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## EDITORS

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**Steven R. Sligar, EdD,  
CVE, PVE**

*Co-Editor*

East Carolina University  
Professor  
Director Graduate Certificate  
in Vocational Evaluation  
Department of Addiction and  
Rehabilitation Studies  
Allied Health Building  
Greenville, NC 27858  
Phone: 252.744.6293  
Fax: 252.744.6302  
E-mail: [sligars@ecu.edu](mailto:sligars@ecu.edu)

**Nancy Simonds, MA**

*Co-Editor*

Nancy Simonds  
Communication, LLC  
East Windsor, CT 06088  
Phone: 860.254.5418  
E-mail: [nancy@simonds.com](mailto:nancy@simonds.com)

**Lauren Bethune Scroggs,  
MS, NCC, CCMHC**

**Ralf Schuster, MEd,  
CRC**

*Managing Editors*  
East Carolina University  
Department of Addiction and  
Rehabilitation Studies  
Allied Health Building  
Greenville, NC 27858  
Phone: 252.744.6300  
Fax: 252.744.6302  
E-mail:  
[bethune14@students.ecu.edu](mailto:bethune14@students.ecu.edu)  
[schusterr16@students.ecu.edu](mailto:schusterr16@students.ecu.edu)

---

---

## CONSULTANT REVIEWERS

---

---

**Joe Ashley**, Virginia Department of Rehabilitative  
Services

**Andrew Byrne**, CA Polytechnic Institute

**Samuel Castiglione**, Workforce & Technology  
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*Statistical Consultant*

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VECAP  
11 Swan Avenue, Berryville, VA 22611  
Phone 540.247.1888  
E-mail: [Office@VECAP.org](mailto:Office@VECAP.org)

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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 represent the needs of the professionals who provide those services. Its scope of services encompasses individuals who need assistance with vocational development and/or career decision-making.

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

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

For membership information, visit [VECAP.org](http://VECAP.org).

## EDITORIAL

### Mad Libs, Decisions, and Vocational Evaluation

Do you recall the word game Mad Libs that uses a phrasal template in which one player asks other players to provide missing words in a story? At the recent NC Rehabilitation Association conference, a training session on the ethical importance of completing forms was conducted. A special intake form (Morell, 2018) was constructed in a Mad Lib style and one of the sentences was: *Help the client to make \_\_\_\_\_ decisions.* A partial list of the responses included *big, bold, green, pretty, and mellow.* On the surface, these words are chuckle-worthy. As vocational evaluators or career assessment professionals, what kind of decisions do we help clients make? We certainly help with big and, you may say, bold decisions like: *What career shall I choose? Which job is best for me? What will I study in school?* What is a green decision? If you consider the combination of the refreshing quality of blue and the cheerfulness of yellow, then the resulting green decision is restful for the client. We certainly want a pretty decision, one that not only looks good on paper but also holds up over time. How do we help with mellow decisions? Perhaps we do in the sense that after a decision is made the client feels, well, mellow. You can provide other descriptors for decisions at your leisure. Regardless of the size, type, or color, we strive to empower clients to make their own best decisions.

Tests are one of the tools we use to collect information to facilitate decision making. In this issue of the *Journal* you will find two articles about tests. The first by Carlson and Peila-Shuster, *Score Comparability of the Paper-Pencil and Internet Versions of the Career Decision-Making System Revised with Ninth and Tenth Graders*, examines two different versions of the CDI to help guide how you may choose which version to use in your practice. Second is a test review of the *Cognitive Distortion Scales* by Masood, Dell, Sprong, and Dell. They provide practical information to help with your possible inclusion of this test in your tool kit.

This issue of the *Journal* concludes our serialization of the book *Vocational Evaluation and Assessment: Philosophy and Practice* by Dr. Stephen Thomas, who has granted VECAP the rights to publish his text. It was first drafted in 1997 for use in the Introduction to Vocational Evaluation course and only available through the East Carolina University bookstore. This issue of the *Journal* presents *Chapter Eight: The Vocational Evaluation Process* and *Chapter Nine: Communication and Follow-Up* and *Appendices A - I*. To acquaint the new reader (or reacquaint those readers who know him) with Dr. Thomas, a short interview by Matt McClanahan introduces this work.

Dr. Thomas' excellent book on vocational evaluation and assessment was groundbreaking when it was published in 1997, and still retains its value today. Be aware, however, that some of our industry terminology has changed, and several of the resources he lists have changed their contact information or are no longer in business. (You can find the current information through a simple Internet search.) These issues notwithstanding, the chapters we re-print here have relevance and value to those of us who teach about or conduct vocational evaluations.

## Reference

Morell, S. K. (2018). *Fill-in-the blank form*. Paper used in Red Tomatoes – Green Tomatoes: We all need ethics. Presented at the North Carolina Rehabilitation Association Annual Training Conference, Cary, NC.

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

**Steven R. Sligar**  
**Co-Editor**

**Nancy Simonds**  
**Co-Editor**

**Lauren Bethune**  
**Scroggs**  
**Ralf Schuster**  
**Managing Editors**

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

# VOCATIONAL EVALUATION AND CAREER ASSESSMENT PROFESSIONALS JOURNAL

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## **Score Comparability of the Paper-Pencil and Internet Versions of the Career Decision-Making System Revised with Ninth and Tenth Graders**

Laurie A. Carlson and Jacqueline J. Peila-Shuster

### **Abstract**

This study utilized a systematic cluster crossover design to examine the score comparability of the standard paper-pencil (Level 2) version of the Harrington-O'Shea Career Decision-Making System Revised (CDM-R) and the new Internet version of the same instrument (CDM-I) with 443 ninth and tenth graders in one traditional, comprehensive high school. The researcher examined three sections of these two versions for comparability. These sections included: (1) the self-reported career cluster choice, school subject preferences, work values, abilities, and future plans of the participants; (2) the scale scores for the six career interest areas; and (3) congruence between the clusters suggested by the scale scores for the career interest areas. Further analysis explored possible interaction effects based upon grade level, gender, and order of instrument administration. Findings indicate that results on the CDM-R and the CDM-I with ninth and tenth grade students are comparable.

*Keywords:* Vocational Evaluation, Career Assessment, Score Comparability, Career Decision-Making, Test Equivalence

## **Score Comparability of the Paper-Pencil and Internet Versions of the Career Decision-Making System Revised with Ninth and Tenth Graders**

The Harrington-O'Shea Career Decision-Making System (CDM) dates to the mid-1970s with most revisions focused on ensuring that it remains timely for users. O'Shea and Feller (2008a) developed the Internet version of the Career Decision-Making System Revised (CDM-I) to allow for online administration and interaction. The Internet version offers greater flexibility in how schools can use this assessment with added convenience in that users may print their interpretive report or log into their results online as often as they desire (Campbell & Perry, 2013). Furthermore, the CDM-I interpretive report provides links to O\*NET online occupational descriptions, allowing for more comprehensive exploration of identified occupations.

The Career Decision-Making System (CDM) uses Holland's theory of vocational choice (1973) as its theoretical basis. In particular, the interest survey portion of the system provides six interest areas (Crafts, Scientific, The Arts, Social, Business, and Office Operations) that correspond with Holland's RIASEC codes (Realistic, Investigative, Artistic, Social, Enterprising, and Conventional). Harrington and O'Shea (2000) developed the CDM category names to provide a better approximate of occupationally relevant terms. Additionally, the CDM assesses not only interests but also career choices, favorite school subjects, work values, self-appraised abilities, and future educational/training plans. In this way, the CDM helps model a system for making career decisions that incorporates various sources of information (Harrington & O'Shea, 2000) and thus, "teaches concepts and skills to help users make informed career decisions" (Campbell & Perry, 2013, p. 254).

Online measures of career interest, maturity, and exploration have grown exponentially as advances in and access to technology has expanded (Chartrand & Walsh, 2001; Gati &

Asulin-Peretz, 2011; Lottridge, Nicewander, & Mitzel, 2011). Online career assessment offers both client and career counselor convenience, efficiency, reduced cost, and immediate results in many cases (Walsh, 2010). Conversely, the expanded use of online career assessments introduces legal and ethical concerns (Barak, 2003; Oliver & Whiston, 2000) as well as concerns regarding the equivalency of online tests created through modifications of a paper-pencil instrument (Buchan, DeAngelis, & Levinson, 2005; Campbell, Ali, Finlay, & Salek, 2015; Lumsden, Sampson, Reardon, Lenz, & Peterson, 2004; Roberts, 2007; Wise & Plake, 1990). Standards 9.7 and 9.9 of the *Standards for Educational and Psychological Measurement* (American Educational Research Association [AERA], 2014) further articulate the need for assessment users to ensure that online versions of an instrument do not produce test-taker scores that deviate from those of its paper-pencil counterpart.

Stability of scores across testing conditions provides one form of evidence that variant instrument forms are comparable (Bennett, 2003). As with this study, psychometricians and career measurement experts have generally answered the call to explore and provide evidence regarding the comparability of paper-pencil and computer-based career assessment instruments. Equivalency investigations have been conducted with related instruments such as the Career Key (Buchan et al., 2005) and the Self-Directed Search (Lumsden et al., 2004). Buchan et al. (2005) found no statistically significant differences for the test-retest reliability coefficients between identical scales of the web-based versus paper-pencil versions of the Career Key. Lumsden et al. (2004) examined the equivalency of the paper-pencil, personal computer, and Internet versions of the Self-Directed Search and found no statistically significant differences in scores regardless of the administered version. These studies focused on consistency in validity and reliability coefficients, though, stopping short of examining scores themselves. Lottridge et al. (2011)

stated that both score equivalence and construct equivalence are important considerations in assessment accountability. Advances in congruency measures (Brown & Gore, 1994; Dik, Hu, & Hansen, 2007; Eggerth & Andrew, 2006; Miller, 2008) allow for examination of score comparability beyond reliability indices to include a statistical measure of congruence between multiple letter career codes. This is important in that scale scores may present as numerically consistent across a group although the order of primary letter codes for individuals may differ between administrations.

An earlier equivalency study conducted on the CDM-R paper-pencil versus computer-based version involved undergraduate students at Texas A&M and utilized a 2-week test-retest, repeated measures design (Kapes & Vansickle, 1992). Researchers randomly assigned students using gender stratification into the computerized or paper-pencil administration groups and administered the same version twice to each student. The participant group included 77% women, 95% White, 5% Hispanic and had a mean age of 20. According to the M statistic, the computer-based version yielded higher reliability coefficients than the paper-pencil version. The median test-retest coefficient for the paper-pencil version was .76 and ranged from .71 to .72 across the scales. The median coefficient for the computer-based version was .90 and ranged from .84 to .92 across the scales. Additionally, Fisher Z statistics were run to compare reliabilities for each scale and indicated that three of the six scales (scientific, social, and clerical) were statistically significant. None of the t-test values for scale difference scores was statistically significant, although the computer-based version did show a trend of smaller difference scores and standard deviations. Statistically significant differences favoring the computer-based version also appeared when comparing its high point codes (e.g., Crafts-Artistic) to other versions. These results suggested that the computer-based version provided more

consistent information for the career practitioner and student (Kapes & Vansickle, 1992). In addition to examining time-to-time differences for individuals within each administration group, Kapes and Vansickle (1992) also examined group differences when comparing means and variances for scale scores of the computer-based and paper-pencil versions of the CDM. Their analyses yielded statistically significant differences for the Business scale with the computer-based version scoring higher.

In addition to comparability studies for online and paper-pencil career assessments, several researchers have conducted comparability studies on similar assessment constructs with a variety of subjects and through various methodologies. A 2015 meta-analysis by Campbell et al. discovered that 78% of equivalency studies published between 2007 and 2015 found no significant differences between electronic and paper-based patient reported outcome measures. Vosylis, Žukauskienė, and Malinauskienė (2012) studied the comparability of online and paper-pencil measures of adolescent positive development through student self-report measures. This study is one of the few to explore such equivalence with school-aged participants in general and adolescents in particular (Hays & McCallum, 2005; Yarnell & Pfeiffer, 2015).

The purpose of the current study was to examine the score comparability of the paper-pencil (Level 2) version of the Career Decision-Making System Revised (O'Shea & Feller, 2008b) and the Internet version of the same instrument (O'Shea & Feller, 2008a) with ninth and tenth grade high school students. The researcher examined three specific sections to establish evidence of score comparability. These sections included: (1) the self-reported career cluster choice, school subject preferences, work values, abilities, and future plans of the participants; (2) the scale scores for the six career interest areas; and (3) the two-letter clusters suggested by the scale scores for the career interest areas. Further analyses explored possible score differences

based upon grade level, gender, and order of instrument administration.

## **Method**

### **Study Design**

This study utilized a systematic cluster crossover design, sometimes referred to as *double-testing*, to mitigate carryover effects for multiple administrations of the instrument with the same participants (Lottridge et al., 2011). This design presents the strongest control for comparability studies in that the students serve as their own control for possible biases based upon personal characteristics, such as gender, grade level, academic background, and ethnicity. The specific procedures for this design differed slightly from a true randomized crossover design in that the researcher used demographic characteristics and meeting period data to assign participants to either paper-pencil administration first or Internet administration first. Two hundred and thirty-two (52%) participants took the paper-pencil version first and 211 (48%) participants took the Internet version first.

### *Instrument*

The Harrington–O’Shea Career Decision Making System (CDM) utilizes self-reported skills, interests, values, and goals to guide career exploration and decision-making. Originally developed and published in 1976, the CDM has had several revisions, with the most recent comprehensive revision occurring in 2000 (Harrington & O’Shea, 2000). The paper-pencil and computer-based instruments were developed within an interactive Internet environment in 2008 by Career Planning Associates and distributed through Pearson Education (O’Shea & Feller, 2008a). This study used the most recent revision, collectively known as The Harrington-O’Shea Career Decision-Making System Revised (CDM-R). The CDM-R standardization sample included 1,961 students ages 11 to 20 and yielded an overall Cronbach’s Alpha of .93 with scale

alphas ranging from .92 for the business and arts scale and .95 for the scientific scale (Harrington & O'Shea, 2000).

## **Procedures**

The researcher worked with one local comprehensive, advanced placement-focused high school, chosen because of the school's commitment to career exploration for all students and the existing working relationship between the lead school counselor and the researcher. All ninth and tenth graders enrolled in the high school have a mandatory study hall—a 50-minute period set aside for supervised independent work. The only exception to this policy is those tenth graders who had approval from the counseling office to substitute another academic course. The research team determined that accessing students during this study hall period would be the best way to offer the majority of ninth and tenth graders the opportunity to complete the instrument. The CDM administration not only provided data for the current comparability study but also served to help the school and students meet requirements of state legislation mandating that all high school students graduate with an Individual Career and Academic Plan (ICAP). The high school recorded a fall student population of 1300 with 678 ninth and tenth graders. The student body is 88% White/Caucasian, 10% Hispanic/Latino, and 2% American Indian or Alaskan Native, Asian, or Black. The lead school counselor served as the gatekeeper for the research and facilitated communication between the researcher and the principal.

Research protocol included a mailed letter explaining the research to all parents of students enrolled in study hall. This letter also explained how parents could opt their child out of the study. A formal verbal script, read before each administration, informed the students of the nature of the study and asked for their assent through participation. There was one month



between the mailing of the parent letter and the first administration of the CDM, and there were three weeks between the first and second administration of the instrument.

Six school counselors and eight school counseling graduate students, trained to administer the CDM, worked together during four regular length school days to administer both versions of the instrument to all students who had parental approval and were enrolled in study hall. Student identification numbers provided a means to match administrations and give interpretive feedback to students. Participating high school students completed the paper-pencil version (CDM-R) of the instrument in the classroom where their study hall typically met. They completed the Internet version (CDM-I) in one of three computer labs. Due to limited computer resources, some students completed the CDM-I on the PC platform and some on the Apple platform. All students had significant experience using both platforms. The principal researcher was onsite and facilitated administration throughout the four days. Members of the research team supervised all self-scoring student activities following guidelines in the assessment manual (O'Shea & Feller, 2008b). Trained research assistants provided general group interpretation after the second administration. The researcher retained the paper-pencil test booklets and the school counseling team retained the summary score sheet for the student records. Only the researcher and the individual student had ongoing access to the results from the CDM-I.

## **Results**

### **Site and Participants**

The study hall rosters for the 31 ninth and tenth grade study hall sections recorded 536 students with 320 ninth graders (61%), 216 tenth graders (39%), 307 boys (57%), and 229 girls (43%). Only those students who were present for both administrations and who had parent consent were included in the final sample. The final sample for analysis included 434 students

with 272 ninth graders (63%), 162 tenth graders (37%), 245 males (57%), and 189 females (43%). The instrument did not collect ethnographic data; however, the grade and gender statistics indicate that the final sample is representative of the target sample.

### **Comparability of CDM-R and CDM-I Sections 1-5**

For the first section within the CDM-R and CDM-I, test-takers report their top two preferred career clusters from a list of 18. Only 282 students selected a first choice on both administrations and only 269 students selected a second choice on both administrations, limiting the number of valid participants. Results consisted of the percentage of the valid sample that selected each preferred career cluster. Because the data were ordinal, reported as percentages, and independent in nature (each participant selected a first and second choice on each administration), the researcher conducted two separate chi-square analyses to test the relationship of the first and second choice across administrations. Chi-square analysis using Phi statistic revealed a significant relationship between the CDM-R first choice and the CDM-I first choice,  $\chi^2 (225, N = 282) = 945.657, p < .001$ . The effect size for this analysis was medium at  $V = .473$ , 47% of a standard deviation (*SD*) unit (Watson, Lenz, Schmit, & Schmit, 2016). Analysis also revealed a statistically significant relationship between the CDM-R and CDM-I second choice,  $\chi^2 (225, N=269) = 436.449, p < .001$  and a medium effect size of  $V = .318$ , 32% of a *SD* unit (Watson et al., 2016). This indicates that students selected largely the same self-identified career clusters on the CDM-I as on the CDM-R.

For the second nominal scale item, students had to indicate the four school subjects that they liked best out of a list of fifteen school subjects. Two hundred eighty-four of the 434 students in the sample made four choices on both administrations; therefore, only these participants were included in this analysis. Because subject selections were not ordinal within

individual responses, the researcher created a multiple response set variable and then compared the percentage of students who selected a particular subject on the CDM-R to the percentage of students who selected that same subject on the CDM-I. Due to the size of the cross-tabulation table and the nature of the data resulting from individuals making multiple selections, the Cramer's  $V$  statistic provided the analysis for the degree of consistency regarding selection across administrations,  $V = .162, p < .001$ . Although the statistic is significant, it is based upon a large sample size as well as a large variable set and yielded a small effect size consisting of 16% of one  $SD$  unit (Watson et al., 2016).

The work values section of the CDM asks students to indicate their top four values out of a list of 14 values. Two hundred sixty-four of the 434 students in the sample indicated all four choices on both administrations and only these participants were included in this analysis. Like the "school subjects" selection, these selections were not ordinal within individual selections and represented multiple selections on behalf of the test-taker. The researcher created a multiple response set variable in SPSS and then compared the percentage of students who selected a particular value on the CDM-R to the percentage of students who selected that same subject on the CDM-I. The Cramer's  $V$  statistic at  $V = .137, p < .001$  indicated that there is a statistically significant relationship between selection of values on the CDM-R and the CDM-I. The effect size is small, representing about 14% of one  $SD$  (Watson et al., 2016).

The fourth section of the CDM focuses on self-identified abilities. Again, test-takers indicated the four abilities that they feel are their strongest out of a list of 14 abilities. As with the previous scales, these selections were not ordinal within individual selections and represented multiple selections on behalf of the test-taker. Therefore, the researcher created a multiple response set variable and then compared the percentage of students who selected a particular

value on the CDM-R to the percentage of students who selected that same subject on the CDM-I. Two hundred sixty-eight participants made all four selections on both administrations. The researcher again utilized the Cramer's  $V$  statistic to analyze the consistency between the selection of non-ordinal ability categories on the CDM-R and the CDM-I. Analysis returned a statistically significant result,  $V = .155, p < .001$  with a small effect size ( $< .20$ ).

The final nominal item within the CDM-R is "future plans." Test-takers select one item from the list of nine that most closely aligns with their post-secondary plans. Chi-square analysis revealed a significant relationship between self-selected responses on the CDM-R and the CDM-I,  $\chi^2 = 588.328 (56), p < .001$  with a large effect size,  $V = .544$ . This analysis indicates that students were consistent in their endorsement of post-secondary plans across both versions of the CDM.

### **Comparability of Six Interest Area Scales**

One hundred twenty Likert-type items measure test-taker scores on six unique interest areas. For each item on the CDM-R, the test-takers score an item 2 if they like the activity, 1 if they cannot make up their mind, and 0 if they dislike the activity. Upon completion of the entire booklet, the test-takers tally the raw scores to determine scale scores for each of the six interest areas. The CDM-I asks the test-takers to click a radio box that best describes how they feel about the activity presented: *Like*, ? (if they cannot make up their mind), or *Dislike*. The software product then tallies the raw scores for the test-taker and returns their scale score for each of the interest areas. O'Shea and Feller (2008a) developed the CDM-I to produce results identical to the CDM-R. The CDM-I presents several wording changes, larger font size, and a modified layout. Perhaps the greatest difference is the ability for an Internet test-taker to click a radio button as opposed to writing in a numerical value for each item. Because these differences represent

moderate changes, the most appropriate statistic for exploring the comparability of the interest area scale scores across administrations is the intra-class correlation (Burke, Landis, & Burke, 2017; Coons et al., 2009). Initial analysis of the interest area scale scores involved exploring the reliability coefficients for this sample. The overall alpha for all six scales on the CDM-R was .704 and for the CDM-I was .635. Researchers were unable to conduct reliability analyses on individual scales because item scores were not accessible to the researchers. Comparability analysis utilized a “Type A” intra-class correlation coefficient with an absolute agreement definition. All intra-class correlation coefficients reached statistical significance and ranged from .698 for the office scale to .821 for the scientific scale. Table 1 reports the mean, intraclass correlation coefficient, 95% confidence interval, and *F* statistic for the 6 scale analyses. These results indicate that the scale scores for all interest areas are comparable between the CDM-R and CDM-I.

Table 1

*Intraclass Correlations for Six Interest Area Scales Across Administrations*

Scale	Mean	IC <i>r</i>	95% confidence Interval	<i>F</i>
Crafts	13.91	.795	.704 - .854	9.942*
Scientific	16.30	.821	.771 - .860	10.711*
Arts	15.02	.799	.739 - .844	9.521*
Social	15.41	.769	.705 - .818	8.084*
Business	12.93	.741	.681 - .791	6.936*
Office	7.75	.698	.628 - .757	5.837*

**Note: N = 285**

*df* = 1

\* *p* < .001

### **Comparability of Two Code Cluster Scores**

Each of the scale scores for the interest areas provides test-takers with a two-code cluster preference. The researchers used the weighted kappa statistic within a chi-square analysis to measure the agreement of cluster preferences between the CDM-R and the CDM-I. As Cohen (1968) writes, the weighted kappa statistic is more appropriate than the chi-square statistic in this case because of the need to measure agreement as opposed to association. The weighted kappa is appropriate because “the traditional kappa computation only considers absolute agreement and does not credit ratings that are close to one another but not in exact agreement” (Coons et al., 2009, p. 425). Results indicated that there was significant agreement between the CDM-I first cluster and the CDM-R first cluster,  $K_w = .644, p < .001, 95\% \text{ CI } [.578, .710]$ . Analyses further indicated significant agreement between the CDM-I second cluster and the CDM-R second cluster,  $K_w = .323, p < .001, 95\% \text{ CI } [.251, .395]$ .

### **Interaction Analyses by Grade and Gender**

The researchers examined scale score differences based upon gender and grade to measure possible interaction effects. Calculated difference scores between the CDM-R and the CDM-I for each of the scaled interest areas served as the dependent variable for these analyses. These difference scores were analyzed using a one-way analysis of variance (ANOVA) to determine if gender accounted for size in difference means for any of the interest areas (see Table 2 for interest area difference scores by gender). The ANOVA analysis examined all six interest area scale scores at one time. These results indicate that the difference score between the CDM-R and CDM-I on the crafts scale was significantly greater for male students ( $M = 3.29, SD = 7.062$ ) than for female students ( $M = 1.64, SD = 5.74$ ). Further exploration revealed that male students scored higher on

the crafts scale on the CDM-R ( $M = 20.05$ ,  $SD = 11.14$ ) than they did on the CDM-I ( $M = 16.39$ ,  $SD = 10.54$ ).

Table 2

*ANOVA table for interest area difference scores by gender*

Scale	MS	<i>F</i>	<i>p</i>
Crafts	190.45	4.497	.035
Scientific	8.88	.184	.669
Arts	8.49	.210	.647
Social	13.08	.288	.592
Business	127.07	2.899	.090
Office	16.76	.474	.492

**Note:**  $N = 283$

*df* = 1

The difference scores were then analyzed using a one-way analysis of variance (ANOVA) to determine if grade accounted for size in difference means for any of the interest areas (see Table 3 for interest area difference scores by grade). These results indicate that there were no significant differences between the CDM-R and the CDM-I on any of the career scales based upon grade level. It is reasonable to assume that there is no comparability bias on any of the scales based upon a student's grade level.

Table 3

*ANOVA table for interest area difference scores by grade*

<b>Scale</b>	<b>MS</b>	<b>F</b>	<b>p</b>
Crafts	2.15	.050	.823
Scientific	6.91	.143	.706
Arts	44.98	1.116	.292
Social	2.62	.058	.811
Business	3.51	.079	.778
Office	16.10	.456	.500

**Note: N = 283***df = 1*

### Discussion

Results regarding the comparability of the five self-reported nominal sections of the CDM-R and the CDM-I indicated that all sections demonstrated statistically significant findings supporting comparability across both versions. However, the small effect sizes for best-liked school subjects, work values, and self-identified abilities, and the medium-effect size for choice of top two career clusters suggest caution in interpreting these results as sufficient indicators of comparability. The sections measuring post-secondary plans yielded larger effect sizes, better supporting comparability of this section.

Score results for the six interest area scales suggest that the CDM-R and the CDM-I are comparable with intra-class correlation coefficients ranging from .698 to .821. Reliability coefficients were not statistically different, although the CDM-R yielded a slightly higher coefficient than the CDM-I. This is somewhat contrary to past studies that found higher



reliability statistics for computer or Internet delivery than for paper-pencil delivery (N. Campbell et al., 2015; Kapes & Vansickle, 1992; Vansickle & Kapes, 1993). Analysis indicated that both the first code and the second code of the two-code clusters (determined by the two highest interest area scale-scores) were comparable for the CDM-R and the CDM-I based upon the weighted kappa statistic.

The significant differences found for the male students as compared to the female students on the Crafts interest area scale (with males scoring higher) is similar to other research findings in that men tend to have stronger interests in Holland's comparable Realistic interest area (Fouad, 2002; Su, Rounds, & Armstrong, 2009; Tracey & Robbins, 2005). In terms of comparability between versions, the higher scores of males on the Crafts scale for the CDM-R compared to the CDM-I suggest careful consideration when interpreting these specific scores.

### **Implications**

“The emergence of a global economy, changing technology, and the need for more advanced skills require students to be better informed about their postsecondary education or training decisions” (ACT, 2015, p. 42). Career programming in schools is critical to meet these needs as students with career goals in high school are more likely to engage in meaningful planning related to their goals (Rogers, Creed, & Glendon, 2008). Furthermore, those students who are intentional in planning for college are more likely to follow through with the application process (Cabrera, La Nasa, & Burkum, 2001). Rogers and Creed (2011) also found that those with higher levels of career decision-making self-efficacy were more likely to engage in career exploration and suggested that career interventions in the final years of secondary school focus on strengthening career decision confidence.

The American School Counseling Association National Model (ASCA; 2019), which provides a framework for comprehensive school programs, highlights the importance of career development for K-12 students. The career element intersects with the academic and social emotional elements of the framework. For example, America's Career Resource Network Association (2003) synthesized research and found that comprehensive career counseling is associated with educational benefits such as improved educational achievement, better preparation and participation in postsecondary education, enhanced articulation among education levels, and higher graduation and retention rates. In a recent meta-analysis, Whiston, Li, Mitts, and Wright (2017) found that those who received career interventions scored slightly over a third of a standard deviation higher on various outcome measures (e.g., career decision making self-efficacy) than those who did not receive such interventions.

While the American School Counseling Association (ASCA) suggests a school counselor-to-student ratio of 1:250, in reality, the United States average is 1:491 (ASCA, 2018). Even when meeting the ASCA guidelines, school counselors must think programmatically to reach all students in their mission of facilitating their academic, career, and social-emotional development. Thus, school counselors must deliver career interventions through comprehensive, programmatic approaches. The CDM system incorporates interests, values, abilities, occupational information, and future educational/training plans, providing a valuable tool for school counselors. Ideal career interventions include occupational information that is comprehensively organized and easily accessible to clients, as well as assessment materials that clarify client self-pictures and vocational possibilities (Holland, Magoon, & Spokane, 1981). The CDM integrates both of these interventions. Additionally, Whiston et al. (2017) found support for interventions involving values clarification and psychoeducation regarding the career

decision-making process, both of which are components of the CDM. The CDM-R and the CDM-I are both appropriate for students as young as 12, supporting its use in middle school, which can then be articulated with high school career planning. Noeth (2002) found that starting career programming in middle schools can begin the process of realistic career planning, which in turn expands options supports postsecondary readiness.

The nationally respected CDM-R received the 2002 Association for Assessment in Counseling Annual Exemplary Practices Award (Association for Assessment and Research in Counseling, 2019). The utility of having an online option further expands the potential of this already established and useful assessment. Sampson and Lumsden (2000) suggest that improved access is one of the greatest potential benefits of Internet options for career interventions, including access to assessment as well as access to supplemental resources. These access options are both pertinent to the CDM-I as it can not only be provided online, but it also links to supplemental resources such as O\*NET. In addition, the CDM-I is less costly than the paper and pencil version, expanding its utility. Similar to the CDM-R, the CDM-I is a system that provides for a certain degree of self-administration and self-interpretation, depending on the maturity level of the student. This does not eliminate the school counselor/career practitioner from the interpretation, but instead provides a vast array of materials and resources to assist both students and school counselors (Harrington & O'Shea, 2000).

### **Limitations and Future Research Recommendations**

Several limitations emerged as this study unfolded. First, limitations regarding permissions to include extensive demographic questions influenced the ability to examine fully score comparability based upon student characteristics. Race/ethnicity and socio-economic status may have an impact upon comparability, particularly if economic resources influence a student's

access to and comfort with technology. The second limitation of this study involves the nature of score reports generated and recorded. The research team did not have access to individual item responses in the interest area scales, rendering it impossible to calculate and examine consistency within scales. Considering that the current study differed from past studies in that the CDM-I yielded a generally weaker reliability coefficient than did the CDM-R, the researcher recognizes the importance of examining consistency within scales.

### **Conclusions**

Statistical findings from this study indicate that results on the paper-pencil version and the Internet version of the CDM with ninth and tenth grade students are comparable, thus allowing another option when addressing high school students' career planning needs. Based upon the results, either version will yield comparable scores for the "future plans" items, the interest scale score items, and the resulting career clusters. Professionals should use caution in evaluating the comparability of the self-selected career choices, school subjects, work values, and abilities items as multiple non-ordinal selections for each group complicates definitive statistical analysis. Interclass correlation coefficients for interest scale scores across administrations supported consistency of scores between the CDM-R and CDM-I. Furthermore, analysis of the two-code career clusters using the weighted kappa statistic verified stability of code outcomes and order. Although many factors go into making a decision regarding instrument usage, the school counselor can be confident that the CDM-I yields comparable scores to the CDM-R. Certainly technical resources, financial resources, and time will factor into decisions regarding which version best meets the need of the setting.

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## About the Authors

**Laurie A. Carlson, PhD**, is an associate professor and chair of the Counseling and Career Development Graduate Program at Colorado State University in Fort Collins, Colorado. Teaching duties include school counseling, counseling internship, and psychological and educational assessment. Dr. Carlson's research interests include school counseling/climate, counseling children and adolescents, measurement, and LGBT issues in school counseling. Dr. Carlson has received several awards related to teaching and service, and has held state and national leadership positions. Dr. Carlson has made more than thirty-five national and regional presentations and provides consultation/support services to school counseling programs across that state of Colorado. Her professional experience includes thirteen years of experience in public schools.

**Jacqueline J. Peila-Shuster, PhD, LPC, NCC** is an assistant professor in the Counseling and Career Development graduate program at Colorado State University in Fort Collins, Colorado. She teaches courses in career development and counseling, supervises counseling fieldwork experiences, and serves as the career counseling specialization coordinator. Dr. Peila-Shuster also has a master's degree specializing in counseling and career development, and a BS in occupational therapy. Her areas of professional interest include life design, career construction, career counseling and development across the lifespan, gender issues in career development, counselor education, and strengths-based approaches to career and life planning.

Counseling and Career Development  
Colorado State University  
1588 Campus Delivery  
Fort Collins, CO 80523-1588

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## **Vocational Evaluation and Career Assessment Professionals Test Review**

**Test Review:** Cognitive Distortion Scales (CDS)

**Reviewers:** Ambrin F. Masood, Cindy A. Dell, Matthew E. Sprong, and Thomas F. Dell

**Author:** John Briere (2000).

**Publisher:** Psychological Assessment Resources 2018.

**Contact/Purchase:** Psychological Assessment Resources. Retrieved from

<https://www.parinc.com/Products/Pkey/59>.

**Cost:** Introductory kit cost is \$190 for the professional manual, 25 test booklets, and 25 profile forms. The CDS Manual is \$64.00. A package of additional test booklets (pkg/25) is \$88.00 and a package of additional profile forms (pkg/25) is \$49.00.

**Examiner qualifications:** Any trained professional meeting a minimum of the American Psychological Association (APA) level “B” qualification criteria is qualified to administer and score the CDS.

**Training:** No training is available. It is assumed, as a level B professional, one is qualified to administer the CDS.

### **Purpose, Development, and Standardization**

**Purpose:** Assesses negative thinking patterns that interfere with optimal functioning. CDS helps screen and identify mental health issues that would be barriers to identifying occupations of interest due to having overwhelming hopelessness, helplessness, and powerlessness.

**Type:** Personality/Mood

**Nature of content:** Self-assessment of cognitive distortions in adults.

**Items:** The CDS Respondents use a 5-point scale to rate the frequency of occurrence of the 40 items during the previous month. The estimated administration time is 10 to 15 minutes and approximately 5 minutes for scoring.

**Reading Level:** All items are written at a fifth-grade reading level.

**Language:** English only.

**Subtests and Separate Scores:** The extent to which respondents report their cognitive distortions is measured through five types of cognitive dysfunction. The first scale is called Self-Criticism (SC). In an attempt to capture the behavioral aspect of a low self-esteem thinking, Briere (2000) defined Self-Criticism as referring to an individual having low self-esteem and self-devaluation as expressed in the tendency to criticize or devalue oneself. Typical items are “Hating yourself,” “Calling yourself stupid or ugly,” and “Putting yourself down around other people” (p. 11). An elevated SC score reflects an individual with a past history of abuse, excessive criticism, or devaluation as children.

The second scale is called Self-Blame (SB), which refers to the tendency to blame oneself for negative unwanted events in his or her life, even if these events are outside of the individual’s control. Typical items in SB are “Thinking that you deserved a bad thing that happened to you,” “Being mad at yourself for getting hurt by someone,” and “Blaming yourself for something, even though it probably wasn’t your fault” (p. 12). High scores on SB show an individual’s tendency to be depressed or to make negative internal attributions to unfortunate life events, holding himself or herself responsible for the negative outcomes.

The third scale is called Helplessness (HLP), which is defined as the perception of being unable to control important aspects of one’s life. Typical items are “Feeling like you don’t have much control over what happens to you,” “Feeling like there is not much that you can do to fix

things in your life,” and “Feeling like bad things happen to you no matter how hard you try to keep them from happening” (p. 12). The fourth scale is Hopelessness (HOP), which measures the extent to which the respondent believes that the future is bleak and that he or she is destined to fail or suffer. Items of HOP include “Thinking that things will never be good for you,” “Not having any hope about the future,” and “Thinking that your life will never improve” (p. 12). High scores are reflective of pessimism and avoidance, suggesting dysthymia or depression. Briere (2000) found the HOP scale to correlate with suicidality and cautions about risk assessment and follow-up for high scores on this scale. People with higher HLP scores may be more inclined to thinking pessimistically about every challenge in their lives and the projection of this pessimistic attitude toward their future would show a high correlation between their HLP and HOP scores. From the normative data of this scale, Briere (2000) found that higher scores reflected traumatic childhood experience, symptoms of posttraumatic stress disorder, and paranoid delusions.

The fifth and last scale is called Preoccupation with Danger (PWD), which measures an individual’s tendency to view the world as a dangerous place, especially in the interpersonal domain. Typical items include “Thinking that someone might hurt you,” “The world seeming dangerous,” and “Thinking the worst when someone said they had something to tell you” (p. 12).

**Scale scoring.** There are 40 questions, which are scored on a 5-point Likert scale (Never=1 to Very Often=5). The range of possible score is 20 to 100. The scales should be interpreted as a whole, since Briere (2000) explained that the scales are not independent of each other and that the relationship between the five scales should be considered during the interpretation.

For example, a profile sheet indicating the raw scores of SC =14 (T score = 54), SB = 21 (T = 74), HLP = 17 (T = 64), HOP = 11 (T = 49), and PWD = 19 (T = 67) shows that the

individual has a clinically significant tendency toward self-blame, viewing the world as a dangerous place, and feeling helpless in interactions with others. But since the self-esteem is higher and hopelessness is lower, Briere (2000) called such a profile indicative of a victim of chronic interpersonal violence or childhood maltreatment who was unable to successfully separate himself or herself from his or her perpetrator.

**Norms:** The normative sample included 611 individuals. The mean age of participants in this sample was 47 years (range = 18 to 91). Of those who disclosed their gender, 53% (n = 294) stated that they were male and 47% stated they were female (n = 261). Racial and ethnic demographic information was provided and revealed that 80% were Caucasian, 6% were Black or African American, 3% were Hispanic, 3% were Asian, 3% were Native American, 1% stated other, and 5% provided no response. Briere (2000) does not indicate that a population with disabilities was included in the sample. The small sample size and lack of a representative sample are two important limitations for generalizability of results.

The CDS psychometric properties were analyzed by conducting a validity analysis on a standardization sample (N = 611) and a separate clinical validation sample (N = 116). Of the clinical sample, Mean age was 31; 72% were female, 70% were Caucasian, 14% Hispanic, 5% Black or African American, 2% Asian, 2% Native American, and 7% provided no response. Of all respondents, 58% of all the participants reported having at least one episode of PTSD in their lives.

**Reliability:** The manual (Briere, 2000), indicates that statistical analyses displayed high internal consistency for all of the CDS scales, with the alpha statistic ranging from .89 (PWD), .92 (SB), .93 (SC), .94 (HLP) to .97 (HOP). Inter-correlations between the CDS scales were significant, with the lowest correlation between Hopelessness and Self-Criticism ( $r = .68$ ), and the highest

correlation was between Helplessness and Hopelessness ( $r = .92$ ). The CDS raw scale scores were significantly inter-correlated in the standardization sample. Briere (2000) reported the lowest inter-correlation to be between the Hopelessness and Self-Criticism (.68) and the highest to be between Helplessness and Hopelessness (.92).

**Standard Error of Measurement:** No details on Standard Error of Measurement are included in the manual.

**Validity:** The test has good face validity based on the clear and well-written directions written at a fifth-grade reading level. According to the manual (Briere, 2000), construct validity was examined by measuring whether cognitive disturbances would differ in predictable ways between groups of respondents who had or did not have characteristics associated with cognitive distortions. Specifically, researchers administered the CDS, the Detailed Assessment of Posttraumatic States (DAPS), and the Personality Assessment Inventory (PAI) to 22 participants and found significant correlations between the subscales for each scale (known as Convergent Validity) when examining suicidality. The other subscales were examined by comparing with the subscales of other well-established instruments (e.g., Traumatic Event Scale, Emotional Abuse scale, and Paranoia-Hypervigilance scale). Convergent and Discriminant validity was examined relative to the Beck Hopelessness Scale (BHS), Multi-score Depression Inventory Cognitive Scales (MDI) and Traumatic Stress Institute Belief Scales (TSIBS). Of all CDS scales, the Hopelessness scale was reported to most associate with the BHS (.81); the Self-Criticism strongly correlated with the Low Self-Esteem scale (.67) of MDI and Hopelessness with Pessimism scale (.70); the Self-Criticism scale strongly correlated with the Esteem-Self subscale (.84) and Self-Blame with Esteem-Self (.82); and Helplessness was most strongly correlated with Intimacy-Other (.90) of the TSIBS (Briere, 2000).

## **Practical Evaluation**

**Qualitative Features:** CDS materials include a spiral bound professional manual, a test booklet, and a profile form. The professional manual gives precise information on administration, scoring, interpretation, psychometric characteristics, normative data on the standardization sample, and data from subsamples of psychotherapy outpatients. Scoring procedures are explained by providing thorough case examples, starting with case history to plotting their scoring profiles.

The test booklet comes with specific test instructions written at a fifth-grade reading level and a profile form that delivers a thorough and reliable profile for every respondent; a profile graph can be drawn to portray scores relative to the normative sample.

**Administration:** The CDS is a 40-item, self-administered assessment of cognitive dysfunction. Specific and clear instructions located in the test booklet are read aloud to clients. Designed for ages 18 to 91, it may be administered to an individual or a group (note: when administering to groups, the testing environment should protect the privacy and confidentiality of each individual's response). However, a quiet, non-distracting environment that is well-lit is recommended.

**Time:** The estimated administration time is 10 to 15 minutes.

**Item Recording and Scoring:** Once a client completes all of the questions, scores are reproduced on the scoring sheet. Scale abbreviations are produced across the top of the column to assist in ease of scoring. Items within each scale are combined to produce an overall score. Scores are calculated into raw scores by summing each column, and then converting these raw scores into T-scores in order to standardize the raw scores. Missing questions are scored as 1\*, later counted as 1. If there are more than two missing item responses for a given scale, the raw

score for that scale should be considered invalid. The CDS professional manual provides instruction on how to sum the raw scores and convert into T-scores with an accompanying table.

**Accommodations:** The manual does not address administering the CDS to individuals with disabilities, and accommodations would be necessary for those with visual impairments and some mobility limitations, due to the paper and pencil format. The manual also does not address training for administration, scoring, or interpretation. Nevertheless, the clear and comprehensible instructions make it easy for a level B professional to administer.

**Rapport:** Rapport is not addressed in the manual, but counselors using their basic active listening skills should be able to establish rapport.

### **Reviewer's Comments**

The CDS provides an overall measure of the negative self-attributions that are directly related to a number of clinical mental health issues, including depression, anxiety, post-traumatic stress disorder, suicidality, self-harm, anger, sexual offenses, and personality disorders. Each of the five scales provides a measure of a specific belief that may affect an individual's subjective well-being and consequent maladaptive behavior.

According to Kaplan et al. (2017), there are four other instruments that claim to measure cognitive distortions. These include the Cognitive Error Questionnaire—General Form (CEQ; Lefebvre 1981, as cited in Kaplan et al., 2017), the Inventory of Cognitive Distortions (ICD; Yurica, 2002 as cited in Kaplan et al., 2017), the Cognitive Distortions Scale (CDS; Covin et al., 2011 as cited in Kaplan et al., 2017), and the Cognitive Distortions Questionnaire (CD-Quest; de Oliveira, 2015). Note that the Cognitive Distortions Scale (Covin et al. as cited in Kaplan et al., 2017) is a singular Scale, while the test being reviewed in this paper is the Cognitive Distortion

*Scales* (plural). Although these measures and the Cognitive Distortion Scales (Briere, 2000) appear to be similar, they should not be confused with regard to this review.

Research supports utilizing the CDS as a screening instrument for more effective assessment and rehabilitation plan development. Screening for and accurately identifying potential client mental health issues are primary goals for vocational evaluators, rehabilitation, and mental health counselors. Screening and counseling utilizing Cognitive Behavioral Therapy (CBT) is an accepted therapeutic approach and recognized as consistent with the practice of rehabilitation counseling (Boland, Tansey & Brooks, 2015). Using the CDS to identify and manage cognitive distortion related to disability adjustment may result in better plan development and employment outcome. Boland et al. (2015) support CBT as a counseling model to manage cognitive distortions identified through the use of CDS. CBT is also effective with individuals with schizophrenia in vocational rehabilitation (Lysaker, Davis, Bryson, & Morris, 2009).

There is also a growing demand in primary medical care, the corrections field (especially juvenile justice), military veteran services, and schools to find reliable and valid instruments to screen for mental health issues that are also cost effective and time efficient (Cauffman, 2004; Dowdy, Dever, Raines, & Moffa, 2016; Goldberg et al., 2017). Early identification and assessment is intended to lead to earlier intervention and potential prevention, or at least mitigation, of more serious mental health related issues. These issues include self-harm, suicidality, substance abuse, severe psychiatric illness, and aggression (Cauffman, 2004; Dowdy et al., 2016; Goldberg et al., 2017; Husky et al., 1996; Searle et al., 2015).

For early identification and assessment, the CDS may be used to identify depression, cognitive distortion, and health issues among college students and to provide appropriate mental



health interventions (Dhanalakshmi, 2014). We conclude, based on professional practice, that the CDS is a critical screening tool for quick identification of mental health barriers to effective vocational rehabilitation.

The CDS could be used for various disadvantaged groups as a pre-service survey instrument to identify those with mental illness. The results would assist the vocational evaluator, rehabilitation counselor, and client when developing a vocational plan, which could include a recommendation for mental health counseling.

More studies need to be done on diverse ethnicities to find the exact cultural impact on test scores. So far, the test has been written only in English, one of the limitations of the scales. However since the reading level is at the fifth-grade level, the limitation might be mitigated.

### **Summary Evaluation**

The CDS is a useful tool for early identification of mental health issues in clients that could be barriers to the validity of other assessments, and the development of a vocational rehabilitation plan. It is easy to administer, score, and interpret. Based on the results, clients may be referred to mental health professionals either prior to assessment and planning, or to work in conjunction with vocational evaluators and rehabilitation counselors.

Although accommodations for individuals with disabilities and other limitations are not addressed in the manual, vocational evaluators and rehabilitation counselors can, in some cases, design accommodations for each client without jeopardizing the results. For example, the statements may be read to a client with visual or mobility needs.

The sample sized used for norming the CDS should be considered. No norming was done with people from cultures other than the United States, and the test is only offered in English.

Practitioners using the CDS should proceed with caution, or eliminate it altogether, when working with clients from cultures other than that for which it was normed.

In conclusion, the CDS is a unique instrument that may be utilized as a tool to identify mental health issues that could be barriers to developing an effective rehabilitation plan. Ideally, the results should be discussed with the client and vocational rehabilitation counselor to determine if a referral to a mental health counselor is warranted. As a result of several years of administering the CDS, we conclude that it is a valuable tool for early identification of mental health problems for clients in need of referral. Furthermore, it can play an important role in the development of an effective rehabilitation plan.

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## Contact Information

**Ambrin F. Masood, PhD**

Room 117, College of Allied Health Professions  
1500 University Drive  
Montana State University Billings  
Billings, MT 59101  
[ambrin.masood@msubillings.edu](mailto:ambrin.masood@msubillings.edu)

**Cindy A. Dell, EdD**

Room 279, College of Education  
1500 University Drive  
Montana State University Billings  
Billings, MT 59101  
[cdell@msubillings.edu](mailto:cdell@msubillings.edu)

**Matthew E. Sprong, PhD**

Wirtz Hall 355, Rehabilitation Services and Rehabilitation Counseling  
School of Allied Health & Communicative Disorders  
Northern Illinois University  
DeKalb, IL 60115  
[msprong1@niu.edu](mailto:msprong1@niu.edu)

**Thomas F. Dell, EdD**

Room 118, College of Allied Health Professions,  
1500 University Drive  
Montana State University Billings  
Billings, MT 59101  
[tdell@msubillings.edu](mailto:tdell@msubillings.edu)

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## Interview of Dr. Stephen W. Thomas

### Who is the intended audience for this book?

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

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

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

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

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

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

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

### **And you would also recommend that they read this book?**

*Yes, that's right.*

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

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## **Author Biography: Dr. Stephen W. Thomas**

### **Dean Emeritus**

### **ECU College of Allied Health Sciences**

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

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

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

May 2015

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

## **Vocational Evaluation and Assessment: Philosophy and Practice**

### **CHAPTER EIGHT**

#### **The Vocational Evaluation Process**

##### **Introduction**

The *Merriam-Webster Dictionary* (Mish, 1997) defines "process" as "the series of actions, operations, or motions involved in the accomplishment of an end." As described in this definition, the "process" of vocational evaluation consists of a series of activities organized in an individualized vocational evaluation plan, designed to assist the consumer in achieving the goals of the evaluation. This individualized evaluation process is often some variation of a relatively standardized process created by the unit. CARF accreditation standards and CCWAVES certification standards provide specific guidelines as to what should be available for use in the evaluation process. This generally accepted format will vary from unit to unit and is influenced by several key factors:

1. the mission of the evaluation unit,
2. the length of time available to offer the evaluation,
3. the reimbursement ceiling,
4. the setting of the unit,
5. the types of referral questions routinely asked,
6. the population typically served (e.g., their abilities and needs),
7. the services, resources, training, and jobs available in the community, and
8. the instruments and techniques available to the evaluator.

Given the limits of what people will pay for the service, a standardized approach will provide a foundation for the development of the most individualized yet cost effective evaluation possible. A careful balance between service and cost (i.e., rehabilitation versus production) frequently determines what is reasonable in terms of evaluations that are both affordable and useful.

In other words, the vocational evaluation process is that fixed period of time in which instruments and techniques are brought together to help individuals explore their vocational and career opportunities. It is this highly individualized mix of instruments, techniques, and time that makes the evaluation process a unique and creative venture for participants and practitioners alike. This chapter will explore a variety of different processes and the content of a comprehensive, dynamic evaluation. The key to a successful vocational evaluation process is knowing how to efficiently plan the arrangement of essential instruments and techniques required to meet the individual needs of different consumers and referral sources.

## Vocational Evaluation Processes

There are two important assumptions in developing and modifying an evaluation process.

**Assumption 1:** The longer and more varied the process, the more information that can be collected.

**Assumption 2:** The more severe the disability, the greater the need for more in-depth information.

Consequently, individuals with the severest disabilities will need the most time in evaluation and other services. For example, an individual with both a severe physical and mental disability may need a comprehensive evaluation consisting of file review, interviewing, standardized testing, work sample evaluation, in-house situational assessment, and on-the-job evaluation lasting for six weeks. Accommodations will be explored in both learning and performance, as well as supports needed to ensure retention, improvement, and job maintenance. On the other hand, individuals who have good academic skills, no accommodation needs, no behavioral problems, and who are simply exploring career options, an interest and aptitude assessment lasting only several hours may be sufficient. A transferable skills assessment on an injured worker with a good work history may only require a file review and interview to develop a profile, which is then matched to equivalent jobs through the use of a computer. Although these shorter evaluations may be best described as a vocational assessment or vocational screening, the tools used are quite different based on the person served and the expected outcomes.

The initial phases of a long-term evaluation should be used to identify more appropriate instruments and techniques (e.g., situational assessment, community-based assessments) to be used later in the comprehensive evaluation. Depending on what is available to the evaluator, and what is needed by the participant, a variety of different evaluation processes can be creatively and successfully used. In addition, the impact of non-work issues such as family, personal/social skills, independent living, and transportation on overall employment success must be carefully considered and integrated into the vocational evaluation process and final report.

Nadolsky (1973) described one of the early models of vocational evaluation. The model stresses "that the goal of vocational evaluation is to determine the most feasible or ideal occupation for each client evaluated. This occupation is one in which the client can comfortably achieve vocational success and through which he can realize his vocational potential" (Nadolsky, 1973, p. 43). His Model for Vocational Evaluation is based upon a "logical narrowing of vocational choice" through the use tools (i.e., instruments and techniques) that contribute increasing amounts of information with which to make sound occupational decisions (refer to *Appendix C*).

All of these models and processes share commonalities in the order and type of tools used. They involved activities such as interviewing, individualized planning, the use of a variety of different instruments and techniques, career exploration, and report writing.

The major features of a comprehensive vocational evaluation process include: data collection (file review, staffing, interviewing); evaluation planning; administration (functional



assessment, standardized testing, work sample evaluation, situational assessment, job site evaluation, behavioral observation); exit interviewing; and data collection and interpretation (e.g., data synthesis, exit staffing, report writing, follow-up; Thomas, 1991). Depending on the circumstances, an evaluator might decide to use file review, intake interviewing, functional assessment, situational assessment, and on-the-job evaluation with one consumer; and file review, staffing, intake interviewing, standardized testing, and work sample assessment with another. A different evaluator might consider using file review, family interviewing, learning styles assessment, basic skills assessment, and on-the-job evaluation with the first consumer; and file review, staffing, interviewing, standardized testing, and situational assessment with the second. Regardless of what is used, achieving the most accurate and optimum evaluation results should be the primary objective.

As mentioned earlier, vocational evaluation and assessment should take as long as necessary to yield a valid assessment. Evaluations of several weeks or even several months would provide the best results. The University of Washington Vocational Reentry Program offered a "basic level evaluation" that was completed within 3 to 4 weeks for individuals with traumatic brain injury (Fraser, Clemmons, & McMahon, 1990, pp. 177–179). The process primarily relied on file review, tests, and work samples for possible referral for a work-site evaluation. It is important to remember that a dynamic vocational evaluation process with individuals who are severely disabled involves more than just evaluation. It cannot be separated from treatment, modification/accommodation, exploration, communication, and goal setting. As the evaluatee changes, improves, and makes decisions, the evaluation must also change to accommodate the evolving person. This process takes time if the results are to be believable and useful in achieving employment success. In cases where consumers have limited stamina (e.g., back injury, stroke, traumatic brain injury), vocational evaluation may need to be restricted to half-day sessions or less, lasting no more than two to three days each week. If endurance increases, the sessions may be lengthened over time. Although short assessments can render useful information for initial planning (often referred to as prevocational evaluation), the results quickly become obsolete as consumer functioning improves.

## **A Comprehensive Evaluation Process**

Following is an outline of a comprehensive vocational evaluation process. The outline is followed by a description of each step of the process.

- Marketing vocational evaluation services
- The referral process
- File review
- Intake staffing
- Initiating functional assessment
- Completion of information questionnaire
- Orientation and intake interview
- Developing an individualized vocational evaluation plan
- Prevocational evaluation

- Learning styles assessment
- Basic skills assessment
- Interest, achievement, and aptitude assessment
- Assessment of critical vocational behaviors
- Determining initial work feasibility and need/direction for further evaluation
- Work sample evaluation
- Using work samples as an interactive tool
- Assessing learning styles through work sample administration
- Exploring modification procedures through work sample performance
- Evaluating production improvement, and retention and recall through work sample re-administration
- Evaluating decision making and quality control
- Observing critical vocational behaviors
- Identifying remedial needs, and functional strengths and limitations through content analysis
- Matching work sample content to training/job content and prescribing contingencies for successful performance
- Curriculum-based assessment
- Other transitional and environmental assessments (e.g., assistive technology, transportation, independent living, quality of life)
- Job analysis
- Situational assessment and on-the-job evaluation
- Career exploration
- Exit interview
- Data synthesis and interpretation
- Staffing and report writing
- Consumer follow-up, program evaluation, and quality assurance assessment

Not all units will have this full range of components or use everything available to them in each evaluation. The above comprehensive process should be considered a "menu" of evaluation tools that can be used to build a basic process and tailor individualized evaluations. The order may vary as well since activities such as evaluation planning, transition assessment, job analysis, and career exploration may be administered at different times within different process.

### **Marketing Vocational Evaluation Services**

Two terms that must be fully understood are public relations and marketing. They have different approaches and outcomes. Public relations are used to make the general public aware and supportive of an evaluation service. Special interest stories in the local newspaper and on radio and television, and presentations before clubs, civic organizations, and community groups will educate the public about the unit's purpose and services. Marketing goes beyond awareness and education, and it attempts to generate referrals. Vocational evaluation is marketed directly to

individuals, organizations, businesses, and agencies that will pay for the service. Both are necessary and should receive equal attention since prolonged community exposure through public relations may offer future opportunities for marketing vocational evaluation (and career assessment) services directly to the general population. In situations where the need for referrals is immediate, then marketing must receive greater attention than public relations.

Traditionally, vocational evaluation services have been, and should continue to be, marketed directly to purchasers of services such as state vocational rehabilitation agencies, school-to-work transition programs, attorneys, private rehabilitation companies, industries, JTPA, and welfare-to-work programs. The use of brochure mailings, open houses, tours of the unit, and presentations at staff meetings of referral sources have been beneficial. However, little attention has been given to marketing evaluation to the participant (or consumer) of the service. This activity of "selling" the consumer on the idea of vocational evaluation has become the responsibility of referral sources, which may at times provide a limited or inaccurate introduction to the service, leaving some individuals with the impression that it is a sterile, impersonal testing process. As a result, participants are sometimes hesitant, if not unwilling, to show up on the scheduled day of evaluation.

Blaming counselors and other referral sources for creating and perpetuating this oftentimes false impression does not solve the problem or develop positive working relationships with fellow professionals and referral sources. If marketing is to be done right, evaluators must take control and accept the responsibility for creating a more accurate and positive image of the service. Another important dynamic to be considered is the change in overall service philosophy. Two key philosophical changes are emphasized in Rehabilitation Services Administration (RSA) and Individuals with Disabilities Education Act (IDEA) legislation and in CARF standards: (a) consumer empowerment, informed choice, and self-determination (i.e., the consumer is the primary decision-maker in the process); and (b) career development (i.e., practitioners should not only assist the consumer in obtaining a job but in formulating and realizing a plan to achieve a personal career goal).

One way to effectively change evaluation's image is by marketing directly to the consumer. There are several ways this can be accomplished, and an evaluator may choose to incorporate one, several, or all of the following suggestions in a marketing plan. Primary marketing approaches include brochures, videos, letters, orientations, and consumer profiles and portfolios.

Brochures should be specifically designed to orient consumers (and their families) to the exciting opportunity provided by vocational evaluation to identify and exploring career directions and planning options (a process of empowerment and career development). These brochures can be mailed out with the acceptance letter to the consumer or given to the referring counselor to share with the person prior to attending the evaluation.

A brief videotape highlighting information contained in the participant brochure can be distributed to referral source offices and shown to consumers prior to entering evaluation. The tapes can also be shown to participants upon arrival to the unit, and used as a tool to facilitate

discussions regarding consumers' personal and employment goals, and how evaluation will help them realize and plan for these and other future goals.

Acceptance letters sent to consumers can supplement attached brochures or cover similar orientation information in the absence of a brochure. The letter can be accompanied by forms, such as self-assessment or employment questionnaires that will start the consumer thinking about job and career interests.

Upon arrival to the evaluation unit, a brief consumer orientation should be given to educate and motivate consumers (and any family members present) about the role of evaluation in their career development process. In some cases, this orientation can be presented to a potential consumer before an evaluation is even scheduled to allay their fears and misconceptions and help them learn more about the value of the service in helping them make decisions and achieve success. If in the future, consumers have the primary responsibility for choosing the services they plan to use, then this pre-evaluation orientation will become critically important.

In all three marketing strategies, the consumer should be oriented to the outcome first (choosing, getting, and keeping a job) before the evaluation process is explained. This will give the participant a better understanding of the reasons for and the importance of vocational evaluation, thus ensuring ownership in the process and its results. Consumers must understand how evaluation relates to the development of their personal and career goals before the evaluation process begins. Providing these same brochures and videotapes to referral sources will also help improve their understanding of evaluation, as well as ensure more appropriate referrals and better use of resulting reports.

A more time consuming and complex marketing process is the joint development of consumer profiles or portfolios. If evaluators are not in a position to perform this activity, then they should work closely with referring counselors to develop such a process. In this case, the evaluator can explain in the orientation how the consumer will learn to use information collected in developing career goals and plans with the counselor. If the use of a locally developed or commercially available profile or portfolio is not feasible, then the evaluator should give the participant copies of interest and/or aptitude profiles, briefly explaining what the results mean in terms of vocational and career planning. Unless consumers are given something tangible to take with them for personal use, it is hard to accurately remember what resulted from evaluation or to even feel that there is any ownership in the process or the findings.

If consumers understand how evaluation can help them achieve personal, career, and quality of life goals, they will more than likely request the service "by name" from their counselors and tell their family and friends about it as well. Evaluators must eliminate the stereotype that vocational evaluation is a tool to be used only by the referral source. Consumers need to recognize that evaluation is a service that would benefit anyone, with or without a disability. Consumers must also realize that evaluators are, first and foremost, vocational/career experts who understand how to match people, with or without disabilities, to jobs and career goals.

Someday, consumers may have the ability to choose their rehabilitation (or futures planning) team members. If evaluators want to be a member of this team, then they must provide consumers with something they want and need—accurate information to help make informed job and career choices.

Marketing and public relations are ongoing processes. However, evaluators may identify down times in the year (e.g., holidays, beginning of school) when referrals are off or no-shows are high. By determining how long it takes to receive a referral and schedule an evaluation, direct marketing to referral sources and consumers can be conducted far enough ahead of down times to remedy the problem.

## **The Referral Process**

The referral process is closely tied to marketing, and program continuation will be predicated on the ability to receive sufficient referrals. Marketing materials should always provide referral forms or information on how to easily obtain a referral form. Following are steps in the referral process.

**Receipt of referral information.** An application (or referral) is made to the evaluation unit by the referring agency. Although some agencies or school systems use standardized referral forms for all services, evaluation units most often provide their own referral/application forms or packets. In some settings (e.g., rehabilitation hospitals and schools) that employ their own evaluators, referrals are made over the telephone or during staffing by other in-house personnel, bypassing the need for a form. In this case, the evaluator reviews the consumer's records in-house. Application packets provided to referral sources could also contain orientation information on the evaluation service that the referring individual can share with the consumer prior to arrival. In worker compensation evaluations, Cutler and Ramm (1992, p. 33) state that "Each referral for a formal vocational evaluation should be accompanied by a referral packet that contains (at the least) medical and physical capacities information and a reason for referral. The referral packet may also contain work history, a transferable skills analysis, a job analysis, some preliminary test results, etc."

**Review referral information and determine eligibility.** The information received is reviewed by the admissions person or team to determine the suitability and eligibility for the evaluation. In situations where additional information is needed, the evaluator can contact the referral source for additional information. Three issues must be considered in this phase:

1. The applicant's physical and mental readiness for evaluation (i.e., is the applicant medically and psychology stable?).
2. The applicant's readiness for evaluation (i.e., are there temporary personal/emotional factors that will affect evaluation, such as a recent death in the family or housing eviction?).

3. The applicant's willingness to engage in evaluation (e.g., willing/unwilling to work, mind fixed on only one vocational goal). This last area is best determined by the counselor or teacher before a referral is made.

It must be determined if the applicant and referral source would profit from an evaluation. If not, the referral source must be notified giving the reasons and recommending other options. It is recommended that the referral source is offered an opportunity to re-refer the consumer for evaluation in the future when the individual's situation changes.

**Schedule a date for the evaluation.** If the applicant is eligible, then a date for the evaluation is chosen, and the referral source and consumer are notified through separate letters. The scheduled date for evaluation is dependent on the type of scheduling method (e.g., fixed, interval, appointment). In group evaluations, the characteristics of the other evaluatees need to be considered (e.g., heterogeneous or homogeneous mix). If more than one evaluator is available in the unit, then choosing a time when an appropriate evaluator is free must be considered.

**Send out a letter of acceptance to evaluator and participant.** A letter of acceptance to both individuals should contain the dates of evaluation, times, contact person, transportation needs, and the date and location of the final staffing if any. The participant's letter or packet should also contain basic orientation information, maps to the unit, dress requirements, and places to eat lunch. It should be explained that inventories, checklists, or forms (e.g., information questionnaires, sample job application forms, consent forms, functional assessment or physical capacity inventories) that are included should be completed by the consumer or a family member, and returned on the first day of evaluation.

With regard to the above steps, several factors are important in ensuring suitable referrals:

1. ***Development and use of an appropriate referral form.*** The form should provide space for describing critical information (e.g., medical, vocational, psychological, educational, personal/social, or family) or for specifying what essential reports should be submitted with the referral form (e.g., medical, psychological). The length of the form often contributes to a referral source's willingness to make a referral. If the form is too long and detailed, the referring party may not be willing to complete it, leaving the consumer without vocational evaluation services. On the other hand, if a referral form is too short, an evaluator may not have enough information to determine if the applicant is currently appropriate for an evaluation or to even accurately plan a meaningful evaluation. Missing referral information could create important information gaps leading to less than adequate evaluations and recommendations. There is no formula for determining the ideal length of a referral form other than relying on regular feedback from referral sources.
2. ***Well-specified criteria for consumer entry into the vocational evaluation program.*** This should not be used to screen people **out** of vocational evaluation but should ensure that the service will result in the most valid outcomes for influencing a successful rehabilitation, transition, and placement process. Age, type of secondary disability (if any), and time of

evaluation in relation to the onset of disability may be important to consider when determining applicant eligibility for services. The referral form should provide sufficient input of eligibility criteria to allow for thorough screening and decision-making. In cases of substance abuse or violent behavior, reasonable criteria can be established regarding how long an individual must be free of the problem behavior before an evaluation can be conducted. The need and guidelines for interpreters and attendants should also be specified. The unit should make referral sources aware of any populations they are currently not equipped to serve to avoid receiving inappropriate referrals. If any information or reports (e.g., medical or psychological) are required for review of the case, this must be specified on the referral form.

3. ***Opportunity to provide a detailed referral question(s).*** Sufficient space should be provided to permit the referral source to list in detail all specific information it would like to collect during the vocational evaluation. New referral sources should be given an orientation in how to complete the form and write appropriate referral questions. Most referral questions are general in nature (e.g., what can this person do? Tell me all you can about this client.). However, a referral source will often want more specific information about individuals, such as the ability to return to previous employment, rehabilitation, or education needs prior to or during a particular job placement, and potential employment areas for on-the-job training. Some referral questions may reflect a lack of understanding of what vocational evaluation is capable of offering (e.g., requests for a neuropsychological assessment, a comprehensive physical capacities assessment, or a personality assessment). In this case, the evaluator should notify the referring person that the evaluation could address the vocational implications of or need for these services and recommend that they should be provided if warranted.
4. ***Request for pre-injury and post-injury information.*** A significant part of the referral, planning, and vocational evaluation process is the ability to collect and use pertinent information on the person's functioning before and after the injury. It is best for all information to be listed in functional (descriptive) terms. In addition, if functional skills/deficits information is available through another report or a functional skills inventory or test, the results should also be provided with the referral form. This information is particularly useful when serving industrial injury referrals and conducting transferable skills assessments.

A file should not be considered ready for review if it is not complete. Missing information could result in an inaccurate evaluation and report. Liability problems can also result when essential information for planning is not provided. For example, if a physician limits an individual's lifting to less than 25 pounds, and this restriction is not included in the requested referral information, the evaluator could cause re-injury by unknowingly placing the participant in an evaluation activity requiring lifting above the restricted limit. Vocational evaluators should review their existing referral forms to determine if they are going to provide sufficient information on individuals with a broad range of disabilities. The blank referral form should be

periodically reviewed to decide if it is still furnishing useful information and how the form could be modified if needed.

## **File Review**

Once the acceptance letters are sent, a file is opened on the participant and shared with the evaluator (if not initially involved in the acceptance process) for review. At this point, the evaluator may begin the initial stages of evaluation planning. In large organizations (e.g., hospitals, schools, community rehabilitation programs), two files are created per participant. The first is a master file housed in a secure central location that contains all original information on the individual such transcripts, outside reports, letters, billing information, follow-up data, and reports and materials generated by other in-house services such as vocational evaluation. The second is the working file updated and securely maintained by the evaluator. This file contains a copy of the referral information pertinent to the evaluation, the evaluation plan, all completed forms, and the results of all instruments and techniques. The location, content, and organization of the master and working files may differ by setting.

When conducting a file review, the evaluator should study all information for consistencies and inconsistencies. Current and consistent information may not need to be addressed in the evaluation process to save time (e.g., recent achievement test scores or different but comparable medical reports). Inconsistent information (e.g., conflicting medical reports, work history, or test results) should receive attention and resolution through the evaluation. For example, it would be important to determine why an accountant with a college degree who sustained a back injury on the job had below average intelligence and achievement scores on a recent psychological examination. Comparing related file data such as test scores to educational attainment and level of employment, medical records to the physical demands of previous or current employment, and the consumer's expressed career goal to employment success will give insight into the reliability of file information. Expect referral information to contain faulty data at times, and follow-up with the consumer in the interview or with the referral source may help clarify discrepancies. The goal of the file review is to determine what material is accurate and useful, and what information, or missing information, should receive attention in evaluation. This will help in formulating both the evaluation plan and specific questions to be asked in the initial interview.

Several key issues must be considered when reviewing different types of referral information. Some of these issues are described in the following medical, vocational, psychological, and educational categories.

**Current medical reports** should provide important details regarding the extent of the disability, including functional limitations and restrictions (e.g., limitations standing or lifting), long-term prognosis, and medications. How and when the disability occurred may be useful in employment or return-to-work considerations. Again, reliable medical information on pre-injury and post-injury functioning will give the evaluator some idea of how much has been lost and what the individual presently faces in terms of possible recovery needs and goals.



**Vocational history** should be carefully reviewed. This may provide some of the best clues as to what the individual is or was capable of doing. In particular, if jobs were successfully held before and/or after the injury, they can be used to develop a pre-injury and/or current functional skills (and loss) profile of the person. In cases where a participant is evaluated for return to former employment, collecting job description detail would be critical to formulating a task-specific evaluation. In some cases, consumers can be accommodated for reemployment in a previous job. If a prior work history exists, how long each job was held and why it was left could give insight into the individual's willingness and readiness to go to work, and if stable employment can be maintained for an acceptable period.

Recent and detailed **psychological information** is a key factor in identifying academic and intellectual levels, as well as an assessment of personality. Diagnosis of personality disorders and intellectual/academic functioning will provide useful information in evaluation planning and report writing.

**Educational records**, including formal vocational training, provide similar functional information found under the above Vocational History section. Older records must be used with caution since they may not accurately represent the current functional levels of the consumer.

The importance of specific referral information is determined, in part, by the type of disability and the referral questions. The evaluator must consider the age of the information and its source in judging its reliability and utility in the evaluation process. As always, essential details that are missing from a file can be collected in the initial interview with the evaluatee or in a call to the referring individual.

Because of the highly technical nature of some referral information and reports, it is recommended that evaluators compile a reference library to look up unfamiliar terminology. Some of the documents that would be beneficial include a medical dictionary that gives nontechnical definitions of medical procedures, terms, and words. A psychological terms dictionary would aid in understanding jargon used in psychological reports. A copy of the *DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition)* (American Psychiatric Association, 1994) would be beneficial when frequently working with individuals with diagnosed mental disabilities. The *Physician's Desk Reference* (1997) provides a description of pharmaceuticals, what they are used for, and their general side effects. Occupational information documents such as the *Dictionary of Occupational Titles (DOT)* (U.S. Department of Labor, 1991) can be used to determine the general duties performed by workers by job title and would be useful when reviewing a consumer's work history.

## **Intake Staffing**

This optional staffing process is often conducted at various times prior to the arrival of the consumer (e.g., during the referral process, or before or after file review). In comprehensive rehabilitation hospitals, routine multi-disciplinary staffing provides opportunities to determine when a consumer would be ready for a vocational evaluation. At that point, the evaluator may ask referral questions to make acceptance decisions and begin planning. During the intake staffing, the evaluator can interact with other professionals who have first-hand knowledge about

the consumer's functioning and needs relevant to the evaluation process. Evaluators can conduct informal staffing by simply calling or visiting with the referral source to gain more detail not found in the referral information. In community rehabilitation programs, the intake staffing (or admissions staffing) can be used to determine current appropriateness for vocational evaluation as well as any other services offered (e.g., work adjustment, training, or supported employment).

### **Initiating Functional Assessment**

As information is gathered from the file review and intake staffing, it can be systematically recorded on a functional assessment inventory. If used, functional assessment can be initiated almost any time during the beginning of the evaluation process. Refer to the previous chapter, *Techniques of Vocational Evaluation*, for detail.

### **Completion of Information Questionnaire**

An information questionnaire is a brief two- to three-page form that is used to collect personal details from evaluatees in their handwriting. They often resemble job application forms, and in some cases, evaluators use employment application forms. When the questionnaire resembles a job application form, it has greater vocational realism for the consumer and can serve as an effective job seeking skills evaluation tool. Hinman, Means, Parkerson, and Odendahl (1988) developed the *Assessor's Manual* for the job seeking skills assessment, which incorporates the use of a standardized job application to assess consumer competency in completing such a form.

There are five important reasons for using an information questionnaire:

1. It gives consumers an opportunity to describe past experiences in their words. It also gives them a chance to express personal likes and dislikes regarding employment, training, and life goals.
2. It can be used to evaluate one aspect of job seeking skills: the ability to complete a job application form.
3. The evaluator can assess consumers' basic reading and writing skills.
4. It can be used to assess fundamental decision making skills and verbal reasoning abilities needed to seek and hold certain forms of employment.
5. The questionnaire can be used as a starting point in the intake interview process for discussing a participant's past experiences and future goals.

The questionnaire can be given to the participant upon arrival to the unit so that it can be completed prior to the interview. It can also be mailed to the consumer with the acceptance letter with instructions to complete it prior to arrival at the evaluation unit.

Questionnaires should be brief (not more than two to three pages) and contain both closed- and open-ended questions to assess how well the consumer can respond to different question formats. Closed-ended questions require the person to check boxes or circle responses (e.g., gender, marital status, or last school grade completed) and fill in spaces (e.g., name, address, age, or job title). Open-ended questions call for more narrative statements (e.g., job duties performed, reasons for leaving employment, personal or vocational goals, or job-related strengths and weaknesses). Evaluators can include questions on the form that are not permitted on a job application since the information will be used exclusively for evaluation planning and shared only with the consumer, referral source, or other rehabilitation and transition professionals. The end of the questionnaire should provide space for evaluator comments regarding the client's written and verbal responses.

The completed questionnaire can be reviewed with the consumer during the initial interview to ascertain reasons for certain responses, problems, or omissions. Other factors such as difficulty with writing, spelling, neatness, organization, appropriateness of responses to questions, and perceptions and personal feelings concerning abilities can be discussed. Suggestions for improving performance can be shared with the consumer. Pertinent questionnaire information, including a copy of the completed form, can also be shared with the referral source through the exit staffing and final report.

### **Orientation and Intake Interview**

Upon client entry into the evaluation unit, a brief orientation to the process and reasons for the intended assessment should be given. In order to assess the reasoning skills and personal goals of evaluatees, it might be best to initially ask why they were referred to vocational evaluation and what they would like to gain from the process. Tours of the unit and demonstrations may be necessary, even prior to client admission, to ensure a good understanding of and willingness to participate in the process. Some units may wish to offer an orientation to both participants and their families prior to admission so that support and assistance can be enlisted from key family members. Because of the anxiety, hostility, apprehension, or fears that many individuals with disabilities might have about the impending evaluation, the orientation must be presented in a positive and upbeat manner. It should be strongly emphasized that the assessment is a two-way partnership that allows for continuous input and feedback. Evaluatees must truly feel ownership in the process, so they will be motivated to do their very best, which is the key to an optimal evaluation. Establishing good rapport is essential to gaining consumer trust and support, and maintaining a two-way partnership.

Once the orientation has been completed, the evaluator must ask clients if they are willing to participate in the assessment process. It must be stressed to clients that vocational evaluation is a voluntary process, and this knowledge alone may help to further generate motivation and participation (D. F. Thomas, 1989). However, a lack of commitment would not automatically rule out the evaluation. Instead, it would require the evaluator to be more facilitative and supportive with the consumer throughout the process as well as sensitive to the effects that resistance or reluctance may have on outcomes.

The interview should be administered immediately after the orientation, even in cases where evaluators may wish to conduct the orientation and interview prior to client admission. Interviews can be conducted with both clients and family members and in some cases with employers when return to a previous job is being considered. Although most interviews are conducted in the evaluator's office, they can also be administered in clients' homes or at restaurants in the community. These external settings also permit the evaluator to assess the evaluatees' living environments or how they act/interact in public. However, such creative interview opportunities would require very flexible time allowances for the evaluator. This formal process of intake interviewing can be continued on an informal basis at other times throughout the evaluation process or during the exit interview as the need for additional information becomes evident.

The interview will permit evaluators to assess their clients' expressed:

1. motivation to participate in evaluation;
2. feelings regarding disability and family reaction involvement;
3. job seeking skills related to employment interviewing;
4. basic functional skills prior to and following injury;
5. initial behavior and emotional control;
6. reasoning and decision making;
7. communication skills; and
8. personal and work-related needs and goals.

It will also assist evaluators in initially establishing rapport and trust with their participants.

There are several important considerations when interviewing individuals with disabilities. The interview will give consumers an opportunity to describe their pre-injury and post-injury functioning first hand. By using daily functioning activities (both work and non-work) as the basis for the interview, clients (or family members) can realistically describe functional strengths and limitations and any resulting problems or accommodations. Another important consideration is the degree or activity of behavior and functioning. This is often expressed in terms of frequency (how often), duration (how long), intensity (how severe; overall magnitude), and recency of behaviors or problems. The areas of memory and recall as well as individual and family awareness of the disability and its resulting problems should also be thoroughly covered. One final consideration in effective interviewing is to rearrange the interview form so that sensitivity to client problems identified through file review, staffing, or functional assessment can be maintained. For example, it might be best to ask questions concerning family stability and support at the end rather than the beginning of the interview in situations where there is a significant family crisis.

Functionally based questions that relate to the areas often affected by disability, such as physical, cognitive, interpersonal, and psychosocial/emotional changes and difficulties, should be included in the interview. Family needs and support issues, and skills related to activities of daily living, transportation, and recreation should also be addressed. Using the *Transition*

*Analysis Matrix* contained in the *Appendix* section will provide guidance in developing a broader range of functional questions. Discrepancies in information collected during file review, staffing, functional assessment, and interviewing should be explored in depth throughout the remaining evaluation and presented in the final report. Results from the interview should be used to develop further and refine the evaluation plan.

## **The General Interview Process and Questions**

### **Types of Interviews.**

Guided – unguided

Directed – nondirected

Patterned – unpatterned

### **The Interview Process.**

1. Preparation,
2. Setting,
3. Conduct of the interview,
4. Close, and
5. Evaluation.

### **The Interview Content.**

1. Set participant at ease (use an icebreaker).
2. Give vocational evaluation orientation (if not done earlier).
3. Give orientation to interview.
  - a. Explain that it is similar to a job interview.
  - b. Assess the job seeking skills.
  - c. Conduct micro-observations.
  - d. Establish rapport.
  - e. Identify participant's interests, strengths, and needs.
  - f. Verify information in the file (look for discrepancies).
  - g. Give feedback at end regarding interviewing skills.
4. Answer any questions about process and impressions thus far.
5. Go over information questionnaire.
6. Why are you here? What do you want from vocational evaluation?
7. Obtain personal and family history.
8. Ask about current income and its amounts.
9. Ask about current and future living arrangements (recreation and consumer skills).
10. Ask about current and future transportation arrangements.
11. Determine the type of disability (diagnosis, self-knowledge, and strengths/limitations in work/daily activities).
12. How would participant overcome own limitations?
13. Ask about medications.
14. Ask about accommodations.

15. Ask about the past and current use of alcohol, drugs, and tobacco.
16. Ask about education and training.
17. Determine military history.
18. Determine correctional history.
19. Determine institutionalization history.
20. Determine past and current vocational history.
21. Ask about current and future career and vocational goals (income, hours, shiftwork, benefits, etc.).
22. Determine quality of life issues.
23. Ask about life goals (what, when, and how).
24. Ask about hobbies.
25. Ask about allergies.
26. Ask about phobias.
27. Other issues and concerns.

Use the interview to conduct a functional assessment, determine the decision-making skills, and assess the knowledge of basic skills and reality orientation.

**The Interview Evaluation.** (verbal and nonverbal behaviors)

1. Dress and appearance,
2. Eye contact,
3. Body language (relaxed or tense),
4. Verbal skills,
  - a. Organization of thoughts.
  - b. Clarity and audibility.
  - c. Appropriateness (length and response).
  - d. The level of vocabulary.
  - e. Pauses.
  - f. The level of attention and concentration.
  - g. Reaction and emotional control.
  - h. Skills in carrying on a conversation.
  - i. Ability to read subtle clues.
5. Consistency of responses with file data,
6. Knowledge (or lack of) in an area,
7. Problems that need to be addressed in vocational evaluation, and
8. Plan evaluation.

**Developing the Individualized Vocational Evaluation Plan (IVEP)**

The *Glossary of Terminology for Vocational Assessment, Evaluation and Work Adjustment* (Dowd, 1993, p. 13) defines the individualized evaluation plan as:

A directed, systematic series of events designed to specifically meet the needs of the individual being served and satisfy the demands of the referral source. Through the individualized evaluation plan, the individual being served, the referral source, and the evaluator obtain a concise picture of the individual's overall evaluation program.

McCray (1978, p. 1) further states that:

It not only provides a master plan for the purposes and objectives of an evaluation but also offers a written record of the assessment techniques used, who was involved in carrying out the evaluation, and the extent to which specific goals were achieved . . . it ensures that the unique needs of every individual client are given special consideration and that there will be an organized attempt to satisfy those needs in the most effective and efficient manner possible.

Individualized planning begins when the evaluator reviews the referral information. Using the referral information (in particular, the referral questions), the evaluator begins formulating an initial plan. These preliminary ideas may not be written down until the evaluator feels there is sufficient information, and consumer input, to commit the plan to paper. In this tentative stage, specific evaluator questions are formulated, and direction is given to modifying the initial interview questions, and content of the prevocational evaluation phase if administered. Information obtained from the prevocational evaluation regarding the evaluatee's personal interests, goals, achievement levels, and functional skills will be used to modify or further develop the evaluation plan. The types of instruments to be used in relation to reading level, reasoning ability, physical capacity, and accommodation needs can be chosen or modified for the more vocationally oriented evaluation phase. In some units, formal evaluation planning does not begin until an initial assessment (or prevocational evaluation) can be completed to determine the appropriate type and direction of the evaluation.

The point of the development of the Individualized Vocational Evaluation Plan (IVEP) is a matter of professional preference. As soon as a file is picked up and reviewed, the evaluator begins the questioning process, and initial planning commences. However, some evaluators do not begin to plan on paper until intake interview and functional assessment are conducted to allow for client input and inclusion of basic evaluation results. A more eclectic approach would permit evaluators to begin the planning process after file review and continue it through the intake and basic evaluation process, resulting in a thoroughly researched and sound initial plan. If a long-term assessment is used that begins with interviews in the client's hospital room and continues for several months throughout the rehabilitation process, then the more eclectic approach would best serve the client's needs.

The individualized vocational evaluation plan is a flexible work in progress, a living document that changes when change is needed. Modification of the plan is a key ingredient in a dynamic evaluation process. Modification occurs when planned directions do not materialize and new ones appear, and when consumers develop or lose interest in various directions. Since all instruments have certain performance prerequisites (e.g., reading ability, measuring skills, dexterity, or color discrimination), instruments must be chosen where there is a reasonable expectation that they can be performed, with or without modification, by the participant.

Length also plays a major role in the continuous modification and development of plans. Since the vocational evaluation process for individuals with severe disabilities is quite long, the plan may need to be frequently modified. Therefore, the evaluator may want to initially develop a basic plan that specifies the questions to be answered and factors to be assessed, and every several days add the instruments and techniques considered most appropriate for use at that time. As a result, frequent changes in the plan would be minimized and more appropriate evaluation directions chosen, based on the new information being generated. This does not diminish the importance of planning for very brief evaluations that may not require extensive modification and update. In fact, if the evaluator has a short time for evaluation, a tightly designed plan will be needed to ensure that all questions can be answered. This author reviewed short-term evaluations where planning was not used, and essential information was missed or not collected. In longer evaluations, what is missed one day can be planned for another.

McCray (1978) describes the following 10 steps in the individualized evaluation planning (IEP) process.

- Step 1:** Accumulation of referral information
- Step 2:** Examination of referral information
- Step 3:** Identifying referral questions
- Step 4:** Identifying appropriate evaluation techniques
- Step 5:** Listing persons involved and clarifying their roles
- Step 6:** The initial interview
- Step 7:** Modification of plan
- Step 8:** Formal testing begins/reviewing of plan
- Step 9:** Client performance completed/exit interview
- Step 10:** IEP completed

Pruitt (1986) listed seven similar steps in an ongoing planning process. He emphasized the need to identify critical factors (e.g., finger dexterity or measuring ability) in the plan to be used in choosing appropriate instruments. As the evaluation progresses, the evaluator will formulate hypotheses, which are estimates of the probable functional level of the consumer, that need to be addressed in further planning.

For specific disability populations, the IVEP will ensure that the process is sensitive to unique issues and needs. For example, planning for individuals with traumatic brain injury (TBI) will need to address highly specialized approaches to evaluation. D. F. Thomas (1989, p. 59) identifies four important factors in evaluation planning for persons with TBI:

1. Gather all relevant background information prior to the evaluation.
2. Use the background information to profile what is known about acquired deficits and preserved skills.
3. Structure a series of tasks designed to assess how the identified deficits may create work problems.



4. Determine if the work problems represent major barriers to achieving vocational objectives and if they can be corrected, eliminated, compensated for, or in some manner worked around.

The *Standards Manual and Interpretive Guidelines for Employment and Community Support Services* of CARF (1996, p. 56) states that the "individual written evaluation plan is prepared by the person seeking employment and the evaluator" and should be based on:

- referral information;
- referral questions;
- the initial interview;
- the stated overall purpose of the evaluation; and
- personal preferences.

CARF (1996) also specifies what should be included in an evaluation plan.

- Questions to be answered through the evaluation.
- How these questions will be answered.
- Who will answer these questions.
- Assistive technology techniques to be used in the evaluation process.

When creating or revising a planning form, the evaluator will want to make certain the above CARF standards are reflected in its content. Some planning forms are divided into columns or sections that address different elements (e.g., questions, techniques, persons involved). The instruments are usually listed in the order given, and as the plan is modified, new questions, instruments, and techniques are added at the bottom of the list. Other planning forms provide space at the top to write down questions. This is followed by a listing of all of the instruments and techniques in the unit, paired with blanks for marking what is going to be given and by whom. Additional instruments are marked for use as the plan is modified. A final section of the form is available for comments regarding assistive technology techniques utilized and notes on modifications in the plan. The following is an example of the development of an IVEP.

**Referral Question:** Is the consumer capable of being successfully employed in her expressed interest area of clerical work, and what level of training would be appropriate?

This question must be broken down into several small, more measurable questions. Each question can be converted into job-related factors, which do not need to be entered on the planning form. Instruments and techniques appropriate to the individual's functional skills and needs and that can evaluate the specific factors are then chosen.

**Question 1:** What consumer's achievement skills are needed for both training and employment? Factors: Reading, math, and spelling.

**Question 2:** What are her clerical aptitudes? Factors: Typing, word processing, filing, computer use/data entry, telephone answering/communication, and clerical checking.

Table 1

*Example of an Individualized Vocational Evaluation Planning Form*

Evaluation Questions	Instruments/Techniques	Evaluator	Comments
Achievement skills need for training and employment	Adult Basic Learning Examination	Morgan	Math also untimed
What are clerical aptitudes? (modification)	VALAPA Clerical W/S SRA Clerical Coding Computer Situational Assessment	Morgan Morgan Valerie	Used Word 98

In the above plan, Question 1 assessed the achievement skills needed for the job as well as for on-the-job training or possible formal training (e.g., business school or community college). The consumer's timed arithmetic skills were in the slightly below average relative to those required of clerks, but in the average range when the math section was completed untimed. The plan was modified for Question 2 by adding a situational assessment for word processing on a computer in the evaluation unit. The situational assessment offered opportunities for a more realistic hands-on assessment and career exploration for the consumer who stated that she had never used a computer before. The comments section on a planning form can also be used to document what assistive technology will be, or was, provided.

When the planning form is to be filled in, it is recommended that the evaluator sit down with the participant to develop the form jointly, explain what needs to be done and why, and ask for input on direction. When the initial plan is written, the evaluator can review it with the consumer, ask if she is satisfied with her plan (e.g., is there anything else evaluatees want to explore), and provide her with a copy for self-assessment purposes. In some settings, the plan is developed by the evaluator with prior consumer input through the intake interview, and then reviewed with and signed by the evaluatee indicating agreement with its content and direction. Filling out the IVEP should take no more than 10 to 20 minutes.

**Guidelines for Planning.** There are six important guidelines that, if followed, will result in a successful plan and evaluation.

1. Match instrument prerequisites to the evaluatee's skills when considering what is most appropriate for use. All evaluation tools will have some skill requirement not directly assessed by the work sample (e.g., reading for a computer word processing work sample), which must be formulated into what is chosen. If a consumer does not meet a prerequisite, then what modification or accommodation could make the instrument more accessible?

2. Use a general-to-specifics approach in planning and conducting the evaluation. This will help eliminate the "shotgun (hit or miss) approach" to evaluation, especially when the time is limited. For example, basic skills such as dexterity and eye-hand coordination can be evaluated before moving on to a more technical drafting work sample. In this way, evaluators can also explore simple to more complex skills and comparable job opportunities (Pruitt, 1986).
3. Do not begin the evaluation with an instrument that is too difficult for the consumer and will result in failure. This may affect interest and motivation to continue and to put forth one's best effort. At the same time, do not begin with an instrument that is too easy for the participant. This may be insulting and degrading to evaluatees who feel the evaluation is not appropriate for them. It is best to begin and end with a successful experience so that consumers leave evaluation more motivated to participate in the rehabilitation or transition process.
4. Vary the instruments and techniques that are given to minimize fatigue and anxiety, and maintain interest and effort in evaluation. Do not give all difficult tests or instruments of the same type at one time. Mix paper-and-pencil and performance instruments and activities to vary the routine. Begin with vocationally related instruments so that participants are fully aware of the purpose and outcome of the evaluation.
5. Always consider emerging consumer interests and unexpected changes in the evaluation performance when modifying the plan.
6. As mentioned earlier, evaluation ends when the plan is completed, and all questions are thoroughly answered.

When tailoring an evaluation to a specific referral source (e.g., vocational rehabilitation or school-to-work transition program), it is recommended that the evaluator use the planning document of that particular agency/setting (e.g., IWRP, IEP) as a guideline in planning and conducting the evaluation, and in writing the final report. This will ensure that information essential to the referring agency will be covered in the evaluation and report.

### **Prevocational Evaluation**

Although prevocational evaluation (sometimes referred to as vocational screening) differs slightly from setting to setting, it will be used here to refer to an initial feasibility assessment. The vocational evaluation plan is designed to provide systematic guidance in conducting a general-to-specifics approach to assessment. This means beginning with assessment instruments and techniques that examine consumers' functioning in the most basic and general pre-work skills, to direct the remaining process into a more specific work-related evaluation. Prevocational evaluation may include general reasoning and learning, basic living skills, achievement, dexterity, behaviors, and interest. This phase determines the feasibility of:

1. continuing with a more vocationally based evaluation;
2. recommending that a person enter a specific job or vocational training; and
3. referring a person to other services prior to continuing with a more comprehensive vocational evaluation or placement.

Various instruments and techniques are available for use in the prevocational phase. They should be used to determine what skills the evaluatee currently possesses that might demonstrate employability skills. If few skills are initially evident, then the assessment can determine if the person can profit from training or instruction. This latter consideration is often the approach taken when determining if an individual is a good candidate for supported employment placement. Following are examples of instruments and techniques that are useful in prevocational assessment. However, please remember that the use of these instruments and techniques should not be limited solely to prevocational evaluation any more than work samples, situational assessments, and job site evaluations would be restricted to the work-oriented vocational evaluation phase. This distinction between prevocational and vocational evaluation is made primarily to highlight the slightly different purposes and approaches of the two evaluation phases.

1. ***Learning Styles Assessment.*** Refer to the previous chapter, *Instruments of Vocational Evaluation*, for detail.
2. ***Basic Skills Assessment.*** Refer to the previous chapter, *Instruments of Vocational Evaluation*, for detail.
3. ***Interest, Achievement, and Aptitude Assessment.*** These forms of standardized testing can be used as a relatively quick way to determine what a person has both lost and maintained. The evaluator must be cautious when using these instruments, and the modification and administration skills detailed in the forthcoming *Work Sample Evaluation* section should be carefully applied.

When assessing interest, the evaluator must separate a client's true expressed dislikes from feelings of inadequacy or an inability resulting from problems associated with the head injury. Flat interest inventory results can be supplemented with work values and temperament tests, particularly in situations where the client is unsure about returning to work of any kind. When comprehension is in question, the evaluator should ask the client to explain each statement read, or picture, and the reason for the choice. Questionable reasoning skills will require greater evaluator assistance or discontinuation of the test. If the test is discontinued, then more appropriate instruments or techniques can be used. Leisure interest inventories may also be of great benefit, especially in situations where vocational interest inventories fail to yield useful results.

As with all standardized testing, achievement tests of reading, arithmetic, and spelling should be chosen, administered, scored, and interpreted with caution. Word recognition tests may need to be supplemented with comprehension measures. Arithmetic

tests should provide both math problem and word problem items. Spelling tests that require the evaluatee to write a dictated word as opposed to respond to a forced-choice list would allow for the assessment of writing problems and legibility. Obtaining timed and untimed scores on timed tests will provide an indication of what the person could do if given sufficient time. However, caution must be used when reporting both scores. The reader should be advised that the untimed score is not an accurate measure since it is based on the timed norms. Therefore, it must be used only as a general indicator of greater potential in the client in untimed situations.

Aptitude and intelligence testing (and to some extent achievement testing) can be used to determine what existing skills individuals possess, as well as what potential they may have for further learning and training. However, this is not always true when used with persons with TBI since these tests are often too abstract to readily generalize their results to work activities. These are relatively quick and efficient instruments that may have value with persons whose academic and processing skills are reasonably intact (i.e., mild head injury). Achievement and aptitude tests will be most beneficial when the content of the tests can be matched to the actual content of previous or targeted work or training activities. These might include identifying and analyzing specific reading and mathematical content, clerical functions and their demands, tasks requiring space relations or form perception, or motor and manual tasks by degree and frequency. These will improve the accuracy, utility, and interpretability of the test results in relation to a particular functional goal.

Although limited standardized testing can be conducted during the prevocational evaluation phase, more extensive use of these instruments is possible throughout the remaining process as long as the initial results do not serve to screen the client out of further evaluation or services. If this appears to be the case, then reliance on more appropriate hands-on, performance-based approaches (i.e., work samples, situational assessments, job site evaluations) would be warranted. The evaluator is cautioned not to give all standardized tests in succession as this may cause undue stress to the client. Mixing tests with hands-on activities and frequent breaks will ensure the best possible performance with the least anxiety.

4. ***Assessment of Critical Vocational Behaviors.*** Refer to the previous chapter, *Techniques of Vocational Evaluation*, for detail.
5. ***Determining Initial Work Feasibility and Need/Direction for Further Evaluation.*** After the prevocational evaluation phase has been completed, the evaluator needs to take time to determine the next step. One option is to continue with a more comprehensive, work-related vocational evaluation. However, if the severity of the head injury prevents the collection of useful or accurate information, even after extensive intervention during the prevocational evaluation phase, then another option should be considered. In this case, a continued evaluation will not render any new information. The evaluator should arrange a staffing to discuss where the client could be referred to overcome some of the problems identified through the prevocational evaluation. Once these issues are addressed, the client

can be referred for a reevaluation. For example, a client may be experiencing such anger, depression, fatigue, or disorientation that the evaluation cannot be completed. The results may not accurately reflect what the person could do once these problems were corrected. Therefore, if initial improvements in functioning are achievable, then this should occur before any further evaluation is attempted.

A final option is to consider referring the individual for specific rehabilitation, education, training, or job placement. In some cases, prevocational evaluation may provide sufficient information to warrant discontinuing any further assessment and begin formulating possible recommendations to be shared in the exit interview, staffing, and final report. This may be particularly true in situations where the head injury is mild and/or the need for information is minimal. However, caution should be exercised not to terminate too quickly since many subtle behavior and performance problems may not surface for some time (e.g., they may not surface until the person is placed in a work-related evaluation situation). The issues of time since the injury and prognosis for change must always be considered within the small window of vocational evaluation.

Prevocational evaluation can determine direction and type of vocational evaluation. This would include whether the focus should be on a general vocational evaluation or a specialized one for services such as supported employment.

### **Work Samples Evaluation**

The use of commercially marketed and locally developed work samples with individuals with head injuries is greatly underrated. This lack of understanding is often the result of limited knowledge concerning the "clinical" use of work samples. Regardless of what an assessment specialist uses, there are several important clinical procedures that should be followed. These procedures are listed below. The list is then followed by a detailed description of each activity.

1. Using work samples as an interactive tool.
2. Assessing learning styles through work sample administration.
3. Exploring modification procedures through work sample performance.
4. Evaluating production improvement and retention and recall through work sample re-administration.
5. Evaluating decision-making and quality control.
6. Observing critical vocational behaviors.
7. Identifying remedial needs, and functional strengths and limitations through content analysis.
8. Matching work sample content to training/job content and prescribing contingencies for successful performance.

**Using Work Samples as an Interactive Tool.** There are numerous opportunities throughout the work sample process for evaluators and clients to establish rapport and exchange information related to a wide range of personal and vocational issues. In order to create the

proper facilitative environment, two activities must be routinely introduced into the work sample evaluation process: a work sample orientation and a post-sample interview.

**Work Sample Orientation.** Prior to the actual administration of each work sample, the evaluator should take time to orient clients to what they are about to take. Whenever possible, the orientation should briefly cover what the work sample is designed to assess, why it is being given, and how it relates to work in general as well as to specific jobs in the community. Concise questions regarding clients' knowledge of or experience with work that is related to the sample can serve as an excellent means of evaluating their knowledge of the world of work and previous employment activities if any. Musante (1983) recommends that clients be asked to restate what was covered during the work sample orientation to provide better insight into their thinking and reasoning processes. Stress can be reduced and expectations clarified, and the clients' motivation can potentially improve through the use of orientations.

**Post-Sample Interview.** At the conclusion of every work sample, the evaluator should routinely obtain feedback from clients regarding their opinion of the experience. Questions should concentrate on (a) how clients liked taking the work sample, (b) how they think they did, (c) if they could have done better and how, and (d) their interest in doing all or parts of jobs that are related to the sample. Such questions help to explore expressed vocational/task interests, modification needs, and basic decision-making skills.

More specifically, when the orientation and post-sample interview are consistently given throughout the work sample administration process, they help evaluatees internalize the reasoning and decision-making process that is critical to effective career exploration. When applied to individuals with traumatic brain injury, the orientation and post-sample interview procedure can be used to further explore pre/post-injury functioning, current decision-making skills, ability to recall pre-injury job information, and level of comfort and/or stress with their perceived work sample performance. In particular, if a person feels that the outcome could have been better had more time been available, had more instruction been given, or a modification been applied, then these accommodations can be considered if re-administration is initiated. Nonverbal communication is often as informative as the statements made by the client and should be explored if it is inconsistent with a verbal response (e.g., a client who grimaces while stating interest in a work sample activity).

**Assessing Learning Style(s) Through Work Sample Administration.** A critically important outcome of the work sample administration process for individuals with TBI is the identification of the best approach(es) to providing instruction. Since traumatic brain injury often affects learning ability (and retention and recall), learning style should be one of the initial factors assessed. A variety of paper-and-pencil learning style tests is currently available to assess individuals who can read and reason well enough to respond appropriately to the instrument (Blakemore, McCray, & Coker, 1984). However, in cases where reading and reasoning written material (either learning style tests or written instructions) is not feasible, then more performance-based procedures should be used. The two instruments available to assess non-reading learning style are the Perceptual Memory Task (PMT) and Pathfinder.

The PMT evaluates areas such as verbal and visual memory for sequences, color, and shape. Individuals with organic dysfunctions have been included in the norms. Pathfinder, an instrument designed for evaluating preferred learning style associated with more severe mental handicaps, is typically used with individuals who could profit from supported employment services. This battery of simple activities examines subject responses to instruction presented through verbal, modeling, and physical (hands-on) approaches.

***Process of Instructional Modification.*** As mentioned earlier, work samples can also be used and modified, if necessary, to effectively evaluate learning style in individuals with head injuries. The following is a process for systematically modifying administration instructions for work samples. It is based on the more common administrative procedure of oral instruction and demonstration.

1. Administer instructions following the standardized procedure. If the standard method is not followed, then it will be difficult to determine if the lack of understanding is the result of a client's learning problem or an evaluator's instructional problem (e.g., omitting important information or presenting information out of sequence).
2. Repeat the instructions client did not understand. Often, the individual is momentarily distracted or the instructions are administered faster than the client can process them (a frequent problem for people with TBI). In these situations, simply repeating what was missed will solve the problem.
3. Ask the client what he/she did not understand to help tailor further modifications (e.g., vocabulary too high, unfamiliar with tool names, or instructions were given too quickly). However, some persons with head injuries are better able to tell what they did understand rather than what they did not understand. Therefore, rephrasing the question will provide the evaluator with the information necessary for appropriate instructional accommodation. In some instances, using a slower, more deliberate pace without talking down to the client may help facilitate mastery of the instructions.
4. Provide more visual prompting (e.g., pointing) with oral instructions.
5. Provide visual demonstration (modeling) with verbal prompting (e.g., using only descriptive or keywords). For clients who are unable to understand two instructional modalities at one time, presenting the information in visual form only may improve comprehension.
6. Use a hands-on instructional approach (physically guide individual's hands through the process).
7. Engage in chaining, when necessary, to assess the level of sequencing.



8. Re-administer the instrument at a later date without instructions to assess retention and recall. Provide instructions as needed, using the same process above to determine if the learning style has changed with familiarity.

Once a preferred learning style has been determined, additional work samples can then be chosen that complement the learning approach or that can be appropriately modified to incorporate the preferred style. Please keep in mind that the same learning style does not work in every situation since comprehension and recall may depend on motivation and previous knowledge and experience with a task. Additionally, when an individual's functioning improves, there may also be improvements in learning and memory. Therefore, be sensitive and flexible when applying the previously identified learning styles so that they enhance rather than retard learning.

Additional information on the process of modifying evaluation instruments can be found in a publication, entitled *Learning Assessment in Vocational Evaluation* (McCray, 1979), available from:

The Rehabilitation Resource  
Stout Vocational Rehabilitation Institute  
University of Wisconsin–Stout  
Menomonie, WI 54751

***Using Word/Phrase or Picture Prompt Cards.*** One highly beneficial modification to the administration process is the development and use of note cards that highlight the work sample steps. Appropriate work samples (situational assessment or job site evaluations) can be chosen and their instructional steps broken down by tasks. Each task can be numbered and illustrated using a keyword, descriptive phrase, picture/drawing/photograph, or a combination of these. When used in conjunction with Steps 1 to 6 above, or as replacements of Steps 7 and 8, the instruction time and accuracy can be improved along with later recall (Step 8). The cards vary in size, depending on the number of steps to be illustrated, but usually should not exceed the size of a standard 8 1/2" by 11" sheet of paper. It is best in job site evaluations or during situational assessments to use smaller cards or a small spiral notepad that would be less conspicuous. The choice of using word/phrase or picture prompts depends on the client's reading and processing abilities. For example, if a work sample requires the assembly of a washer and a nut on a bolt, then a series of numbered pictures can show: (a) holding the nut in the left hand, (b) placing a washer on the bolt with the right hand, (c) screwing the nut on the bolt with a directional arrow showing turning direction and the phrase underneath stating "Turn Three Times," and (d) placing the completed assembly in a box or bin. An arrow can be drawn between each step with one final arrow connecting Step 4 back to Step 1 to indicate that the task should be repeated. Word/phrase or picture prompts for a window cleaning situational assessment can be organized as follows: (a) cleaning materials (spray cleaner and rag) removed from shelf, (b) cleaner sprayed on window (top to bottom), (c) window wiped with rag (top to bottom), (d) cleaning materials returned to shelf. If prompt cards are successful with work sample administration/re-administration, then they (or memory notebooks) can be recommended, during the staffing and in the report, for use

in work and non-work activities. Evaluatees should also be given the opportunity take notes during administration when it serves to improve their retention and recall.

One final approach to evaluating and accommodating retention difficulties is the use of audiotaped instructional prompts. Individuals who respond well to verbal instruction or verbal cues may also profit from this technique. Instructions for selected work samples can be condensed and recorded for use on small tape recorders, portable cassette players with headsets, or on the more high-tech audio message reminder devices and used with clients when recalling is a problem. Although costly, similar techniques can be applied to videotaping, and the use of computers for the visual and verbal prompting of instructions. If the audio or video prompts improve recall, then they can be recommended for use in training or employment. The medium chosen (audio or video tape recorder, or computer) depends on the instructional requirements and technical nature of the activity in question.

***Dealing with Stress in the Evaluation Process.*** Inabilities to deal with stress and overreaction to stimuli are common byproducts of traumatic brain injury and are often problems in the vocational evaluation process, including the use of work samples. Stress and anxiety frequently occur when the evaluatee is having difficulty following an administrative approach or is overloading on too much input (i.e., cannot learn when two different learning approaches—instruction and demonstration—are given simultaneously) or when there are too many distractions. In this case, the evaluator should immediately switch to one instructional approach. If the client still complains that the task is too difficult to learn or perform, then time should be taken to reduce the interfering stress. This can be accomplished through the following steps:

1. Have client lean back in the chair and close eyes.
2. In a soft, calm voice tell the individual to breathe slowly and deeply several times, making sure the person's mouth is open to relax muscles that become tensed when the teeth are clenched. While the eyes are still closed, quietly instruct the client to rock head front-to-back and side-to-side several times. This activity can be concluded with a few more deep breaths.
3. Two more thorough techniques can be used with the client if stress is not relieved using the previously described method. One approach is to have the client clear the mind and go through a progressive relaxation exercise. The other technique is more time consuming and difficult to use and should be considered if the progressive relaxation technique is of limited value. It requires the evaluator to guide the client through a positive visualization exercise. In this case, the person should visualize performing the work sample quickly and accurately. It is recommended that evaluators take the time to learn these two relaxation techniques before attempting them with a client.
4. Explain that you plan to use an entirely different approach in administering/demonstrating the work sample.

5. If the individual still resists taking the work sample, indicate that you will administer something entirely different. Choose another instrument that assesses similar factors as the previous one but permits you to use a different instructional approach altogether.
6. Have the client open eyes and administer work sample.

Once this simple relaxation technique is mastered, the client can be given breaks, and when stress becomes a problem, the client should be encouraged to practice the relaxation technique during this time. Although frequent breaks are highly beneficial and strongly recommended, they alone may not help the evaluatee reduce stress. Since this time-limited technique is designed to temporarily deal with administration related stress, it should not be considered a comprehensive approach to managing chronic stress. For these situations, report recommendations should be included that address the need for client mastery of more thorough and effective stress management techniques.

***Determining Task Mastery.*** There are a few simple ways of determining if an individual has learned the task in question. They are as follows:

1. With short cycle activities/tasks, require completion of a specified number of consecutively correct trials/assemblies (e.g., three to five).
2. With trials of medium length (several minutes), require the successful completion of one trial.
3. With long-term activities, ask individuals what they are supposed to do. This procedure should be used with caution since some clients can perform activities better than they can explain them and vice versa. As an alternate to this approach, clients can be observed for a few minutes at the beginning of the activity to ensure they know what they are doing. To make them feel at ease with your presence, explain that you will be there for a few minutes to help them with any problems they may have.

The performance phase of a work sample, test, or other assessment situation should not be initiated until you are certain that the client exactly knows what to do or can successfully use the appropriate word/picture prompt technique. As mentioned earlier, if a person can learn how to perform a work sample but does not reach competitive performance levels, then supported employment might be an appropriate employment option. In all cases, instructional techniques and modifications used to insure that the client learned how to take a work sample should be included in the report recommendations section and particularly in recommendations for supported employment placement.

**Exploring Modification Procedures through Work Sample Performance.** With the enactment of Section 501 of The Rehabilitation Act of 1973, Section 503 in 1976, Section 504 in 1977, and the Americans with Disabilities Act (ADA) in 1990, government offices and private institutions/contractors receiving specified sums of federal dollars cannot discriminate against individuals with handicaps in the education or employment process. These regulations also address accommodation issues related to employment selection criteria. From this criteria, White

(1978) identified "... three major areas of concern regarding the testing of motor handicapped persons: (a) psychological factors related to the limited opportunity for social interaction frequently imposed by a handicap, (b) physical factors which must be considered when selecting test material and (c) changes in psychometric properties of standardized tests which are modified in some way to accommodate a handicap." The purpose of modifying employment screening instruments is to permit persons with handicaps (in this case, the functional limitations imposed by TBI) to demonstrate their abilities and not their disabilities. In the *Handbook of Reasonable Accommodation*, the Office of Selective Placement Programs (1980) of the United States Office of Personnel Management presents sound justification for "modifying written examinations:"

Although many handicapped persons can demonstrate their qualifications through usual procedures, modifications are sometimes necessary to enable those with certain disabilities to achieve test results commensurate with their abilities. Special arrangements made to avoid compounding the problems faced by handicapped competitors are equalizing rather than preferential. The objective is to eliminate any artificial barriers, which would prevent such persons from demonstrating their capabilities in the examination process. (p. 4)

Both publications by White and the Office of Selective Placement Programs give examples of appropriate instrument modifications. Accommodations specific to the needs of persons with head injuries have been extracted and listed below for consideration in the modification of work samples and other evaluation devices.

#### ***Modifying Administration Methods***

1. Reduce anxiety and help evaluatee feel at ease.
2. Match learning and instructional style (written, oral, visual, hands-on, audiovisual, chaining).
3. Provide individual or group administration as necessary.
4. Extend instruction/practice time.
5. Ensure that evaluatee has learned what to do (refer to *Determining Task Mastery* section above).

#### ***Modifying Response Methods and Content***

1. Fill in answer sheet for evaluatee.
2. Let evaluatee dictate answers into a voice-activated tape recorder.
3. Adjust/eliminate time limits.
4. Give frequent breaks throughout and between each instrument as needed (important in situations where individuals easily fatigue).
5. Rearrange work area (simplify, reduce visual/noise distractions, provide work aids, raise/lower/tilt working surfaces).
6. Simplify language in instruments, reword items to make them clearer, and shorten sentences to make them easier to understand.

Without the enactment of Sections 501 (1973), 503 (1977), and 504 (1977), and the ADA (1991), the issues of test modification would be moot since employers would not be obligated to make reasonable accommodations for people with disabilities. The Office of Selective Placement Programs (1980, p. 2) states that "Regulations on nondiscrimination for handicapped individuals require that agencies make reasonable accommodation to the known physical and mental limitations of a handicapped applicant or employee unless it can show that the accommodation would cause undue hardship on the agency." Prior to 1973, work sample modifications were of limited value within the vocational evaluation process due to a lack of employer support for providing similar job site modifications. Today, however, federal regulations, the success of Projects With Industry and supported employment programs, and employers' desires to return injured workers to the labor force have prompted the modification of jobs to accommodate individuals with disabilities. This means that beneficial work sample modifications can be recommended for replication at the job or training site. A study conducted by Berkeley Planning Associates (1982) for the U.S. Department of Labor's Employment Standards Administration examined a variety of modifications on 2,006 different jobs with Federal contract employers. Table 1 shows the Top Ten most commonly used accommodations by percent of use:

Table 2  
*Most Commonly Used Workplace Accommodations*

<b>Accommodation</b>	<b>Percentage</b>
Orienting supervisors and coworkers to provide necessary assistance	18.0
Other	8.9
Other modification of work procedure	8.9
Assigning tasks to other workers	8.8
Transferring employee to another job	8.7
Adjusting table, desk, bench, etc.	6.4
Removing architectural barrier for individual	5.7
Providing additional training	5.2
Modifying work hours or schedules	5.2
Providing other special equipment, tools, or devices	4.7

Overall, the study reported that approximately 51% of the accommodations cost nothing. The study also found that no single job modification prevailed (as evidenced by the low percentage assigned to the above modifications and the high percentage of "other" categories); therefore, each case should be handled on an individual basis. Employers were willing to spend greater amounts of money on accommodations for high skill jobs, particularly those where qualified workers were hard to find.

Today, job sites are being modified with greater frequency, and successful work sample modifications can provide the prescriptive guidance necessary to assist with appropriate job redesign when it is required. A final source of test and work sample modification can be found in a book *Tests and Test Use in Vocational Evaluation and Assessment* (Siefker, 1996) available from The Rehabilitation Resource.

**Evaluating Production Improvement, and Retention and Recall through Work Sample Re-administration.** If an individual's speed and/or accuracy are less than competitive and there is a willingness to retake the sample with the idea of improving the deficient area(s), then re-administration should be considered. Research supports the fact that repeated trials on performance-oriented work samples, even in short practice trials, brings about improvements in productivity (Blakemore & Coker, 1982; Chan, Parker, Carter, & Lam, 1986; Lam, Chan, & Thorpe, 1988; McCray & Blakemore, 1985). Several steps can be followed in the re-administration process to assess improvement potential:

1. Determine the performance problem area (e.g., speed and/or accuracy) and ask if the client is interested in retaking the work sample. If there is no interest, continue the assessment in a different area.
2. Depending on the length of the work sample, all or part of the work sample can be re-administered. Longer work samples can be reduced in length to minimize boredom and fatigue while allowing sufficient time to evaluate improvement. On work samples with fixed time limits, the performance can be plotted over a set of equal time frames (e.g., breaking a 20-minute work sample into four, five-minute time intervals to plot performance within each interval). However, all final administrations should be completed using the full length of the work sample.
3. At the beginning of a re-administration, the evaluatee should be given a thorough explanation of what area needs improvement (speed and/or accuracy). As each trial is completed, the results can be plotted and shared with the client and praise and encouragement generously given for subsequent trials. The re-administration should be discontinued when the criterion is reached, when progress is not obtained after two or more successive trials, or when the evaluatee no longer wants to take the sample. When complaints concerning the reason for re-administration are expressed, helping clients recognize the relationship of this process to the daily routine and repetition of work activities may contribute to their understanding and desire to continue.
4. In order to thoroughly examine retention and recall (memory), a work sample that has been mastered one day can be re-administered without instructions the next and subsequent days, with only instructional prompts being given to supplement confused or forgotten steps/sequences. It may take several days before a work sample can be performed without prompts. In some cases, the word/phrase or picture prompt cards described earlier can be used to assess their effectiveness in improving recall. The use of re-administration permits the replication of the daily routine of job activities not available through the onetime administration of a work sample. When re-administration of several work samples and situational assessments is incorporated into a daily evaluation schedule, a more accurate assessment of issues and improvements related to a similar work schedule can be achieved.

5. Synthesize and interpret the results as they relate to recommending environmental, training, and job accommodations (e.g., extended learning and practice periods on the job).
6. Re-administration and repetition are important in the assessment and instructional processes for individuals with traumatic brain injuries. They are often a key to ensuring long-term success in rehabilitation, training, and employment; therefore, they should be readily incorporated and used throughout the evaluation.

**Evaluating Decision Making and Quality Control.** As mentioned earlier, it is not enough to know how evaluatees did on a test or work sample; the evaluator should also know what they got right and wrong, and why. In addition, it is equally important to find out if clients can make judgments regarding the quality of their work as well as recognize and correct errors. Without the ability to consistently perform quality work, the chances of maintaining employment will be seriously jeopardized. Therefore, when mistakes are made, the evaluator must determine if the client is capable of recognizing and correcting them. Client errors can occur during the practice or performance phases, giving clients two different opportunities to determine how well they can learn from their mistakes. The following procedure will assist in identifying problems associated with decision-making and quality control.

1. When performance is evaluated (i.e., an instrument scored), clients should be asked to find and correct any errors. Errors that are missed, or not properly corrected, can be reviewed individually with the evaluator to determine what difficulties the evaluatee might be having. For certain individuals with head injuries who are unable to initially identify and/or correct errors, the evaluator should proceed to the next step.
2. Point out the first mistake and ask if client knows how to correct it. If not, demonstrate how.
3. Follow the procedure in Step 2 until the client can independently identify and correct errors. The evaluator may need to try different approaches to overcome specific client problems associated with error identification or correction. These might include modifying the instructional approach as described earlier in this section, providing extensive practice time with identification and correction exercises, or furnishing correct samples of the work with the instrument or situational assessment.
4. If during the course of a work sample or situational assessment activity an evaluatee routinely makes the same mistakes, then the evaluator should provide immediate assistance. This would include following Steps 1, 2, and 3 and describing what was done on both the score form and in the report. Although this type of assistance will compromise the integrity of the norms, allowing the evaluatee to repeat the same mistake until the activity is completed will serve little if any purpose.

The results of this process must be incorporated into further evaluations and subsequent report recommendations.

**Observing Critical Vocational Behaviors.** A highly important part of the vocational evaluation process for persons with traumatic brain injury is behavior observation. Because of the significance of behavioral/psychosocial issues with persons with TBI, every opportunity to observe behavior should be pursued. One such opportunity is the work sample evaluation process. Next-to-real employment settings and situational assessments, work samples provide one of the best opportunities to observe critical vocational behaviors. Observations can be noted on the work sample score form and converted into recommendations for behavior management or accommodation. Certain work samples can be chosen and administered because of their particular behavior requirements. They can also be modified (e.g., increasing production conditions or demands) to allow for the observation of preselected environmental factors. Work sample task observations and outcomes can be matched to previous job tasks performed by the client to help establish a profile of pre-injury and post-injury skills and limitations. Specific behavior observation considerations and procedures are discussed in more detail in other sections of this publication.

**Identifying Remedial Needs, and Functional Strengths and Limitations through Content Analysis.** As previously mentioned, observation of client performance and analysis of the completed content (what items were answered correctly and incorrectly) will help the evaluator build a remedial and functional profile of a client. The problem with some standardized instruments is that they simply report a score and fail to specifically identify abilities and limitations and how these limitations can be corrected. Functional inventories can guide the systematic identification and administration of appropriate work samples and other evaluation instruments that can answer these essential questions.

To begin this process, evaluators must first analyze and note what remedial and functional factors (e.g., math, change making, measuring, whole body range-of-motion) are present in each work sample, test, and situational assessment activity. These factors can be listed and categorized for comparison to an existing functional inventory or the development of an individually tailored inventory. Each factor can then be assigned corresponding instruments, and specific instruments can be chosen that are appropriate to each client (i.e., if one work sample is not appropriate, then another sample can be chosen that assesses the same factor). If a specific job has not yet been targeted for the client, then a suitable range of work samples and other evaluation instruments can be chosen that cover all of the factors. When a job possibility is available, factors critical to the job can be used to plan and initiate a highly individualized evaluation.

A unique aspect of using work samples to assess basic and functional skills is their performance orientation and relatedness to concrete, job-related tasks. Further, when a clinical approach is applied to the work sample administration process, ways of overcoming deficit skills can be explored and prescriptively reported for remediation and management.

**Matching Work Sample Content to Training/Job Content and Prescribing Contingencies for Successful Performance.** One of the most essential clinical skills of vocational evaluators is the ability to accurately interpret evaluation results, and work sample outcomes in particular, and formulate effective recommendations. Although the traditional norm-



referenced approach has merits, for more severely disabled populations such as individuals with TBI, the criterion-referenced approach would offer far more discrete and functionally relevant information. Although this technique will be discussed in detail in the interpretive section of this book, the concept of criterion-reference as it relates to work samples will be reviewed here.

Norm-referenced interpretation requires the comparison of a client to another group of individuals (i.e., the norm group), which may not be appropriate given the lack of relatedness of the norm group to the individual being evaluated and to the community-based outcome being considered. The problems here are obvious since a single percentile score fails to reveal any functional information about outcomes. For example, a client score at the 80th percentile on a money handling basic skills test means very little regarding functional ability, even if the norm group was known. However, a criterion-referenced interpretive approach would only require a brief review of what content the client got right and wrong. In this case, a criterion review might reveal that the person "could make change only up to a \$10 bill." In this case, reporting a score at the 80th percentile, along with the criterion achieved, has significant functional utility when recommending remediation, education/training, or employment.

It is strongly recommended that the evaluator take time to evaluate the criterion relevance of available work samples and tests. When establishing cut scores based on norms, the evaluator can equate criterion levels to specific percentile score levels. For example, if a client can correctly answer all questions up to the point of making change for a \$5 bill, a match of the number of correct responses achieved to the corresponding level on the norm table would reveal a score around the 30th percentile. Now, a score within the 30th percentile range has functional meaning but should always be reported in conjunction with its criterion (i.e., level of change-making ability). Unfortunately, not all work samples and tests have criterion relevancy, and norms may be the only available interpretive mechanism.

In conclusion, the uses of work samples in many evaluation programs have been deemphasized, and their importance in meeting the assessment needs of persons with severe disabilities has been greatly underestimated. When modifications in the instructional or physical aspects of instruments are extensive, work samples quickly become situational tools in that they serve the evaluation process better as an observational opportunity than as a standardized instrument. Meeting the unique evaluation needs of individuals with severe disabilities requires a clinical application of work samples and other assessment instruments. When used with evaluatees with severe head injuries, work samples that have high face value to the world of work, or that have been designed specifically for use with this population, should be given priority. Only practice with these techniques will ensure their proper and successful use.

### **Situational Assessment and On-the-Job Evaluation**

Information on situational assessment and OJE can be found in the previous chapter, *Techniques of Vocational Evaluation*.

### **Exit Interview**

Once the vocational evaluator has collected all necessary assessment information with clients, the process can be concluded with an exit interview. The evaluator should take time to review the complete file and carefully share basic results and possible recommendations with clients for their feedback. Knowing what evaluatees liked and disliked, their feelings about their overall performance, and the evaluation process, in general, will provide important information on expressed interests and personal insights for the report. Potential recommendations can be validated through client responses and prioritized accordingly. At the end of the interview, it is important to ask clients to verbalize what they understand to be the outcomes of the evaluation to assess their perceptions and ensure that the information covered in the upcoming staffing and final report is not a surprise.

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## **Vocational Evaluation and Assessment: Philosophy and Practice**

### **CHAPTER NINE**

#### **Communication and Follow-Up**

##### **Data Synthesis and Interpretation**

Data synthesis and interpretation are among the most difficult clinical tasks in the vocational evaluation process. The multitude of issues and considerations associated with traumatic brain injuries (TBI) further complicates analysis and decision-making. To begin the process, the evaluator should arrange the working file in chronological order beginning with the referral information and intake interview, continuing through the instruments and activities given, and ending with the exit interview. The file should then be reviewed from beginning to end to identify any behavioral or performance patterns. If any are identified, then the file can be arranged in that order and data analysis and interpretation begun.

Although data synthesis and interpretation are conducted throughout the evaluation process, they should receive special attention prior to the exit interview so that potential recommendations can be formulated and discussed with the client. Interview results are then incorporated into the existing information, which is further refined for presentation in the exit staffing. With the recommendations from the staffing in hand, the evaluator is now ready for final synthesis and interpretation through the vocational evaluation report.

Three approaches will be presented that can be used in data synthesis and interpretation: the functional analysis approach, the content analysis approach, and the construct analysis approach. Regardless of the approach used, a key ingredient to meaningful interpretation is realism. To ensure realism, all instruments used in the assessment process should rely more on criterion-referenced than on norm-referenced methods of analysis. The more traditional norm-referenced approach converts the evaluatee's obtained raw scores (e.g., time, errors, or correct responses) to derived scores (e.g., percentiles, stanine scores, standard scores, grade equivalents, etc.) contained in norm tables for performance comparison purposes. The effectiveness of this process depends on how well matched the client is to the individuals who compose the norm group and how representative the norm group is to the outcome being considered (e.g., training or employment opportunities). Since very few norm groups contain representative numbers of persons with TBI or relate well to local jobs or training criteria, the norm-referenced method may have limited realism and utility.

The criterion-referenced method evaluates performance in relation to the actual content of the task (i.e., what the person was able to do). A criterion-referenced example given earlier in this publication demonstrated how to interpret the results on a change making test or work sample as follows. The norm-referenced score on a money-handling work sample at around the 80th percentile, when compared to general population norms, would not be as functionally descriptive as a criterion-referenced statement of what the evaluatee was able to do (e.g., could

make change up to but not beyond a \$10 bill). Although both the norm-referenced and criterion-referenced approaches have value to the interpretive process, the criterion-referenced method has greater face value in relation to specific training and job content and, therefore, greater utility when matching persons with TBI to appropriate environments. The functional analysis and content analysis approaches rely on the criterion-referenced method, and the construct analysis approach incorporates the norm-referenced method.

The **Functional Analysis Approach** involves the identification of the basic functional skills required to successfully master and perform activities related to independent living, training, and work (e.g., learning ability, stamina, or mobility). The categories (or items) within functional assessment instruments and inventories can serve as models for profiling both a person's skills and job or training requirements. By matching the client's functional profile to the functional criteria of specific jobs or trainings, the evaluator can identify performance-related abilities and needs. Functional needs can then be addressed through rehabilitation, modification, and accommodation strategies.

The **Content Analysis Approach** matches the tasks contained in work samples, situational assessments, and job site evaluations to similar tasks found in vocational classes and jobs. For example, if a past or projected job requires the client to file 3" by 5" index cards by social security number, then evaluation instruments should be chosen that replicate this task. Table 1 gives a more detailed example of how the content analysis approach can be used to choose instruments and interpret results related to possible file clerk training and placement.

Table 1  
*Example for the Use of the Content Analysis Approach to Choose Instruments and Interpret Results*

Task Area	Instruments	Outcome
Type file labels	Typing work sample (or typing class grade)	Slow but accurate
File folders alphabetically	Filing work sample (or Clerical Checking Aptitude Test)	Slow but accurate, needs practice
Retrieve files on request	Filing work sample	Same as above

*Note.* Placement in an on-the-job training filing position could be considered as long as a client is given sufficient practice time to improve work speed. Alternatively, placement could be considered in an on-the-job training filing position where production speed is not a major performance criterion.

The **Construct Analysis Approach** matches abstract traits and aptitudes with similar traits and aptitudes required in particular job or training situations. In this approach, tasks are

converted to traits (e.g., assembly jobs to dexterity level, or reading and math activities to grade level) so that aptitude and related test results can be compared to trait profiles of different jobs.

The best example of job-related construct information is contained in the *Dictionary of Occupational Titles (DOT)* (U.S. Department of Labor, 1991a) and related documents. The Data, People, Things code (the middle three digits of the DOT code) is a numeric description of the job's activities, as they relate to data, people, and things. For example, the DOT code for File Clerk I (clerical) is 206.362-010, and the Data, People, and Things code is 362, which carries the following descriptors:

Data	3	Compiling
People	6	Speaking-Signaling
Things	2	Operating-Controlling

The following table is an example of how the construct analysis approach can be used to choose instruments and interpret results. For this example, the critical aptitudes for File Clerk I was taken from the *Classification of Jobs* (Field & Field, 1992). In addition, the related aptitudes and ratings for local jobs or training curriculums can be obtained through a job analysis described in *The Revised Handbook for Analyzing Jobs* (U.S. Department of Labor, 1991b), published by the Materials Development Center. The ratings are based on a one-to-five scale with "1" representing the upper 10% of the population, "3" the middle third, and "5" the lower 10%.

Table 2  
*Example for the Use of the Construct Analysis Approach to Choose Instruments and Interpret Results*

Attitude or Requirement for File Clerk I	Instrument	Outcome Level & Percentile
Verbal (V) 3	XYZ Reading Test	Level 3, 42th
Clerical Perception (Q) 2	ABC Clerical Work Sample	Level 3, 45th
Finger Dexterity (F) 3	Purdue Pegboard	Level 3, 55th
Manual Dexterity (M) 3	Minnesota Rate of Manipulation Test	Level 2, 70th

*Note.* The client is one digit above the required aptitude level in manual dexterity, at the required level in verbal aptitude and finger dexterity, and one digit below the required level in clerical perception (slow but accurate at matching letters and numbers). Placement in an OJT file clerk position could be considered as long as sufficient practice time was given to improve work speed or the work environment did not require high production levels. Table 3 resembles an example of a construct profile for the analysis above.

Table 3  
*Example of a Construct Profile for Construct Analysis*

File Clerk I Profile	Morgan's Assessed Profile	Differences
V3	V3	0
Q2	Q3	-1
F3	F3	0
M3	M2	1

Construct profiles of evaluatees can be entered into a computerized job search systems similar to those described in The Rehabilitation Resource publication *Vocational Evaluation Systems and Software: A Consumer's Guide* (Brown, McDaniel, Couch, & McClanahan, 1994). The resulting job list can be used as a guide to explore employment options. For such a system to be reasonably effective with individuals with head injuries, changes/improvements in the profile structure resulting from rehabilitation and modification should be anticipated. By entering a modified profile resembling anticipated improvements in functioning, a newly expanded job list can guide the detailed formulation of appropriate prescriptive recommendations.

Since not all evaluation instruments and techniques are amenable to one single analysis approach, a combination of the approaches should be incorporated. Parts of a job or training program may lend themselves well to a functional analysis and other parts to a content analysis. Once all tasks have been accounted for, then other environmental factors can be addressed, such as supervision, interaction, behavior, learning style, and recall. For example, other important considerations in the File Clerk I position that were not addressed in the profiles above include the size of file cabinets, weight of files, mobility and range-of-motion requirements of the specific work setting, environmental considerations, behavior and interaction requirements, and supervision needs. These considerations can be listed in functional, content, or construct terms to supplement existing analysis information. It is these seemingly unimportant details that may make the difference between success and failure for someone with TBI.

With some difficult cases (moderate to severe head injury), evaluators may feel uncomfortable with their ability to fully and accurately interpret their findings without additional input. In these situations, it is recommended that staffings be conducted to discuss results, draw conclusions, and formulate recommendations. Some evaluators even like to take additional time, such as an evening or two, to think about a case before staffing it or writing the report. The staffing and report writing phases can also help in interpreting results since they require systematic and thorough organization. The need to clearly and effectively express prescriptive recommendations with supporting documentation often provides new interpretive insights. The remainder of this chapter will present the primary considerations in organizing and staffing cases, writing vocational evaluation reports for persons with TBI, and conducting follow-up.

## Staffing

Once all data have been collected, synthesized, and interpreted, the evaluator conducts a staffing. The staffing should be attended by all staff and professionals who have had contact with



the client during the evaluation and who will have contact with this individual in the immediate future. The evaluatee, family members, and employer (when appropriate) should also attend. Staffings should be conducted before the vocational evaluation report is written so that any changes or additions to the information presented can be incorporated into the final report.

Therefore, reports are often considered to be a detailed review of the proceedings of the staffing. It is recommended that the evaluator use the report-writing outline below as organized and efficient means of presenting pertinent information in the staffing. By jotting down key points at appropriate places throughout the outline, and adding new information as it surfaces during the staffing, the evaluator will have created a concise report writing guide that will save writing time and ensure that all essential details are covered in the report.

## **Report Writing**

This section of the manual will highlight those aspects of vocational evaluation report writing that directly relate to the issues associated with traumatic brain injury. For a detailed overview of the general report writing process, the reader is referred to the publication *Report Writing in Assessment and Evaluation* (Thomas, 1986) published by the Materials Development Center.

Above all else, reports and concluding recommendations should be written prescriptively. That is, they should be highly descriptive and spell out all contingencies that would improve the client's chances of success. Environmental issues, supervision needs, instruction and recall requirements, and accommodations are but a few of the contingencies that may need to be detailed in the report. Techniques that worked during the evaluation to bring about improvement or mastery should be thoroughly described so that they can be replicated in other settings.

As mentioned under the Data Synthesis and Interpretation section above, the report-writing outline should be rearranged when necessary to allow for the presentation of information in the most efficient manner. The outline should be changed to accommodate the best presentation of the results, rather than the information being forced to fit the outline. All too often, reports are criticized for not meeting the reader's needs or providing useful information. Often, reorganizing the structure of the report will solve the utilization problem. For example, if a transitional plan is to be developed with a client, then the different sub-headings of the evaluation report could mirror the order and required content of the different sections of the plan. When the transition plan is developed, it will be much easier to find and transfer information from the report to the corresponding sections of the plan. As a result, valuable time is saved, and there is a greater assurance that the report will be effectively used in the planning process. To ensure clients' participation in the transition plan, they should also be given a copy of the report, so they know what is expected.

The body of the evaluation report should be written to document and justify the recommendations. Important client issues that could be addressed in the body of the report include (a) a profile of pre-injury and post-injury functioning, (b) functional strengths and limitations by category of injury (e.g., physical, cognitive, or social/interpersonal), and (c) descriptions of client performance and required accommodations. Without question, the

recommendations section is the most important segment of the evaluation report. Therefore, a variety of key recommendations specific to the needs of persons with traumatic brain injury will be presented. This list is by no means inclusive and can be creatively expanded depending on unique factors associated with the individual, family, referral source, employer, and community. Combinations of recommendations should be considered along with a variety of options, just in case the first option is not considered or does not bring about the expected results. All recommendation contingencies and prescriptions should be described narratively and in step form to ensure that they can be initiated properly.

1. ***Selective Placement.*** Recommendations in this category refer to placement in education, training, employment, or community sites that are not affected by the client's functional limitations. For example, if the individual in question cannot perform basic mathematical functions, then an environment that does not require math could be selected. This could apply to a broad range of issues, such as stress, performance speed, behavior, communication, memory, and physical functioning. No active intervention is needed prior to, during, or following placement.
2. ***Adaptive placement.*** Unlike selective placements, this recommendation is used when active and involved intervention is required prior to, during, or following any form of placement. It can be done in conjunction with selective placement but will require some form of specialized rehabilitation, instruction, accommodation, modification, or assistance. Supervisor orientation to the new worker, modified job training, work area reorganization, job coaching, and follow-along services are examples of adaptive contingencies. Unless the identified contingencies can be met, success with either selective or adaptive placement will be highly questionable.

For example, if someone with no basic mathematical skills is to be considered for a job that requires addition and subtraction in whole numbers, then several adaptive options could be considered. One option is to teach the client the required mathematical operations for the job and follow-along at the job site to ensure that the skills have been mastered and applied correctly. Another option might involve teaching the client how to perform the mathematical operations on a simple calculator or adding machine. A possible job redesign option would be to assign the mathematical tasks to another co-worker in exchange for a non-mathematical activity. A final option could incorporate the use of a work aid that would replace the mathematical operation (e.g., instead of counting out ten bolts into a bag, place them in a 10-hole board, and then dump them into the bag).

Fraser, Clemmons, and McMahon (1990) discussed various placement models available to individuals with mild, moderate, and severe traumatic brain injury. Table 4 shows a modified form of this list, which can be used in tailoring placement recommendations.

Table 4  
*Placement Strategies and Support Provisions Used in Tailoring Placement Recommendations*

<b>Placement Strategy</b>	<b>Support</b>
Direct Placement (full-time or part-time)	Placement Specialist Self-placement
Direct Placement – OJT (full-time or part-time)	Supervisor Co-worker
Selective Placement (full-time or part-time)	Placement Specialist
Selective Placement – OJT (full-time or part-time)	Supervisor Co-worker
Adaptive Placement (full-time or part-time)	Job Coach and Mentor Training Consultant/Mentor
Adaptive Placement – OJT (full-time or part-time)	Job Coach and Mentor Training Consultant/Mentor
Specialized Placement full-time or part-time)	Job Coach Facility Staff
<ul style="list-style-type: none"> <li>• Enclave</li> <li>• Sheltered Employment</li> </ul>	

The more severe the brain injury, the greater the need for adaptive or specialized placement with job coach interventions (Fraser, 1988). The use of volunteer work has also been advocated as an option to transitioning clients into work roles, especially when individual or family concerns/fears about employability restrict job placement efforts.

From a functional perspective, Corthell and Tooman (1985) indicate that the vocational evaluation should have been able to:

1. Identify specific deficits,
2. Determine how the deficit will interfere with functioning, and
3. Determine how and by whom the deficit could be remediated. The body of the report can address Items 1 and 2, the summary section can outline functional strengths (assets) and limitations related to Item 2, and the recommendations section can outline options associated with Item 3.

Of equal importance is the enumeration of functional assets that can be relied upon in training and job placement and when remediating functional limitations. The remaining recommendation considerations relate to the rehabilitation strategies that will lead to an overall improved functioning of individuals with traumatic brain injuries. Many of these recommendations can be combined, and services offered will concurrently improve efficiency and cost effectiveness.

**Environmental Issues.** Many education, training, or job placements require special conditions to enhance success. Some of these include recommending settings that are low in stress, de-emphasize speed, and/or provide supportive supervision. Small businesses or classes (with individualized instruction) may be preferred over larger, more impersonal ones. Specific modifications and accommodations in the client, environment, or both can also be described in detail. Any motor, sensory, or cognitive deficits that may create safety concerns should be highlighted, and recommendations for overcoming and monitoring these concerns should be carefully noted. Special considerations in family, living, and social environments may also require attention in the report.

**Learning and Memory Issues.** Specific intervention needs by teachers/trainers, supervisors, co-workers, and mentors should be prescribed. Techniques identified in evaluation that improve learning and recall should also be explained. Johnson (1989) and Parente and Anderson-Parente (1990) describe vocational memory training strategies and memory cueing and prompting approaches (electronic cueing devices, computers, tape recorders, checklists, memory notebooks, etc.) designed to help workers overcome memory problems. Regular follow-up should be recommended to ensure continued progress and success in this area.

**Cognitive Retraining.** "Cognitive retraining (or remediation) . . . refers to a set of strategies intended to improve intellectual, perceptual, psychomotor, and behavioral skills of persons with brain dysfunctions" (Kreutzer, Gordon, & Wehman, 1989, p. 118). Fryer and Fralish (1989) state, "Cognitive rehabilitation is aimed at eliminating the barriers that prevent a person with a head injury from accomplishing goal-directed activities. It is an attempt to provide the individual with the skills needed to function successfully in everyday surroundings" (pp. 7–3). It involves systematic remediation and retraining through computer-based and therapeutic techniques to deal with instrumental skills (e.g., attending, concentrating, shifting attention, perceiving and integrating information, self-monitoring behavior, storing and retrieving information, planning and organizing, decision making) and "functional" skills (e.g., driving, activities of daily living, recreation and leisure, consumer skills, cooking, grooming and dress). Specifically stating the deficits that need to be addressed through cognitive remediation/retraining and how they would impact on performance in education, vocational training, or work will provide important justification and guidance to the planning process (Corthell & Tooman, 1985). Although much of this training is conducted on an individual basis, group situations can also be used with the additional advantage of providing social skills training at the same time.

**Behavior Management.** Successful reentry into the community, labor market, and family is often impeded by problem behaviors associated with TBI. Corthell and Tooman (1985) define behavior management as "... a systematic process of identifying specific maladaptive behaviors, modifying them, or replacing them with more adaptive behaviors" (p. 90). When making recommendations for behavior management the report should: (a) identify the target behavior (Wesolowski & Burke, 1989); (b) note its frequency, duration, magnitude, and precipitating events, if any; and (c) indicate what interventions were attempted in evaluation and their impact on client behavior.

**Psychosocial Rehabilitation.** Recommendations for this service should be considered when the individual has difficulty developing and maintaining satisfying interpersonal relationships at home, at work, or in the community as a whole. This procedure is frequently combined with behavior management and cognitive retraining (Corthell & Tooman, 1985). Counseling and support systems are also incorporated in this approach (Cole, 1989). The specific problems noted during evaluation, any reinforcers successfully used, and the reasons for providing the service should be stated in the recommendation.

**Counseling and Therapy.** There is some controversy over the effectiveness of counseling and therapy with individuals who are head-injured. The severity of the injury may restrict the use of certain counseling strategies as well as limit overall success. Counseling and therapy can be recommended in part to:

1. Support the provision and maintenance of the above service recommendations;
2. Help clients better understand and deal with their injury and the resulting problems; and,
3. Help clients make decisions and commitments regarding family, personal and living situations, training, and work (Cicerone, 1989).

Individual, family, and group counseling can be recommended to help reduce stress and develop coping skills (Moore & Plovnick, 1989; Vander Kolk & Stewart, 1988) and deal with substance abuse problems. The use of individual and family support groups should also be considered as a viable option.

**Physical Improvement.** Poor stamina, fatigue, weakness, coordination, and balance problems are associated with some forms of head injury, as are the deconditioning effects resulting from prolonged periods of recovery. In these situations, evaluators may recommend work hardening, exercise, and daily activities that can improve balance, coordination, and dexterity. Occupational therapists, physical therapists, and recreation therapists are often recommended to provide specialized evaluations as well as rehabilitation services in this area.

**Transitional Services.** Since traumatic brain injuries can affect all aspects of a person's life, transitional issues must be addressed. Even if appropriate jobs can be obtained, clients may have difficulty maintaining employment if they cannot deal effectively with non-work issues. The evaluator must first have a thorough understanding of what kind of services exist in the community (e.g., transitional living centers, supervised living arrangements, day treatment programs, and outpatient rehabilitation programs) for recommendation purposes (Uomoto & McLean, 1989). In addition, transportation needs and availability (e.g., car, cab, bus, carpool) must be detailed with regard to training, job, and community access. The *Transition Analysis Matrix* contained in the *Appendix* section provides an overview of the participants and environments that constitute the transitional process. The matrix can be used as a systematic guide in collecting transitional services information from the community and matching appropriate services to client needs. Environments addressed on the form include vocational, personal/social/family, residential/domestic/consumer, community access, and recreation/leisure. Succinct information is given on how each of these environments relates to client objectives/outcomes and the major participants to be enlisted in the transition process (i.e., in-

house staff/programs, family, other agencies). The matrix should provide the evaluator with ideas for a wide variety of transitionally focused recommendations. Transportation is not specifically identified on the form since it is considered a critical access issue for all of the environments.

As mentioned earlier, recommendations should be numbered for easy reference and listed in order of priority. Any placement contingencies should be described within the given recommendation. It would be beneficial to have fellow evaluators or other staff who are familiar with traumatic brain injuries read and critique the report and recommendations for accuracy and utility.

### **Consumer Follow-Up**

One final and extremely critical activity of the vocational evaluator is to conduct a follow-up of the completed report. The best way to determine if the report meets the needs of the client and referral source is to initiate a personal contact with the case manager. In cases where the contact is initiated soon after the report is sent (60 days or less), the evaluator may wish to find out specifically how the report was used in developing the rehabilitation or transition plan. In long-term follow-up, the type of placement and level of success can be determined. As data are collected, desired changes in the evaluation process and report writing can be instituted. It is important that evaluators take the time to discuss with the referral agent what they liked and disliked about the report, the accuracy and utility of the recommendations, what they used and did not use, and what they would like to have in future reports.

When properly rendered, vocational evaluation can identify opportunities and directions for individuals with traumatic brain injury not otherwise considered. As long as the evaluator remains flexible, creative, sensitive to the needs and abilities of the client, and aware of appropriate community resources and services, then vocational evaluation will continue to be an integral part of the rehabilitation process.

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Transition Analysis Matrix  
Participants

	Client Objectives/ Outcomes	In-House Staff/ Programs	Family	Other Agencies (What Done and By Whom)
<b>Vocational</b>	Obtain full or part-time employment (time-limited or supported) including training, modification and accommodation.	Vocational evaluator (VE; to identify), counselor, job development/placement specialist, job coach, vocational instructor/teacher, adjustment specialist, rehabilitation engineer, occupational therapist.	Support (encourage, help, praise) (give examples of support activities).	What: Training, modification, adjustment, job development/placement, follow-along. Who: Voc. Rehab., Voc/Tech schools, community colleges, JTPA, local employment service, rehab. facilities and workshops, supported employment programs.
<b>Personal/ Social/ Family</b>	Engage in appropriate communication, interaction, and behavior. Realize future growth needs.	VE (to identify), counselor, adjustment specialist, instructor/teacher, occupational therapist, social worker, job coach, psychologist, nurse.	Support (encourage, help, praise), give instruction and assistance, help with practice (give examples of support activities).	What: Counseling, instruction, adjustment, behavior management Who: Voc. Rehab., family planning, mental health, social services, support groups, hospitals, rehab. facilities and workshops.
<b>Residential/ Domestic Consumer</b>	Live and function in non-work situations as independently as possible.	VE (to identify), counselor, rehab. engineer, instructor/teacher, adjustment specialist, occupational therapist, home economist, job coach.	Support (encourage, help, praise), give instruction and assistance, help with practice, assign and monitor household duties/chores (give examples of support activities).	What: Shopping, ADL, independent living arrangements, modifications, financial planning/management, insurance. Who: Dept. of Agriculture (domestic/financial), independent living centers, support groups, JTPA, mental health, group homes, halfway houses, voc. rehab. engineering centers/programs.
<b>Community Access</b>	Access and use community services, programs, and agencies as needed.	VE (to identify), counselor, social workers, instructor/teacher, occupational therapist, job coach, travel training specialist.	Support (encourage, help, praise), give instruction and assistance, accompany individual to community sites, provide transportation (give examples of support activities).	What/W/ho: Social service agencies, community centers, religious organizations, transportation offices, hospitals/doctors/health service, educational institutions, libraries, advocacy programs, government offices, Voc. Rehab., legal aide, support groups, voting.
<b>Recreation/ Leisure</b>	Access and regularly use recreation programs consistent with leisure interests and activities.	VE (to identify), counselor, social worker, recreation specialist, instructor/teacher (to help develop recreation/leisure skills).	Support (encourage, help, praise), provide/plan opportunities and participate, instruct/assist in development of interests/activities (give examples of support activities).	What/W/ho: City parks and recreation departments, community centers, religious organizations, clubs/leagues, support groups, educational institutions, fine arts/cultural centers, museums.

Note: Above are examples of persons/programs/activities that need to be identified with regard to specific availability in your community. Use this information to develop your own community-based Transition Resource Chart. Although transportation is included under Community Access, it should be specifically addressed within all of the environments (Thomas, 1991).

## Environments

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**Job Site Evaluation Rating Form**

Client: \_\_\_\_\_, Site/Location: \_\_\_\_\_ 2) \_\_\_\_\_, Evaluator: \_\_\_\_\_ 3)

Rating Dates: 1) \_\_\_\_\_

Job Tasks/Critical Vocational Behaviors	Supervision		Quality		Quantity		Others:		Comments
	Avail	Rating	Goal	Rating	Goal	Rating	Goal	Rating	
1.									
2.									
3.									
4.									
5.									
6.									

**Appendix B**

Supervision Required (Availability)	Quality (Employer Goal)	Quantity (Employer Goal)	Other-Learning, memory, communication, behavior, etc. (Employer Goal)
1. Not able to perform even with constant supervision (employer unable/unwilling to supervise)	1. Poor - must repeat task more than 50% of the time (employer will always allow worker to repeat task to maintain quality)	1. Poor - task performed much slower than other workers (speed is not important to the employer)	1. Far below expectations of other workers (will cause worker to lose job)
2. Able to perform with constant supervision (supervisor is always near worker)	2. Fair - must repeat task more than 25% of the time (employer will usually allow worker to repeat task to maintain quality)	2. Fair - task performed somewhat slower than other workers (employer willing to accept performance slightly below production standards)	2. Slightly below expectations of other workers (employer will tolerate)
3. Able to perform with periodic supervision (supervisor is usually available to worker)	3. Good - repeats a task less than 25% of the time (employer prefers worker keep task repetition to a minimum in maintaining quality)	3. Good - task performed as fast as other workers (employer will not accept performance below production standards)	3. Meets same expectations of other workers (employer considers this a requirement)
4. Able to perform with no supervision (supervisor is rarely available to worker)	4. Excellent - never repeats task (employer will not tolerate task repetition to maintain quality)	4. Excellent - task performed much faster than other workers (same as #3)	4. Exceeds expectations of other workers (employer considers this an asset)

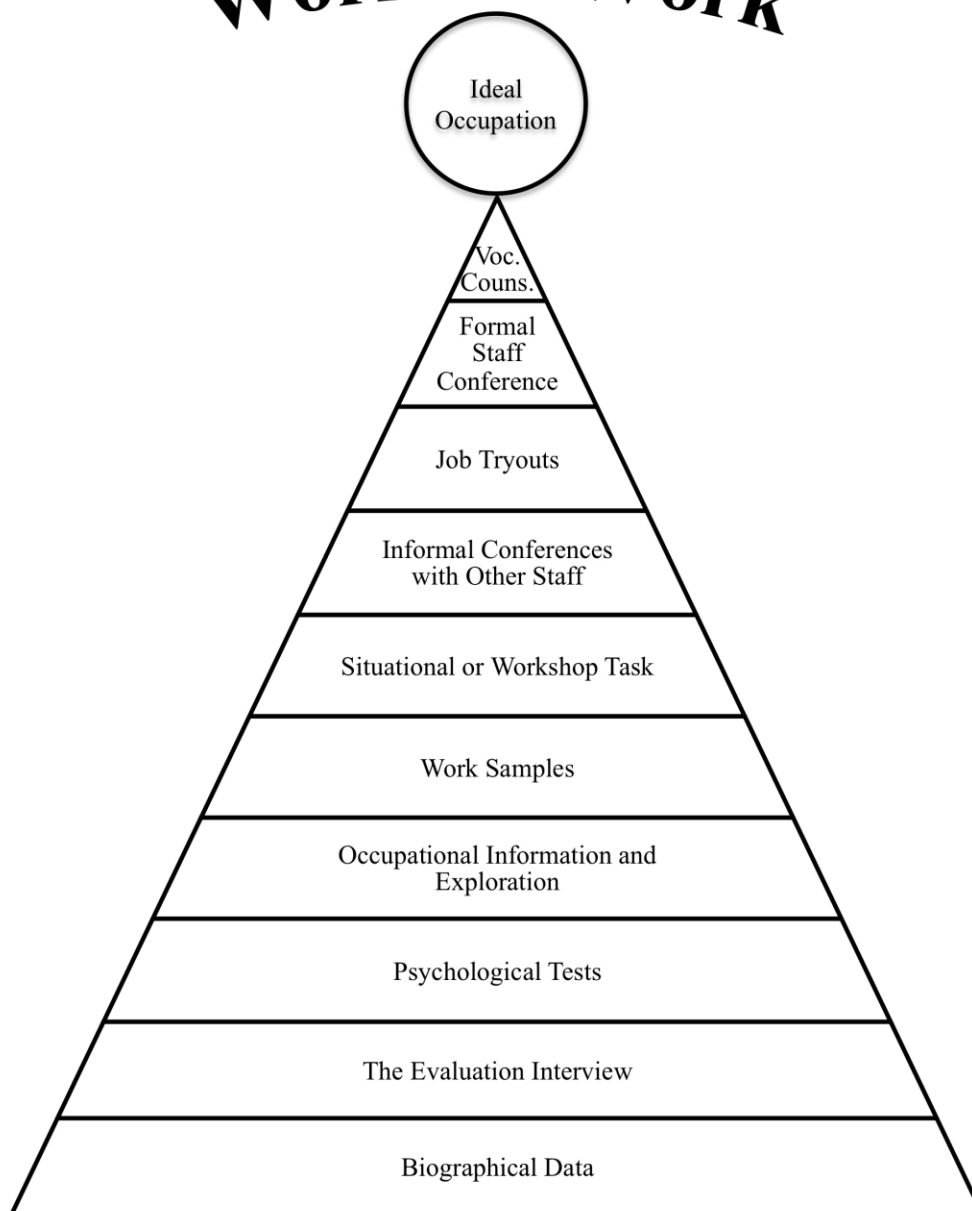
Note: These percentages can be modified

Adapted from K. Botterbusch (1978) by S. Thomas (1991)

## Appendix C

### The Vocational Evaluation Process

# World of Work



Adapted from J. M. Nadolsky (1971) by S. Thomas (1991)

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## **Appendix D**

### **Vocational Evaluation Process: Basic Steps**

**Intake**

**Orientation**

**Initial Interview**

**Preliminary Testing - Prevocational Evaluation**

**Evaluation Planning**

Identifying Tentative Direction Of Evaluation

1. Hypotheses/Questions
2. Critical Factors/  
Information Needs

3. Assessment Techniques
4. Persons Involved

**Vocational Assessment/Exploration/Experience**

Standardized Testing	Observation
Work Samples	Career Exploration
Situational Assessment	Client Information
Community Based Assessment	Feedback Sessions
Special Projects	Interviewing
Occupational Information	

**Client Involvement - Feedback**

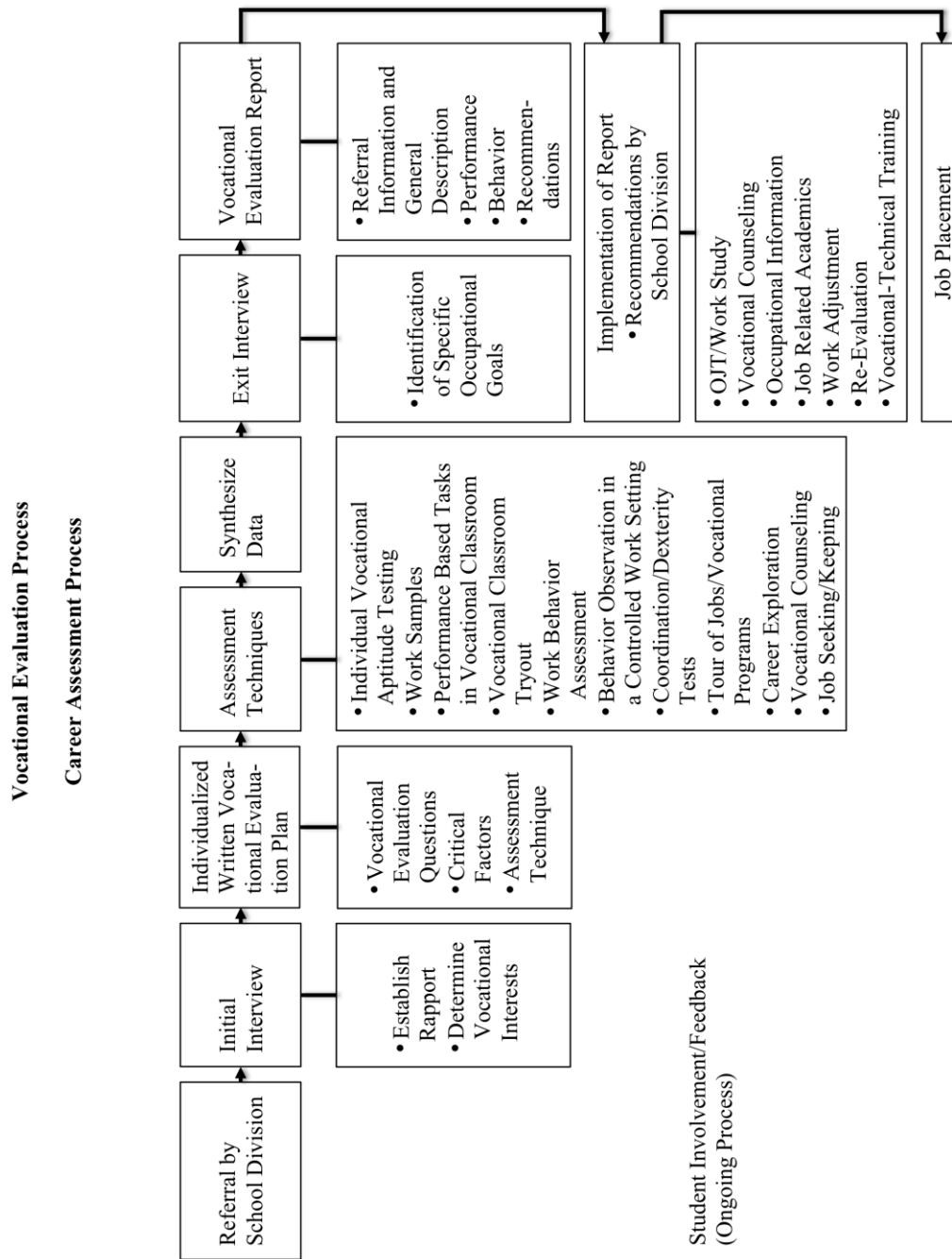
**Staffing**

**Final Report**

**Follow-Up**

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## Appendix E



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## Appendix F





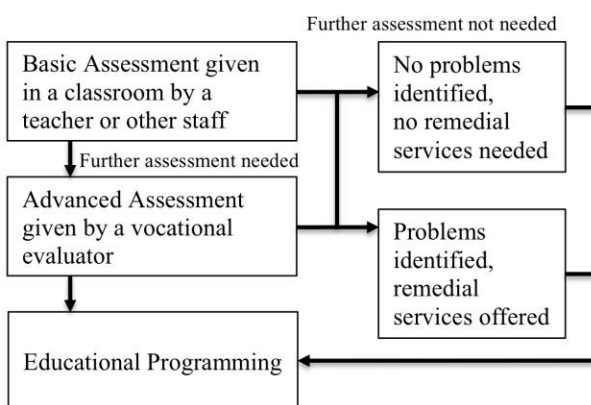
## Appendix G

### The Three Phase Vocational Evaluation/Assessment Process

#### Phase I: Prevocational Evaluation

Identification of:

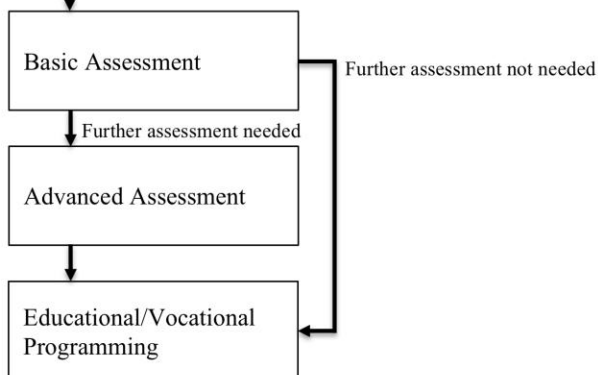
1. Activities of daily living
2. Job seeking skills
3. Job survival skills
4. IEP development needs



#### Phase II: Vocational Assessment

Identification of:

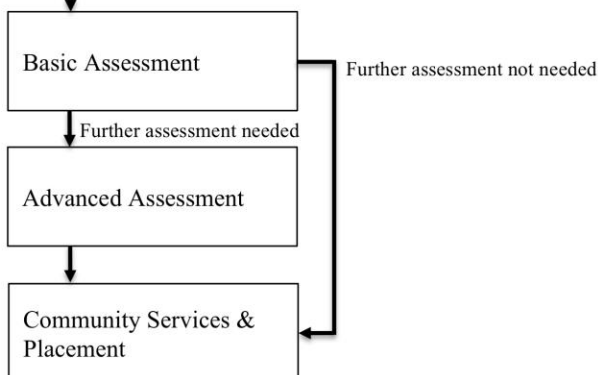
1. Work interests & values
2. Vocational strengths & weaknesses
3. Curriculum needs & modification
4. Vocational programming
5. IEP development needs



#### Phase III: Vocational Evaluation

Identification of:

1. Work interests & values
2. Vocational strengths & weaknesses
3. Further education/training
4. Job placement or supported work
5. Vocational rehabilitation service needs



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## Appendix H

### Selected Resources For Standardized Tests

Contact the following companies and request a copy of their catalog.

Academic Therapy Publications  
20 Commercial Boulevard  
Novato, CA 94949-6191  
1-800-422-7249

\*Jastak Associates  
P.O. Box 3410  
Wilmington, DE 19804-0250  
1-800-221-9728

American Guidance Service (AGS)  
4201 Woodland Road  
P.O. Box 99  
Circle Pines, MN 55014-1796  
1-800-328-2560

pro-ed  
8700 Shoal Creek Blvd.  
Austin, TX 78757-6897  
512-451-3246

CASAS  
2725 Congress Street, #1-M  
San Diego, CA 92110-2747  
(619) 298-4681

Psychological Assessment Resources, Inc.  
(PAR)  
P.O. Box 998  
Odessa, FL 33556  
1-800-331-8378

Consulting Psychologists Press, Inc. (CPP)  
3803 East Bayshore Road  
P.O. Box 10096  
Palo Alto, CA 94303  
1-800-624-1765

\*Psychological Corporation  
555 Academic Court  
San Antonio, TX 78204-2498  
1-800-228-0752  
(Ask for their Human Resource  
Assessment Catalog)

CTB Macmillan/McGraw-Hill  
20 Ryan Ranch Road  
Monterey, CA 93940-5703  
1-800-538-9547

\*SRA/London House  
9701 West Higgins Road  
Rosemont, IL 60018  
1-800-237-7685  
(Ask for their Test Catalog for Business)

EBSCO Curriculum Materials  
Box 486  
Birmingham, AL 35201-0486  
1-800-633-8623

Western Psychological Services (WPS)  
12031 Wilshire Blvd.  
Los Angeles, CA 90025-1251  
1-800-648-8857

Educational and Industrial Testing Service  
(EDITS)  
P.O. Box 7234  
San Diego, CA 92167  
1-800-416-1666

E.F. Wonderlic Personnel Test, Inc.  
820 Frontage Rd.  
Northfield, IL 60093-8007  
1-800-323-3742

\*Site no longer available.

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**Appendix I**  
**Selected Resources For Assessment Instruments And Processes,**  
**And Publications And Training Materials For Occupational**  
**Information, Career Exploration, And Job Seeking And Job**  
**Survival Skills**

Contact the following companies and request a copy of their catalog.

Arkansas R & T Center  
Hot Springs Rehabilitation Center  
Media and Publications Section  
P.O. Box 1358  
Hot Springs, AR 71902  
(501) 624-4411 Ext. 316

The following two publications are available from the Arkansas R & T Center.

1. Employability Assessment & Planning in Rehabilitation & Educational Settings
2. Know Thyself: An Empowering Strategy for Involving Consumers in the Vocation Evaluation and Planning Process

Cambridge Educational  
P.O. Box 2153, Dept. JO2  
Charleston, WV 25328-2153  
(800) 468-4227

\*Career Aids  
20417 Nordhoff St., Dept. T E 6  
Chatsworth, CA 91311  
(818) 341-2535

Center on Education & Work  
Publications Unit, Department A  
University of Wisconsin - Madison  
964 Educational Sciences Building  
Madison, WI 53706  
(800) 446-0399

Educational and Industrial Testing Service (EDITS)  
P.O. Box 7234  
San Diego, CA 92167  
(619) 222-1666

\*Educational & Assessment Systems  
P.O. Box 3414  
Lynchburg, VA 24503  
(800) 572-7972

JIST Works, Inc.  
720 North Park Avenue  
Indianapolis, IN 46202-3431  
(800) 648-5478

The Rehabilitation Resource  
Stout Vocational Rehabilitation Institute  
University of Wisconsin - Stout  
Menomonie, WI 54751  
(715) 232-1342

The following publication and inventory are available from the Materials Development Center.

1. Vocational Evaluation Systems and Software: A Consumer's Guide
2. Functional Assessment Inventory

Rehabilitation Research and Training Center  
Virginia Commonwealth University  
VCU Box 2011  
Richmond, VA 23284-0001  
(804) 257-1851

Research and Training Center  
Stout Vocational Rehabilitation Institute  
University of Wisconsin - Stout  
Menomonie, WI 54751  
(715) 232-2236

\*Site no longer available.

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3. Receive a confirmation email (within 1 to 2 days) with manuscript review number.
4. Manuscript is blind reviewed by the Editorial Board or invited reviewers who have expertise in a specific topic (typically requires 3–4 weeks).
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Each manuscript must be prepared according to the current edition of the *Publication Manual of the American Psychological Association*. All manuscripts except book reviews and brief reports require a 150–250 word abstract with three keywords. An additional *Journal* requirement is to include an author bio(s), which is a single page that contains the author's name(s), credentials, and short (100 words) biographical information that will appear in the *Journal* if the article is published. Reviews of books, work samples or work sample systems, or other related topics of interest to the readers follow a guideline of 800 to 1400 words and no abstract.

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For information on the status of your manuscript, contact:

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