert supervisor. Peer support, encouragement, and enhancement of self-confidence are noted benefits of peer supervision (Benshoff, 1992). Reviewing individual cases during peer group

supervision provides opportunities for VR professionals to increase their awareness of potential biases they may hold, as well as receive feedback for future action to enhance professionals' judgment accuracy.

Conclusion

The work of VR professionals is complex as many variables are involved in assisting individuals with disabilities to meet their vocational, educational, and independent living goals. Interviewing is one of many skills VR professionals must possess in order to accomplish the goal of assisting VR consumers with disabilities through the VR process to obtain and maintain employment. Interviewing skills are considered "foundational skills" that each VR professional should continue to develop and refine. With the significance of using interviewing as a tool of assessment throughout the VR process, it is important for VR professionals to be thoughtful and focused on all of their consumer contacts that involve any element of interviewing and information gathering. This diligence will serve the rehabilitation field and VR consumers well.

Furthermore, the argument has been made in our discussion of the importance of cultivating a strong VR professional-consumer therapeutic alliance, as well as the critical need to make accurate professional judgments during the interview process. Interviewing techniques such as rapid engagement and debiasing techniques presented provide VR professionals with practical suggestions. Such techniques may not only improve the quality of VR professional-consumer rapport, but the validity of consumer's vocational profiles; and thereby, decision-making that can lead to better rehabilitation outcomes for consumers. Given the potential benefits of clinical supervision for consumer's and VR

professionals alike (Austin, 2012; McCarthy, 2013), the use of clinical supervision to enhance further professionals' interviewing skills and techniques proposed in this article is also recommended, which we believe is essential to enhancing VR professionals' interviewing skill development. Finally, the importance of interviewing and its use as an effective assessment tool for VR professionals cannot be stated enough. Consequently, VR professionals (and consumers) will be well served if they recognize the strengths associated with the full utilization of interviewing and the positive implications it may have on the rehabilitation outcomes of consumers.

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Current Technology in Vocational Evaluation: Trends and Opportunities

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Abstract

The role of technology in vocational evaluation has grown exponentially, particularly since the early 1980s with the introduction of desktop computers. Use of the Internet is now an essential part of vocational evaluation practice. Considerations of how evaluators have weaved computer technology into their assessment processes, based work samples and community assessments on industry technology, designed and developed reports, accessed web-based resources, and integrated assistive technology for best practices have played paramount roles in services. Fast forward to the 21st century where the digital reach and ubiquitous nature of technology have transformed vocational evaluators' everyday practices. Today vocational evaluators compose reports through multiple computerized and web-based means, using tools such as voice activated word-processing, cloud-based collaboration and editing, and electronic-based work sampling. Assistive technologies are more present in services and inclusive frameworks such as universal design and universal design for learning shape best practices. The growing reliance on digital means to access inexpensive tools, communicate, and connect increases the likelihood that prior predictions for virtual ways to provide career assessment and vocational evaluation services are increasingly the norm of the future. The purpose of this article is to trace highlights in the history of technology's role in VE and consider potential trends and opportunities.

Keywords: Vocational Evaluation, Technology, Career Assessment, Virtual Vocational Evaluation, Universal Design, Universal Design For Learning, Assistive Technology, Tele-Evaluation

**Current Technology in Vocational
Evaluation: Trends and Opportunities**

The viability of our profession requires that vocational evaluation (VE) services be based upon contemporary and projected requirements for careers and work; therefore, professionals must integrate technology into administrative and direct service practices. For VE services to reflect accurately the current labor market, vocational evaluators must continue to incorporate real or simulated work, including current technology used in that work, into daily practices. To represent accurately consumers' skills and abilities to enter or succeed in the labor market, assessment methods such as work samples and the various types of community-based vocational assessment options must mirror the jobs we recommend for evaluatees. Finally, to ensure that consumers are able to demonstrate optimal performances and work behaviors, assessment integrating assistive technology (AT) should occur prior to and/or during the vocational evaluation process. All of this requires that vocational evaluators stay abreast of current and future technology developments and collaborate with business and industry to access technology that is intrinsically related to work for use in VE practices. Incorporating technology into VE services provides opportunities for vocational evaluators to acquire new skills and exercise their creativity.

In 1984, John Naisbitt released a second edition of *Megatrends: Ten New Directions Transforming Our Lives*, which provided a forecast for trends that would shape our future. Our comfort with an industrialized society and economy was quickly changing into one characterized by information-rich, technology-enhanced, and globally expansive approaches. In particular, the focus of technology was moving from one characterized as "forced technology" to one of "high-tech and high-touch" (Naisbitt, 1984). This message is in sharp contrast to

the connected, ubiquitous world of technology we know today (New Media Consortium, 2014a). Technology and online learning have become common tools for practitioners to perform and share their work, communicate with one another, and stay abreast of information in the technology-rich 21st century. The advancing role of the Internet and social media as major sources for information sharing has redefined how most individuals seek answers, locate resources, and communicate with others. Online means for collaborative learning, evaluative tools such as learning analytics, and the proliferation of online growth point towards a future full of limitless possibilities (Jenkins, Clinton, Purushotma, Robinson, & Weigel, 2009; Li & Bernoff, 2008).

The purpose of this article is to trace highlights in the history of technology's role in VE and consider potential trends and opportunities. As we review the historical underpinnings of technology in the field and how policies, national positions, and innovations have had an impact on the way evaluators work, we also consider the importance of universal design and universal design for learning as frameworks to guide best practice in assessment, including the role of AT in socially just services (Leconte, Smith, & Johnson, 2007; Smith, Leconte, & Vitelli, 2012). Also, we explore how technology is and should be integrated into assessment practices across the methods and information resources that we use. Finally, we address the impact of distance learning and opportunities for virtual vocational evaluation practice and offer recommendations for future practice.

Historical Perspectives: Technology's Role in Vocational Evaluation

Not long ago vocational evaluators used postal or inter-office/agency mail

services to develop schedules, receive referrals, communicate with referral sources, and share reports. Most information was transmitted through paper or in-person conferences, reports were composed on legal pads or typewriters, and recommendations and career research were investigated through paper-bound sources such as the *Dictionary of Occupational Titles* and the *Occupational Outlook Handbook*. Much has changed!

Technological Innovations within Assessment for Employment Opportunities

Today, most evaluators conduct scheduling via electronic mail (e.g., email); receive referrals and send reports they develop on computers and other electronic devices via email, by using Google Docs® (<http://docs.google.com>), Wiggio® (<http://www.wiggio.com>), or other virtual communication platforms; and are in touch with referral sources almost immediately using texting or tweeting. Evaluators working with state agencies, such as vocational rehabilitation, may have access to agency Intranets, which allow communication in a safe, Health Insurance Portability and Accountability Act of 1996 (HIPAA)-compliant way. In the past, vocational evaluators dictated or wrote reports in longhand and gave these to secretaries to type. Now, most evaluators compose their reports using a variety of technologies such as laptops, tablets, or “smart” devices that use a variety of software programs; some evaluators use Dragon Naturally Speaking Professional® (<https://www.cdw.com>) to dictate their behavioral observations and compose reports by voice. Evaluators also photograph and video record consumer work performances with cell phones and integrate these digital documents into electronic

reports or portfolios (e.g., e-portfolios). These multiple uses of technology have served to enrich the VE process for consumers and professionals. In fact, evaluators can provide VE to consumers from great distances via video conferencing platforms such as Skype® (<http://www.skype.com>), or Google Video Chat® (<https://support.google.com>), which is more secure than Skype®.

Technology’s role in VE always has been a critical consideration in the profession. As the desktop computer debuted in the mid-1980s, the value of computer-assisted report processing (Smith & Rothacker, 1986) and computer-aided assessment practices (Cusick, 1989) were explored and promoted. Over the years, educators and practitioners considered new innovations and proposed promising practices that opened pathways for expanding employment and educational opportunities for their consumers (Ashley & McGuire-Kuletz, 1999; Johnson, Hannon, & Leconte, 2003; McDaniel, Beadles, & McDaniel, 1997). Opportunities to capitalize upon technology’s innovation were proposed and, in some cases, adopted by the profession (MacIsaac, 2003; McDaniel et al., 2001; Smith, 1997). Virtual ways to expand VE practice have been modeled (Smith, 2010) and distance courses for graduate coursework have been explored (Tilton, McDaniel, & Lott, 2003; Smith & Leconte, 1999). Low-tech and high-tech assistive technology has been incorporated into VE services in a variety of ways (Noll & Lawler, 1998).

Professional associations, notably the Vocational Evaluation and Work Adjustment Association (VEWAA) and Vocational Evaluators and Career Assessment Professionals (VECAP) have promoted forward-thinking professional practices by inviting technology leaders to speak at the National Issues Forums in

Vocational Assessment and Evaluation; for example, invitees included O*NET developers prior to the official roll-out of the system in 1998 (Hester & Baltrukenas, 1997), Brian Kurth of Vocation Vacations (<http://www.vocationvacation.com>) in 2010 demonstrating the use of the web-based career mentorship as another way to explore careers for adults seeking new career experiences, and Dr. Skip Rizzo (<http://ict.usc.edu/profile/albert-skip-rizzo>) who demonstrated in 2012 how virtual reality can be used as work samples and simulated work to help rehabilitate people with disabilities or others who face barriers to gaining or maintaining employment. Research conducted by Dr. Connie McReynolds at the Institute of Research, Assessment, and Professional Development regarding how neurofeedback can contribute to assessment interventions signifies an intriguing technological advancement (Gutierrez, 2013).

While electronic assessment instruments provide more options for accessing pay-as-you-go or free “tools,” they also potentially threaten the integrity of the assessment process if users fail to understand the characteristics of well-researched instruments or that the presence of a professional (preferably a vocational evaluator) is essential to guide and monitor the process. The prediction made by Thomas (1999), that the growth of VE will involve the use of technology and that “cyber-evaluation will take advantage of interactive computer technology in all aspects of assessment” (p. 10) has materialized. However, opportunities to maximize the assessment process and promote efficiency have been debated topics in the field (Thomas, 1989), partly because evaluators had and have so few resources to integrate new technology into practice.

The Necessity of Integrating Assistive Technology

In addition to reliance on electronic communication and technology to operate our programs, vocational evaluators have integrated AT into services or have been encouraged to do so. When VE began to emerge from sheltered workshops and workforce development programs in the 1960s, and from school-based programs in the 1970s through the 1990s, AT consisted primarily of low-tech strategies and devices, such as jigs related to specific job tasks, magnifiers, and holders (Gugerty, Roshal, Tradewell, & Anthony, 1981). These devices allowed people with cognitive and physical disabilities to have access to, participate in, and perform work. For example, if someone with a severe cognitive ability can assemble some parts of a task, but not all, the task can be analyzed and divided into smaller tasks that two or more people can share to accomplish the larger task (Gold, 1989). Items, such as finger grips on pens, job-related jigs, Dycem material to hold items in place, cover guards for keyboards, and Velcro holders, allow people with physical disabilities or dexterity problems to perform required employment tasks. Though high tech devices may seem to dominate popular literature, low-tech devices can be as effective (Tibbs, 2002). However, examples of high tech devices have become more sophisticated as electronics, nanotechnology (Leconte, 2003; L. Johnson, personal communication, July 7, 2014), and scientific research have targeted specific disabilities (Gutierrez, 2013; Rizzo, 2012). For instance, robotic limbs are being refined daily to assist Veterans and others who have lost appendages—many of these rely on digital or nanotechnology systems to work. Again, vocational evaluators have long advocated for integrating AT (meaning both services and devices) into their

programs, but unfortunately, insufficient fiscal resources remain barriers.

Federal legislation highlighting reasonable accommodations (Rehabilitation Act of 1973; Rehabilitation Act Amendments, 1978, 1986, 1998, 2014), technology assistance (Technology-Related Assistance for Individuals with Disabilities Act of 1988, 2004), and equal access and participation (Americans with Disabilities Act of 1990; Americans with Disabilities Act Amendments Act of 2008) underscored the role of AT in VE practice (Fried, 1993; Reed, 1993). The inclusion of AT was promoted by evaluators who also became experts in AT (Langton & Lown, 1995; Noll, 1993; Reed, Fried, & Grimm, 1993; Reed, Thomas, Lown, & Smith, 1995). Best practices were shared via short-term training (Noll & Lawler, 1998), published guidelines (Langton, 1993; Langton, Smith, Lown, & Chatham, 1998), and professional associations adopted national positions. In 1996, VEWAA appointed an AT taskforce and later published a position paper advocating the integration of AT in vocational evaluation, which was adopted by VECAP as well (Reed, 1996).

Impact of Universal Design on Vocational Evaluation and Work

Also in the 1990's, the concept of universal design (UD) emerged and evolved into a field for promoting accessible product and environmental design. Coupled with the importance of assistive technology, the seven principles of UD provided guidelines for inclusive design that could be accessed by all (Story, Mueller, & Mace, 1998). The UD movement infiltrated VE; in fact, the combination of civil rights laws and UD demanded re-designs of assessment services and work environments used during VE and required that vocational evaluators recommend customized workplace

accommodations (Langton et al., 1998; Mueller, 1990, 1992).

In 2003, the *Thirtieth Institute on Rehabilitation Issues (30th IRI): A New Paradigm for Vocational Evaluation* highlighted the value of four key paradigms that would shape the future: empowerment, culture, *universal design* [emphasis added], and individualization. These key frameworks provide enhanced opportunities and expanded services and opportunities to all individuals seeking career awareness and development. Technology's role within each of these was featured as the use of computer technology and the Internet became more mainstream.

Universal Design for Learning (UDL): A Framework to Guide Best Practice

The importance of UDL as an educational framework (Higher Education Opportunity Act, 2008; Rose & Gravel, 2010) continues to be recognized, as well as the value AT plays in enabling success for individuals with disabilities (Center for Applied Special Technology [CAST], 2014; Meyer, Rose, & Gordon, 2013; Rose & Meyer, 2002). The UDL framework began through early research efforts at Harvard University and CAST (Rose & Meyer, 2006). Based upon research from neuroscience on variability in learning, core principles of UDL underscore the importance of providing instruction and assessment opportunities in multiple ways to maximize learning across neural networks (Meyer & Rose, 2000). In 2008, UDL was fully defined in the Higher Education Opportunity Act of 2008.

The UDL approach works in harmony with central tenets of the VE process as it prioritizes the importance of multiple approaches to understand best the career strengths and needs of the evaluatee (Smith, 2003). Since 2006, VECAP has

developed national positions on the importance of UDL in VE practice (Leconte et al., 2007; Smith et al., 2012) and continues to contribute to the expansion of this knowledge. As a member of the national UDL taskforce, VECAP has been a voice for the profession and the importance of considering career assessment and VE through a UDL lens (National UDL Taskforce, 2014).

Using UDL, vocational evaluators can better design their planning, assessment, and reports in ways that consider the range of learning variability expected in all learners. A two-year grant funded project in Virginia, *Expanding Career Options through Universal Design for Learning (ECO-UDL)*, demonstrated the success of melding career assessment with technology and instructional strategies through a UDL lens for students with disabilities in career transition (Harris, Dowd, & Smith, 2012).

Paradigm Shifts and Future Expectations

Since 2006, the rapid growth of Web 2.0 technologies has offered an array of freely available, web-based software tools that anyone can develop and recreate into tools for communication, collaboration, and resource development. The last five years of the New Media Consortium's (NMC) annual *Horizon Reports* have forecast the rapid adoption of social networking, grassroots video, user-generated content, collaboration webs, mobiles, cloud computing, open source, e-books and tablets (NMC, 2014b). Recent digital developments in our field have included the digitizing of all VEWAA Journals by the National Clearinghouse of Rehabilitation Training Materials. Both VECAP and VEWAA distribute information to members through a webpage and select social media channels including weblogs, social networks, Facebook, and Twitter. Also, VECAP and VEWAA provide

digitized versions of seminal texts in the field on their websites.

The use of distance or online learning has become a necessity in the field and a few universities are offering online certificates in VE. In 2013, Massively Open Online Courses (MOOCs) and tablet technologies continue to be prioritized as important to consider (NMC, 2013) in education. Open source technologies, such as wikis, Google Hangouts®, YouTube®, Wordpress® blogs, continue to grow and offer free, creative solutions for developing and sharing web content that is helpful to consumers and professionals. The importance of online learning has been heightened at a time when there are fewer financial resources for both individuals and agencies to access traditional learning venues. According to the Sloan Consortium students taking at least one online course grew to 6.7 million between 2003–2013 (Allen & Seaman, 2013). Sponsoring Third Thursday webinars, VECAP has taken advantage of the web to encourage and provide online learning (<http://www.vecap.org>). The potential to build and promote these types of rich learning opportunities is limitless with the tools available today and points towards new possibilities for VE practice.

Web-based Assessment Instruments and Resources

Online assessment instruments have grown exponentially; this proliferation has become so vast that professional associations and authors have published cautions to the field (Leconte, 2000; Sampson & Lumsden, 2000), including updated Codes of Ethics and revised ethical guidelines for practice (American Counseling Association [ACA], 2014; Commission on Rehabilitation Counselor Certification [CRCC], 2010; National

Career Development Association [NCDA], 2015). While the cost of online assessment instruments varies, there are a large number of free or low-cost assessment resources that show up in a simple search of search engines (Garner & Szirony, 2005). Identifying the reading level of online assessment instruments represents an initial caution for potential users as many providers do not take this into consideration.

Examples of online assessment instruments, both government- and private sector-based, suggest that these resources are available to assist vocational evaluators and can provide preliminary information for career and rehabilitation counselors who may not have in-house resources or geographic availability of comprehensive VE services. This is especially helpful for practitioners working in rural areas where limited resources and travel time prohibit on-site vocational screening of a new consumer's skills and abilities to determine his or her needs, interests, and goals (30th IRI, 2003). Given that some professional training programs, especially those with the majority of their degree program online, are adapting their instructional strategies to utilize online assessment resources, many newly trained practitioners can develop the skills to seek out and take advantage of online assessment instruments (Garner & Dickerson, 2008).

Free or Low-Cost Online Assessment Instruments—The Private Sector

The following sections provide a few examples of free or low-cost private sector instruments available on the Internet across the categories of interest, temperament, aptitude, and achievement assessment. These are offered as examples of available instruments, with the caveat that neither VEWAA nor VECAP are endorsing these products, nor are we advocating their use.

Interest and temperament assessments. Commonly, vocational evaluators select an interest inventory as an initial assessment instrument to help plan the remainder of the assessment or evaluation process (Power, 2013). The Career Key (currently \$12.95) is an online interest inventory that takes approximately 10-minutes to take and is based on Holland's R-I-A-S-E-C Interest Codes. The Career Key provides a self-evaluation of skills, abilities, values, interests, and personality. It also identifies promising jobs and gives accurate information about them (Jones, 2014). Free temperament assessment instruments on the Internet often take the form of light-hearted, self-insight instruments of questionable validity (Garner & Szirony, 2005). The Keirsey Temperament Sorter II is an exception. Based on the well-researched Myers-Briggs Type Inventory, four character types or mega-temperaments—Rationals, Idealists, Artisans, and Guardians—are identified as well as 16 sub-types (Keirsey, 1996). Most if not all web-based assessment instruments rely on self-report, which needs to be verified and triangulated by using other methods and techniques (Smith et al., 1996).

Aptitude and achievement assessments. Aptitude and achievement instruments are also available free of charge. One example of a single aptitude assessment is the Free Practice Typing Test. It has one-, two-, and three-minute tests available with variable text choices, and provides automatic word-per-minute calculations as a quick way to assess keyboarding skills (TypingMaster Test, n.d.). Another example, the Free Reading Assessment, features two distinct sections. The phonics section pronounces the word audibly and asks the consumer to identify the appropriate word from a written word list. The Comprehension section follows the more traditional read-and-answer questions-on-

the-content format (Sound Reading Solutions, n.d.). Again, vocational evaluators and others need to determine if these limited instruments meet the unique needs of their evaluatees and can be used to direct or supplement additional assessment.

Free online assessment instruments tend to be user-friendly, self-directed, and self-reported. Often the private sector site offers a free or low-cost test hoping to attract buyers to their for-pay instruments. The downside is that free private sites may disappear (Barak, 2003; Leconte, 2000); however, sometimes a web search can yield the same instrument (or something similar) on another website (Garner & Szirony, 2005). These private vendor instruments are used to greatest advantage when trying to “locate” one’s interest, temperament, aptitude achievement or learning style preferences initially and when they are used to supplement findings from standardized, researched instruments.

Free or Low-Cost Online Assessment Instruments—Government-Supported Sites

Interest and aptitude assessments.

The Occupational Network Service (O*NET) is an Internet-based database designed to replace the out-of-date *Dictionary of Occupational Titles (DOT)*. During the development of the O*NET, vocational evaluators advocated to have the Department of Labor (DOL) include the details of specific jobs that help evaluators and consumers make employment “matches” that are safe and doable by the consumer. The DOL reported that it did not have sufficient fiscal resources to provide these levels of specificity (J. Ellis, personal communication, September 1997). The current database contains approximately 1000 occupations (Occupational Information Network [O*NET], n.d.a) that are classified

by an eight-digit code as the Standard Occupational Classification code (U. S. Department of Labor Employment and Training Administration, 2004). Vocational evaluators research the O*NET along with evaluatees for career exploration and to make specific recommendations in reports. The O*NET Version 19 database (2014) has many uses, such as career counseling, job placement, and transferable skills analysis (Field & Field, 2004). The Career Exploration Tools comprise the actual vocational assessment portion of the O*NET and include three free assessment instruments; the Interest Profiler, Work Importance Locator or Profiler, and the Ability Profiler (O*NET, n.d.b).

The Interest Profiler comes in both downloadable paper and computerized formats. The software can be self-administered and self-interpreted, but most evaluatees require support from the evaluator or counselor to gain the greatest benefit. It utilizes Holland’s R-I-A-S-E-C interest structure (Power, 2013) and is based solely on self-report. Without the presence of a vocational evaluator who has the responsibility to monitor the administration and interpretation, results may be suspect or inaccurate and the attention to a systematic appraisal process may be lost (Smith et al., 1996).

The Work Importance Locator is in paper format and its software equivalent, the Work Importance Profiler, is free. The Work Locator and Profiler both measure six types of work values: Achievement, Independence, Recognition, Relationships, Support, and Working Conditions. The Work Locator and the Profiler match work values to the characteristics of O*NET occupations.

The Ability Profiler includes free paper assessment instruments supplemented by low-cost apparatuses for dexterity testing. The Ability Profiler measures nine job-

relevant abilities: Verbal Ability, Arithmetic Reasoning, Computation, Spatial Ability, Form Perception, Clerical Perception, Motor Coordination, Finger Dexterity, and Manual Dexterity. It is based on many of the old General Aptitude Test Battery (GATB) concepts (Power, 2013), and is administered by practitioners in individual or group settings. Free software is available for computerized scoring. The results can be linked to occupations in the O*NET. The Ability Profiler optional apparatus sections include a Manual Dexterity Pegboard and a Finger Dexterity Board. The O*NET is dynamic and ever-changing. The potential for growth and development of the assessment components of the O*NET could have significant impact on private, for-pay assessment sites (Garner & Szirony, 2005).

Career information resources.

Another resource, that also utilizes O*NET databases, is America's Career Infonet, part of the CareerOneStop suite of web-based products funded and developed by the U.S. Department of Labor (CareerOneStop, n.d.). Use of America's Career Infonet can identify wage and employment trends, occupational requirements, state-by-state labor market conditions, nationwide employer contacts, and an extensive online career resource library (Disability.gov, n.d.).

Other government-supported resources are state electronic occupational databases, such as Texas Career Alternative Resource Evaluation System (CARES) which is O*NET and Holland-code based, but it has applications that considerably expand its utility (Garner, 2012). The online version of Texas CARES is a product of the Texas Workforce Commission/Labor Market and Career Information (TWC/LMCI) system and includes two major groupings – the World of Work and the World of Learning. Most states have similar databases and career information systems and many include assessment

instruments and activities, including the Virginia View (<http://www.vaview.vt.edu>) and California's Eureka (<http://www.eureka.org>).

The Quality of Online Assessment Resources

For all testing resources, practitioners should consider the source with caution. Is the instrument valid and reliable as demonstrated by solid research studies? Are the norm groups appropriate to the individual or groups being tested? Reading levels vary so it is critical for the evaluator to make sure the instrument chosen is appropriate for the specific consumer. Careful examination of the documentation provided is critical for all professionals evaluating potential assessment instruments (Power, 2013). Vocational evaluators may use free e-assessments to determine if they meet the needs of the professionals and the consumers involved; however, it may be necessary to delve more in-depth and consider commercial assessment software to which higher costs are attached.

As previously noted, utilizing online rehabilitation resources for consumer service purposes requires a studied vigilance for ethical and practical difficulties that may present problems for practice—and the consumers. Many VE and counseling professionals and credentialing organizations have included technology-related assessment in their Codes of Ethics and are providing guidelines to help all professional minimize the negative impact of using invalid and unreliable assessment instruments (ACA, 2014; CRCC, 2008, 2010; NCDA, 2015). These guidelines apply to online assessment, as well as more traditional paper and pencil versions, and often include specific sections addressing technology-related issues. Of special concern for online assessment instruments is

confidentiality of results and quality utilization of assessment information in vocational planning and placement. An additional caution regarding the availability of online instruments, especially free ones, is the possibility that an instrument available today may have changed significantly or may not be accessible the next time a vocational evaluator or other rehabilitation practitioner wishes to use it (Barak, 2003; Leconte, 2000). Then a new Internet search for a satisfactory tool must begin again (30th IRI, 2003).

Technology Innovation: Emerging Assessment Opportunities

The 21st Century has been established as a unique period regarding the use of technology to provide services to individuals facing employment-related challenges. Technology is also playing a pivotal role in access to healthcare, an increase in community participation of individuals with disabilities, and new assessment practices. Two examples of innovative practice based in technology are tele-rehabilitation and using live, real-time video for conducting VE (Kirby, 2003; Tilton et al., 2003). McCue, Fairman, and Pramuka (2010) state that “tele-rehabilitation is an emerging method of delivering rehabilitation services that uses technology to serve consumers, clinicians, and systems by minimizing the barriers of distance, time, and cost” (p. 196) and this growing discussion in the literature supports the use of tele-rehabilitation for remote evaluation, assessment and provision of care (Dinesen, Seeman, & Gustafsson, 2011; Piron, Tonin, Trivello, Battistin & Dam, 2004; Schmeler, Schein, McCue, & Betz, 2009). For years, vocational evaluators and other rehabilitation professionals have been conducting “wired” or distance services to

rural, remote areas such as Alaska (C. Veir, personal communication, 1994).

In 2002, a tele-health program using technology in conjunction with vocational evaluators in Washington, DC designed for immigrants was funded by the U.S. Departments of Commerce and Labor. The Community Preservation and Development Corporation (CPDC) worked with bio-medical engineering professionals at The Catholic University of America, Howard University’s School of Social Work, and interns from the Collaborative Vocational Evaluation Master’s degree program at The George Washington University (GWU) to develop a high tech career assessment process and training program (L. Johnson, personal communication, July 7, 2014). Nanotechnology, “smart” wiring the apartments of senior citizens to link directly to the hospital bio-medical laboratory and nursing stations, formed the basis of the services. Some “nano” wearing apparel was also used. High tech and entry-level skills work samples of High Tech Home Health Care Workers were created by the CPDC vocational evaluators and GWU interns.

Tele- or Distance Vocational Evaluation

Unfortunately, literature on the use tele-, cyber, and distance technology to provide VE is limited. Practice is driving the field to reconsider how services are or can be provided. With the availability of cyber and electronic assessment capabilities, VE services can be expanded to reach remote areas and to create more virtual work sampling. Having partnerships between universities and service programs has proven to help university faculty, as well as professionals, provide mutually beneficial research activities. One such collaboration example occurred between the Postsecondary Education Rehabilitation Transition (PERT) Program

(<http://www.wwwrc.net/pert>), part of Woodrow Wilson Rehabilitation Center's (WWRC) services; local high schools; state vocational rehabilitation; and a university. The project focused on the expansion of VE, occupational therapy assessment, speech assessment, and independent living assessment to transition-aged youth with disabilities to Virginia high schools. Video cameras were connected to a high school site and at WWRC via the state vocational rehabilitation connectivity system. The project was used with different high schools and was facilitated by a rehabilitation counselor who worked closely with schools. Other VE outreach from WWRC extended the use of digital technology via the Project Train IT (Kirby, 2003), using assessment and distance learning to improve employment outcomes.

As illustrated, distance VE can use image-based technology or videoconferencing for consultations, VE provision, and management of consumer services. Videoconferencing (tele-health) for remote management of prosthetic and orthotic needs of patients (Lemaire & Jeffreys, 1999; Lemaire, Boudrias, & Greene, 2001) was occurring about the same time the WWRC project was being piloted. Vocational evaluators could study the work of tele-medical researchers (Forducey, Ruwe, Dawson, Scheideman-Miller, McDonald, & Hantla, 2003; Savard, Borstad, Tkachuck, Lauderdale, & Conroy, 2003) for ideas about extending VE services and learn from the distance techniques used to assess and manage neurological impairments of medical consumers (Russell, 2007). Continued research efforts exploring applications of virtual reality therapy provide examples of the potential for vocational evaluators and other rehabilitation practitioners (Creative Technologies, 2013).

Expanded Opportunities in Rural Areas

Access to services is an important determinant of VE, and community services and access to transportation are some of the conditions that can be overcome by distance technology services. When one considers that about 20% of the U.S. population lives in rural areas (Mazurek et al., 2011), distance technology makes sense. Rural areas are known for limited services and poor rehabilitation outcomes for individuals with disabilities (Young, Strasser, & Murphy, 2004; Umeasiegbu, 2013). In addition to the examples noted earlier, more researchers and service providers are using the "power of technology" to reach more consumers who live in rural locations. For example, Schopp, Johnstone, and Merveille (2000) used videoconferencing to provide cognitive assessment and psychotherapy for individuals with brain injury with positive rehabilitation outcomes. Schmeler and colleagues (2009) posited that tele-rehabilitation is a needed option to serve those who will need to travel far distance in order to receive rehabilitation services. The use of technology in the provision of services such as distance (tele-) VE can prove to be cost effective and lead to more effective caseload management (Umeasiegbu, 2013). Tindall and Huebner (2009) studied the impact of tele-rehabilitation on caregiver burden and found that time and costs were saved when professionals used such technology to provide speech therapy. As the scope of VE expands via technology, vocational evaluators can expand their expertise and competencies to reach more evaluatees. The authors assume that most VE and rehabilitation practitioners are computer and technology literate, yet the lack of technology and digital connectivity by some may continue to foster a digital divide and prove to be a barrier that may hinder the

innovative use and application of technology in practice.

Conclusion

A recent study by Sligar and Betters (2012) suggested that the sociopolitical and scientific climate of the times will drive future VE training and service provision. We can see evidence of this—technological advancements are moving faster and are proving challenging for vocational evaluators and local resources to keep up. The key is to grasp opportunities created by science (e.g., technology) and integrate and build our services around them.

This requires that we prioritize a national advocacy and capacity-building agenda. If government entities cannot do this, we should do it on our own via VECAP, VEWAA, and partnerships with other national groups and industries, as well as local community employers. Further research is needed to explore the types of technologies necessary to provide effective and productive VE, to expand the number of consumers who can benefit from career opportunities yet to be developed, and explore innovative ways to share and deepen knowledge and understanding in the field.

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The Impact of Future Technology on Vocational Evaluation

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Abstract

Vocational evaluation can benefit from future technology developments; therefore vocational evaluators must stay abreast of those changes that not only will have an impact on their service functions but support better consumer outcomes. Changes in the physical technology, the ability to offer services and receive education at a distance, and concern for data security are three areas of future technology impacting vocational evaluation. Future vocational evaluation will be more technology-based providing both evaluators and their consumers improved access to information relevant to better assessment outcomes. Improved access promises better evaluator resources to facilitate matches from evaluator recommendations to consumer outcomes, while technology development holds the promise of providing sophisticated education, training, and assessment tools for evaluators. There are possibilities to use emerging technologies more broadly in vocational evaluation, including providing evaluation services at a distance and gaining more efficient online education and knowledge sharing with fellow practitioners. A number of developing technologies hold promise in supporting the typical evaluation processes and have the potential of providing more objective methods of performing vocational evaluation functions. With the continuing usage of big data to aid in service delivery, the risks of a breach of that data has surged from Internet-based hacking. Security measures to protect personal data have to be considered in the design and provision of future technology-driven vocational evaluation services. Thus, this paper explores the potential future development of computing technologies and its use in evaluator functions and education, with suggested methods to improve data security concerns.

Keywords: Technology, Security, Vocational Evaluation

The Impact of Future Technology on Vocational Evaluation

The integration of technology in American culture has affected the work methods and procedures used in occupations from cabinet making to medicine. Over a decade ago, the authors of Thirtieth Institute on Rehabilitation Issues (30th IRI), *A New*

Paradigm for Vocational Evaluation, (2003) suggested that vocational evaluators need to keep pace with current tools and technology in the workforce in order to maintain competence in their role. In the assessment process, however, a number of the evaluation methods and procedures have remained relatively static (e.g., testing, interview, observation), even though

technology has been somewhat integrated into the process. For example, vocational evaluators can perform computer-based testing that administers, scores, and summarizes results. Additionally, behavioral observations can be recorded on touch screen tablets and report writing often is done with the aid of a word processing program. The advance in hardware, software programs, and applications (apps) suggests that methodological changes are on the forefront for service provision in vocational evaluation (VE). Some of these advances and potential impact on vocational evaluation will be discussed here and it is recommended that vocational evaluators stay informed of developing technologies that can be adapted to improve evaluation outcomes.

The seemingly overnight introduction of new technologies makes it difficult to foresee technology developments a decade or more in the future. However, current technology trends suggest future possibilities. These trends affect the provision of vocational evaluation services both in-house and at a distance. For example, the delivery of vocational evaluation educational information to and between practitioners is changing with the aid of technology. Additionally, vocational evaluation can use technology to facilitate knowledge gain and sharing within the community of practice, regardless of physical location and time boundaries, through asynchronous online education. Similarly, in service provision, having the consumer and evaluator in the same space has been a requirement to provide the service since the beginning. However, online technologies expand the possibility of reaching those in need of service at alternate sites, including their home setting, facilitating the provision of services in rural areas or to locations more convenient to the evaluatee. The bright side of technology in

vocational evaluation is that it can provide enormous gains in ease, efficiency, evidence-based practice, and robustness of recommendations. The dark side of technology is that any data transported on the Internet can be intercepted and exposed, requiring the use of more sophisticated data security to keep personal data confidential. The themes of developing physical technology, distance education and service, and data security, as applied to vocational evaluation, are explored in this paper.

Physical Technology

Moore's Law in computing suggests that computing power (i.e., the number of transistors in the central processing chip) will double every two years (Moore's Law, n.d.). Moore's Law has held reasonably true during the advent and development of computing power since the early days of transistors resulting in computer processors capable of executing calculations 5,000 times faster than the original processor on the first IBM personal computer (Brain, n.d.). Combining Moore's Law with calculation speed gains and the shrinking size of processors has resulted in a proliferation of computing devices and activities. That proliferation has affected VE and is expected to have an increasing impact on the provision of VE services. The shrinking size of computer processors has allowed them to be wedged into any electronic device we purchase. With the advent of nanotechnology, it is theoretically possible that future computers can exist at the microscopic level making them even more of an increasing part of everyday function. In addition to providing information, smaller computing devices are being used not only to monitor all things human but also to provide enhanced views of our current reality. A down side of the ubiquitous use of computers is that they can

overload practitioners with data they may or may not know how to analyze and this overload tends to turn practitioners into computer technicians who spend increasing time in front of a computer and less time in front of people. Vocational evaluators are, however, accustomed to using computers in their testing, communication, and report writing, and therefore current developments in technology will be adapted for the evaluation process. One of the more exciting future trends in technology that may affect VE is wearable technology.

Wearable Technology

Fashion meets technology with wearable technologies such as bracelets, fitness monitors, and enhanced watches that offer body functioning monitoring, application use across a spectrum of functions, and Internet connectivity. Recently introduced from several manufacturers are glasses with head mounted displays that can both record what the wearer is seeing and provide stored or Internet-derived information to the wearer projected to the inside of the glasses. One example, the Google glass, attempted to provide full-time mobile computing power in our everyday life in wearable form (<https://developers.google.com/glass/design/ui>). Early versions of this hardware contained an optical head mounted recorder and display, a touchpad, a camera that can save and/or broadcast pictures and video, and voice interaction with the Internet through an imbedded microphone and earpiece. Other companies, such as Microsoft (Luk & Ovide, 2013), have provided their own version and it is expected that the large technology players, such as Apple and Amazon, will have similar devices; current anticipation is these devices will become much more functional.

This type of wearable headset provides the functions of a smart phone or tablet computer but in a small unit attached to eyeglasses. Examples of early uses of Google glass included helping a surgeon virtually augment an operation, recording a medical exam on a patient's retina, identifying shrapnel in a wound, viewing breastfeeding instructions for mothers to use while nursing, monitoring endangered species in Nepal, and broadcasting surgeries and autopsies for teaching purposes. Thus, a wearable headset offers the potential of providing information on the world seen through the glasses, serving as a video recording and Internet broadcasting device, and providing informational or behavioral prompts to the wearer.

The use of wearable technologies has potential to provide service changes in VE. The bulk of current vocational evaluation testing done is through the provision of paper and pencil and work sample testing. In these testing methods, stimuli are presented, responses recorded, and results are interpreted. Responses (quality or speed) are most often compared to a normative sample (i.e., norm referenced interpretation) or a minimum job criterion to evaluate a consumer's performance in relation to that reference group or standard. However, other fields such as medicine and engineering have adopted more accurate measurements of human body responses from their patients to enable their results to be understood utilizing an individualized interpretation. In rehabilitation, this method is most often seen in physical capacity evaluations. Individualized or ipsative interpretation of test results is similar to a cyclist comparing ride time over a set distance to his or her personal best or individual average rather than his or her placement in a group. This rating method allows self-competition and opens up improved training possibilities with increased health benefits to the cyclist.

Similarly, personal monitors that analyze physical responses such as heart rate, blood pressure, sweat intensity, brain wave changes, and blood markers could offer more objective measurements of response to vocational testing protocols, which are harder to fake or misinterpret. The use of wearable technologies, such as monitoring bracelets, placed on evaluation consumers can provide objective measures that better compare their performance with previous performance. These data can certainly be norm referenced but offer the added advantage of improved objectivity and self-analysis.

Newer technologies, such as head mounted displays, provide the vocational evaluators an alternative method of performing their work functions and learning from VE experts who are better trained and experienced in the field. Vocational evaluators typically read multiple reports from other practitioners about the consumer, provide vocationally relevant testing, make behavioral observations, and integrate the data collected. They then compare that information to a variety of factors they find predict success in training or employment. This information is compiled into a vocational evaluation report that can be shared with the consumer, the referral source, and potential employers (Thirtieth Institute on Rehabilitation Issues [30th IRI], 2003). Wearable technologies offer help with all of these functions. For example, reading of previous reports can be done using a head mounted display with voice notes or summaries made by the evaluator. Evaluators are required to record behaviors in work-like settings. Mobile recording/broadcasting devices offer a more efficient method to record snippets of typical behaviors or test results for later review and communication with the consumer, the referral source, and potential employers as

part of a narrative and video final report. An area not well utilized is the comparison of the consumer data with data from previous research that can guide the vocational evaluation recommendations within a framework of researched best-evidenced based recommendations. This technology provides a means to that end.

In addition to its usage for service provision, wearable technologies offer a training opportunity for the practicing vocational evaluator. Using the broadcasting feature of headset recording technology would easily allow live peer or expert review of the evaluator's performance. In this scenario, a supervisor or master-level practitioner could make behavioral prompts or suggestions in the real time environment by watching and listening to the reality occurring in front of the evaluator. These types of emerging wearable technologies are just the beginning of a more broadly included usage of technology in the evaluation process and do not even consider the capacity of these developing technologies on ameliorating functional limitations with assistive technologies. In addition to wearable and smaller technologies used in evaluation, changes in the use of technology will alter the way services are provided and for vocational evaluator education.

Service Provision and Education at a Distance

Changes to Practice and New Challenges

The changes in technology are dynamically shifting the field of rehabilitation and VE to new opportunities. Within the scope of those opportunities, there are shifts in responsibilities, roles, and ethics, which require a dynamic body of research (Barnett, 2005), additional strategies for practice, and innovative tools

in rehabilitation education pedagogy (Layne & Hohenshil, 2005). Considering that vocational rehabilitation was focused on building face-to-face therapeutic alliances with consumers, changes in technology have altered perspectives for how practitioners are to form appropriate and ethical therapeutic alliances. Addressing those changes has been emphasized across international boundaries, where counseling presents an entirely different cultural shift (Goss & Anthony, 2009; Kolog, Sutinen, & Vanhalakka-Ruoho, 2014).

Because these changes in technology present opportunities and challenges, a significant component of rehabilitation practice is how to adopt the commonly used face-to-face counseling and evaluation methods into an online modality, especially when the modality consists of several potential services (e.g., telephone, emails, texting, video chatting). Guidelines and codes of ethics should be addressing how to adopt a variety of interview skills (Ivey, Ivey, & Zalaquett, 2010) when those interview skills may not fully translate into the environment using online evaluation methods. For example, evaluators may not have the ability to utilize fully interview skills, such as examining nonverbal actions of consumers, which are important components of communication. Due to this particular issue, rehabilitation service providers may need to operate on different technology platforms and recognize what interventions are most effective for each individual consumer.

Multiple researchers have also noted that research regarding online counseling and evaluation is scarce, which demonstrates the gap in providing guidelines and defining effectiveness in practices. These researchers (Mallen, Vogel, & Rochlen, 2005a; Mallen, Vogel, Rochlen, & Day, 2005b) observed that investigators rarely take on the topic of service delivery in online settings as a

scholarly interest. This lack of interest reinforces the literature gap in having appropriate resources to conduct online service, despite the change of practices from exclusively face-to-face interactions to online interactions (Chang, 2005). Other researchers also support the notion that technological changes will allow practitioners to reach more consumers and assist in reducing barriers to receiving services (Mallen & Vogel, 2005; Sanchez-Page, 2005). Examples of these consumers include rural populations, members of the military serving in remote theatres of operation (e.g., Afghanistan), or persons with disabilities who may not be able to travel to a service center. While utilizing technology for consumer services can be assistive, Caspar and Berger (2005) suggested that researchers have new ethical responsibilities to develop research that addresses best practices and opportunities for online services. Similarly, Barros-Bailey and Saunders (2010) noted the gaps in the literature regarding the impact of technology in counseling, which necessitated their adaptation in the Commission on Rehabilitation Counseling Certification (CRCC) 2010 Code of Ethics to connect with the new competencies of using technology in counseling and rehabilitation services.

Impact of Technology on Education/VE Training

Increasing competencies. Altering the modality of vocational evaluation will necessitate an updated set of competencies, as well as a revision of pedagogical tools and psychometric testing instruments. Barros-Bailey and Saunders (2010) noted the significant role technology has played in changing rehabilitation practitioners' code of ethics, including shifts in the prior curriculum in graduate training programs

and changes in the services provided. One major point they observed was the challenge of securing the administration of web-based pedagogical tools (e.g., video lectures, podcasts, iTunesU, YouTube) when those tools can easily be altered from their original format. In addition to this challenge, Barros-Bailey and Saunders (2010) explained that there is very little research defining the effectiveness of training tools for rehabilitation counseling and vocational evaluation training programs, which leaves rehabilitation educators with limited resources.

There is a paucity of peer-reviewed research on conducting vocational testing at a distance or utilizing new technologies. The comprehensive nature of a vocational evaluation presents challenges to obtain objective results when utilizing new communication technologies. For example, when completing a vocational evaluation, an evaluator uses clinical interview and psychometric testing to obtain data on a consumer's vocational interests, aptitudes, academic achievement, personality, preferences, work history, learning style, behavioral observations, medical and/or psychological history, and work-affecting limitations. The instruments utilized to collect this information have been standardized for face-to-face assessment and relatively few of these are available online. Utilizing these instruments at a distance raises a number of questions. Can an evaluator send the instruments to the consumer via the mail? How does technology accommodate this challenge? How would the reliability and validity of the findings (e.g., testing environment, duration of the instrument, taking breaks, privacy, assistance) be affected?

Mallen et al. (2005a) provided several recommendations to address the continuing use of technology in providing career counseling. Their recommendations

specifically targeted the development of professionals in training regarding online counseling, as many service providers are not fully equipped or have even considered providing services online. Television programs (e.g., Web Therapy) have even poked fun at the counseling profession for having counselors who are ill-equipped to attempt online counseling services. Mallen et al. (2005a) offered many options that rehabilitation educators and supervisors could take when developing the competencies and transferrable skills from face-to-face interactions and the new service provision environment. They explained that service provider trainees would benefit heavily from increasing their online interactions (e.g., Skype), which would increase their familiarity and experience with online platforms. The trainees would then develop connections between their face-to-face training in helping skills to their experiences online.

Online education and supervision.

The 30th IRI (2003) noted a desperate need for increased vocational evaluator training, which could be assisted through online education and supervision. There are major benefits to implementing programs and courses that are delivered in an online or technology-based format. Layne and Hohenshil (2005) offered that supervision and education can work with more flexible schedules for instructors, supervisors, and students. Cicco (2012) emphasized the importance of utilizing diverse tools to engage trainees in their coursework. Specifically, Cicco (2012) identified the combination of classroom technology, especially online assessments, surveys, and Blackboard technology, to develop creative formats in which learning can take place. McAdams and Wyatt (2010) also identified that distance education can provide access to more students working with a diversity of populations, especially rural populations and

lower socioeconomic status (SES), who do not have the funding to transport themselves to institutions or organizations on a frequent basis. In addition, Beveridge, Karpen, Hadjiyane, Weiss, and Liu (2014) explained that graduate students who were currently practicing in their field found a specific online education program to be extremely beneficial, even when the course content was distributed exclusively online. Significant results from the Beveridge et al. (2014) study reported that students who completed the program had more satisfaction in their learning, experienced a significant increase in their earnings, and were given advanced roles in their employment as rehabilitation service providers and vocational experts.

There are also significant difficulties when examining the quality of supervision provided by technology-based formats. Mallen et al. (2005a) offered multiple perspectives on major issues that occur when providing online supervision. For example, immediate consultation or supervision would be difficult because supervisors may not be readily available due to variables such as separate time zones and physical presence. Supervisors may have more challenges in ascertaining particular feelings of their supervisees, especially if the supervisees appear anxious or happen to be in different geographic locations. The potential challenge in being unable to ascertain those feelings can become barriers to a successful supervisory relationship. Mallen et al. (2005a) did not posit that a successful supervisor relationship was not capable through online formats, but they concluded that beneficial relationships would take a longer time to develop and would have new unique challenges.

Certificates vs. Degrees (MOOCs).

Development of training should address the ideas about how pedagogy and curriculum are organized when delivering education and

supervision. There has been a major debate about what would be most effective and ethical for service providers. One idea is the application of massive open online courses (MOOCs), which allow numerous individuals to partake in educational content or coursework at very low costs (Spector, 2014). This avenue could address the significant changes in technology that are affecting higher education (McAdams & Wyatt, 2010; Moon, 2013). Although this method sounds ideal, the concept can also be lacking, because training modules and resources are developed without supervision (Spector, 2014). Consequently, many individuals who participate in these MOOCs would be left without feedback from an expert and/or without ideas of how to implement these tools into practice. The idea from Spector's (2014) perspective reinforces the outcome of the Beveridge et al. (2014) study, where students found their interaction with the instructor to be the most meaningful experience (e.g., weekly video lectures, personal telephone calls, Skype), which allowed them to engage with the content at a higher level. Additionally, individuals taking MOOCs would also not be able to receive a degree from an institution; they would receive a certificate of completion rather than college credits. Spector (2014) noted that there is much potential to implement the concept of MOOCs into instructional learning, but the suggestion is to combine the MOOCs into "mini-MOOCs," which would target personalized learning in addition to web-based learning with experts. Spector (2014) suggested that MOOCs are not fully ready to implement, as initial troubleshooting issues have not been resolved and research into their effectiveness is scarce; this suggestion coincides with the call of many other researchers (Barros-Bailey & Saunders, 2010; Caspar & Berger, 2005; Mallen & Vogel, 2005; Mallen et al., 2005a; Mallen et

al., 2005b) to engage in more research regarding the effectiveness of online education and incorporation of technology into providing services.

Providing Services at a Distance

Advantages. One of the major benefits of providing services using a diversity of technology (e.g., phone, text, chat, video conference) is its accessibility to a diverse clientele (Riemer-Reiss, 2000). Utilizing several technology platforms to provide VE and services can extend the outreach beyond the areas that are local to the service provider. Vocational evaluation services at a distance can especially utilize web-based video chatting and live conferencing to provide interactions similar to face-to-face services. This access to services addresses several concerns posed by the rehabilitation profession in how to access underserved populations. Many of these underserved populations come from rural regions and regions with low socioeconomic status (SES) that do not have VE services readily available. Common occurrences for these populations are longer periods of time for an evaluation, lower frequency of rehabilitation services, and higher rates of consumer dropout.

An additional benefit of utilizing technology to provide services is the field's adaptation to societal changes. Communication in society and rehabilitation is transitioning beyond face-to-face interactions. As a result, this change requires rehabilitation providers to enhance their services by providing options and recognizing new forms of communication. Furthermore, significant advantages in the use of technology with services have highlighted the barrier to seeking services, especially when consumers come from cultures that have stigmatized receiving these services. An interesting point that

Mallen et al. (2005a) posited was that some practitioners who utilized English as a second language mitigated their own barriers through communication with consumers through the use of technology. They provided the example of a practitioner who had less anxiety in providing services because of reduced self-consciousness about his/her accent.

Disadvantages and concerns. There are multiple concerns behind the scope of providing services through diverse technology formats. One significant concern is an array of ethical dilemmas that needs to be examined before working with these technological formats. For example, ethical and legal boundaries may preclude evaluators from providing services to consumers who are in different states or countries. There are different governing bodies regarding the provision of services that are not parallel with licensure laws that vary from state to state (McAdams & Wyatt, 2010). For instance, Licensed Professional Counselors in Pennsylvania have different requirements for licensure than New York. When a counselor in Pennsylvania uses online technology to provide services to consumers in New York, there is a risky ethical or legal situation due to the different licensure requirements. Similarly, consumers who are in different countries (e.g., Afghanistan), including military service members, may also present another ethical dilemma for service providers utilizing this type of technology to provide rehabilitation services. The codes of ethics from several professional identities (e.g., American Counseling Association, Commission on Rehabilitation Counselor Certification) often warn service providers of the implications for providing services beyond the limitations of licensure. The requirements vary by state and among countries.

Using technology in counseling and assessment, especially through the use of telephone, messaging, chat, or Skype, also remains questionable when falling under the critiques of interview skills and helping relationships (Ivey et al., 2010). Much of the non-verbal communication that is a significant component of helping relationships will be lost (Mallen et al., 2005a). Service providers may not be able to view the consumer's body language. In addition, providers may also miss the ability to attune to consumers' facial expressions, vocal tone, and volume, especially in the cases of telephone or chat utilization. When these skills are challenged, establishing a working alliance and trust is more difficult. When the possibility of a working alliance is hindered, connecting with a consumer may become more challenging.

Another perspective to consider is the assumptions that are created when developing the use of technology in VE. A major challenge is that low SES individuals may not have the access or competency to utilize technology, despite the ability to mitigate barriers of transportation or geography (Sampson & Makela, 2014). Another important group to consider is the older adult population, who may not have the familiarity or comfort level in using technology (Riemer-Reiss, 2000). Additionally, services provided online may not be appropriate for consumers diagnosed with severe psychiatric disabilities, especially when the level of risk is high (e.g., suicidal or homicidal ideation). The other major assumption is that technology will be completely reliable (Layne & Hohenshil, 2005). That situation, however, may not always be the case, as wireless frequencies are interrupted and in some rural geographical areas the latest high speed technology may not be available (or affordable). Interruptions in session can detract from the service provision.

These challenges require continuous scholarship to highlight best practices about how to implement technology in assessment (Mallen & Vogel, 2005; Sampson & Makela, 2014). Counselors and evaluators will need to think comprehensively about the appropriateness of the services, the ethical risks, and the well-being of each unique consumer and what works best for that individual. With service provision and online education, personal and private consumer and student data is generated in the process that is expected to be confidential for the evaluator and student/consumer. Unfortunately, sophisticated cyber criminals have regularly hacked into that confidential data and exposed it or sold it to anyone with an Internet connection. With reports of rogue groups and nation backed hackers repeatedly breaching personal data, data security has moved to the forefront of technology.

Data Security

Computing and technology have progressed over the past 30 years, especially in the areas of computing speeds and processing power. Through these technological advances, three truths have become more apparent: (1) computers have become part of a global network of information sharing resources and tools capable of instantaneous speeds; (2) miniaturization has allowed computers to take the form of phones and mobile devices; and (3) data security is a balance between a safe environment for our business and personal information, and the ability to access it at any time or from any place.

In order to understand data security, understanding the risks these evolutions present is important. The great thing about a world of inter-connected systems is the ubiquitous availability of information. For example, a recent advance in computer

technology is cloud computing, which provides a solution to store and retrieve files anywhere our wired or wireless systems can access: two common providers are Google Drive (<http://www.google.com/drive/>) and Dropbox (<https://www.dropbox.com/>). In addition to file storage, these technologies allow for sharing and collaboration of information with “trusted” people and protection from “untrusted” people. As access to personal or private data becomes easier, so does the opportunity for malicious actors to find and obtain this data. To ensure that information remains secure and free from theft, we have to look at two sides of the cloud-computing picture.

When using a cloud system from service providers, such as those listed above, to what means do they go to ensure that your data is safe and can they be trusted? Do they understand that the data stored is more than just pictures and spreadsheets, but data that contains personally identifiable information or personal health information? In addition to the cloud providers, the members of the VE community are trusted representative of consumer records, and must ensure the end user side of data protection. In an article released on lifehacker.com, Gordon (2014) indicated that five million Google accounts were hacked and usernames and passwords were released. A great deal of personally identifiable information or personal health information could be gained in such a theft. Companies such as Google and Dropbox would be out of business if they could not ensure protection of the data they store. This is one example of what professionals working with confidential consumer information should consider before utilizing cloud storage.

As with cloud computing and the required security of the service provider, the sometimes overlooked tool is the mobile device used to access the cloud. We utilize these systems every day to connect to the

cloud, store data, and connect to others for collaboration. As we use these devices, how do we ensure the same level of security that is placed on the cloud-computing providers is placed on the personal mobile device? There exists both a physical and logical threat to security with such devices. Due to the size of mobile devices, they present a security threat due to the ease of being lost or stolen and the type of information they possess. Most users do not have the technical knowledge to protect data stored on these devices to prevent unauthorized access in the event of a stolen or lost device. The logical threat is that of the applications that are installed, the types of connections we allow (e.g., WiFi, Bluetooth, Near Field Communications) and the way we restrict their activity. Some of the ways to ensure that systems remain safe is by using software from reputable companies, avoiding connections to unknown wireless access points, and disabling unused components, such as Bluetooth, when not in use. These examples show that even basic users must know the importance of understanding system configurations and account and password management. This basic knowledge is vital to securing information systems.

Everyday users have the ability to send real-time video across the world to facilitate both business and personal interaction. Individuals can now use this tele-presence to oversee patient care and recovery and come together as a group to solve real problems. Cisco and other video conferencing companies have created conference rooms that are simply monitors attached to devices to give the appearance of a fully functioning conference room for users around the world to participate. This technology allows for individuals to collaborate over great distances from the comfort of their homes or businesses. As this technology used in medicine allows

patient assessments to be completed, it also allows for worldwide expertise to be shared, ensuring a patient gets the best treatment possible with the least impact to financial resources. This solution provides quality care without the cost limiting the level of treatment provided.

While this technology provides advantages, it still requires a great deal of end-user understanding of technology and data protection from service providers to ensure confidentiality. Cloud computing is set so that information users share individual resources but have logical boundaries between the data. As with the physical world, where we can build fences and walls and utilize guards, the logical world has similar protections but the most basic of users can sometimes overcome these boundaries intentionally or deliberately. Much like cloud computing, the same concerns exist with the need to protect the information that allows these collaborations to remain private. Whether it is a file or video being sent across the network, it still represents data that must be protected.

Technology provides interactions like any seen in previous generations. Today's security system and home automation provide instant feedback if a sensor is tripped or the system is disarmed, as well as providing the gratification of knowing one's homes and valuables are secure through remote communications. With these technologies allow this type of connectivity, they also open the door to real time monitoring of individuals with conditions that require in depth tracking, though this would occur within call centers instead of individual nurses at a single home. Most people would say this is depersonalizing health care, but given the current level of medical treatment availability, we have the technology that can allow greater support with less personnel thereby resulting in cost savings. Again,

security is a prime concern that needs to be tracked in order to establish such resources for the future.

Data security typically revolves around three topics: confidentiality, integrity, and availability (Price, 2008). As vocational evaluators utilize the technologies mentioned, each new method must define what the most important component of data security is. All three techniques of data security may be required, but it is very dependent on the type of information being shared or stored. When dealing with information such as medical treatment or care history, confidentiality is pivotal in how we utilize this information. We must ensure the proper encryption of the data and the means that is transported. As we add these techniques to the data, we begin losing the speed at which the information can be shared as well as storage limitations.

Within the VE process, integrity, the next component of data security, can change an individual's vocational outcome if not ensured. As the individuals are tested on various levels of vocational ability, they are scored and rated on various scales. Without data security to ensure integrity, these scores could be modified in transit or maliciously altered to provide an unfair advantage when determining individual assessments. Implementing the security features to ensure integrity may not be as costly as that of confidentiality, but still requires systems that can support the software that ensures data integrity. An example of this type of protection is through the use of hashing algorithms that allow detection of data tampering.

The least critical of the three components of data security in dealing with VE is that of data availability. During the vocational evaluation process, if a system takes several hours to download a file versus a few minutes, nothing is really lost. Where

this becomes extremely important is in the redundancy of the data, which still falls into the availability category. As previously discussed, the use of cloud computing connects practitioners to available information; however if proper checks are not in place, the data one expects to retrieve may be lost in the cloud forever.

As described above, data security, involving the confidentiality, integrity, and availability of information, is technologically advanced and must be implemented early in the VE process. How does all of this information affect the technology and services afforded to the VE process? Technology has become increasingly more intertwined into our lives with devices such as the smart thermostat by NEST (<https://store.nest.co>) and other home automation systems. As these solutions provide methods to make day-to-day tasks more manageable, they also lead to the ability to provide capabilities for people with disabilities. These sophisticated systems are just sensors with a connection to the Internet. Similar devices are being used to monitor treatment or facilitate the recovery of individuals, with the same goal. As more of these systems are developed that are dependent on the Internet, extra precautions, such as restricting access and implementing protection systems, are required.

The technology to advance the vocational evaluation process is available and will only continue to benefit the community. From a data security perspective, these technologies all rely on the ability to protect the data as it rests and as it transits the Internet. In order to utilize these advances in technology, it will be the responsibility of ALL who are entrusted with the protection of this data.

Summary

Technology is producing changes in the VE process and future technologies offer the potential for radical changes in VE. For example, it will be possible for future vocational evaluators to collect more accurate and objective physical human body responses to stimuli that can improve measurement by increasing accuracy. By allowing the evaluator to tap into the wealth of knowledge from evidence-based practice, integration and interpretation of the collected evaluation data will be more scientifically based, providing better outcomes. In addition, information collected during the evaluation process can be processed efficiently using technology. With technology, VE will expand its boundaries from the centralized service center to locations convenient to the consumer. In addition to service provision improvement, future technologies are expected to provide improved educational opportunities through the provision of online education and possibly evaluator monitoring and prompting by supervisors and/or master level evaluators. In this scenario, the instructor/mentor can see and hear everything the evaluator sees and hears in real time and can provide informational prompts to aid the evaluator in his or her duties. While information flow is expected to be increasingly available over larger distances, the concern was raised about how to keep that information (e.g., personal data or consumer information) confidential and secure from the public. Data security concerns relate to confidentiality, data integrity, and availability of the data. Increasing use of cloud-based data storage presents unique data security issues but improves the availability of evaluation data to a multitude of devices. As future technologies become available and affordable, VE methods, procedures, and appearance will change drastically from today's service while offering an improved

and more efficient product with better consumer outcomes. That time cannot get here fast enough.

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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.

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VEWAA MISSION

The Vocational Evaluation and Work Adjustment Association (VEWAA) represents the interests and needs of human service professionals who work with people in support of their endeavors in training, employment, and education to enhance successful attainment of career goals. VEWAA has a diverse membership that provides services to individuals who need assistance with vocational development and or career decision making, are involved in education and training of professionals entering the field, and conduct research and policy development that enhance the lives of persons with disabilities. Individual members provide services within a variety of settings such as community rehabilitation programs, schools, state and federal agencies, universities, the private sector and directly in business and industry.

The mission of VEWAA remains to improve and advance the fields of vocational evaluation and work readiness and it is committed to representing the needs of all professionals who provide related services. Through training, education, and communications, VEWAA seeks to provide all members with access to professional growth opportunities, to respond to current issues, and to monitor the development of public policy and workforce trends at the national, state, and local levels.

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