Empowerment as a Function of Contextual Self-Understanding

The Effect of Work Interest Profiling on Career Decision Self-Efficacy and Work Locus of Control

R. Richard Breeding

Consumer empowerment in rehabilitation counseling has been conceptualized as a function of informed choice and self-determination and has been linked to the concepts of self-efficacy and locus of control, among other variables. Self-understanding in relation to environmental opportunities represents an important underlying component of such empowerment-related variables. A controlled experiment investigated the effect of work interest profiling in vocational assessment on career decision self-efficacy and work locus of control as indicators of empowered status. Statistical analysis (a) confirmed the absence of significant gains in empowerment-related variables with participants receiving traditional vocational assessment activities and (b) identified significant effects related to career decision self-efficacy for those receiving proactive assessment designed to promote self-understanding in relation to environmental opportunities (i.e., contextual self-understanding). Results suggest proactive vocational assessment, designed to foster contextual self-understanding, offers utility in the promotion of empowerment-related variables in rehabilitation counseling.

Keywords: self-determination development; career counseling; vocational counseling

Empowerment represents a primary concern for professionals interested in the vocational development and legal rights of persons with disabilities (Bolton & Brookings, 1996; Emener, 1991; Farley, Bolton, & Taylor, 1993; Houser, Hampton, & Carriker, 2000; Kosciulek & Wheaton, 2003). Emener (1991) surmised that empowerment has become the mantra that permeates the rehabilitation counseling process. Similarly, Houser et al. (2000) stated, “Addressing empowerment for those with disabilities is critical because of the numerous situations and roles that result in their powerlessness” (p. 19). Recent legislation confirms a sustained and growing emphasis on consumer empowerment as a function of informed choice and self-determination through active personal agency. Namely, the Rehabilitation Act Amendments of 1998 state that “individuals who are applicants for such programs [state-federal vocational rehabilitation] or eligible to participate in such programs must be active and full partners in the vocational rehabilitation process, making meaningful and informed choices” (§ 100[a][3][C]).

Research Questions

This research study was based on the concept that self-understanding in relation to environmental opportunities (i.e., contextual self-understanding) is crucial to consumer empowerment in rehabilitation counseling. A focus on consumer empowerment should begin with initial interventions, usually some form of vocational assessment, and continue throughout rehabilitation processes. Traditional vocational assessment methods often result in a disempowering experience due to a lack of meaningful consumer involvement (Power, 2000; Power & McKenna, 1994) and fail to promote important gains in contextual self-understanding (Breeding, 2005). The following research questions were investigated:

1. What is the effect of traditional vocational assessment practices on consumer empowerment as reflected by work-related locus of control (LOC) and career decision self-efficacy (SE) measures?
2. What is the effect of proactive vocational assessment practices, which seek to enhance consumer contextual self-understanding related to work and rehabilitation counseling environments, on consumer empowerment as reflected by work-related LOC and career decision SE measures?

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An Empowerment Framework in Rehabilitation Counseling

Houser et al. (2000) cautioned that “overgeneralization of a concept or theory to a population may cause harm to them and resulting loss of dignity, self-determination, and confidentiality” (p. 18). Ironically, misapplication of empowerment concepts could serve to impede self-deterministic behavior if consumers are not enabled to make reasoned and responsible choices based on accurate self-understanding in relation to environmental opportunities. Poor choices, resulting in unsuccessful or unsatisfying training and employment endeavors, may diminish the potential for future self-deterministic behavior and ultimately impede career development. Empowerment-focused rehabilitation counseling involves deliberate action to foster meaningful consumer participation, informed decision making, and responsible self-determination.

Empowerment as a Function of Contextual Self-Understanding

Kosciulek and Wheaton (2003) indicated that informed choice and self-determination, along with an effective counselor–consumer working alliance, are the necessary components of increased consumer empowerment. Informed choice in rehabilitation counseling refers to the process by which consumers make insightful decisions about personal goals and necessary services. Self-determination refers to directing one’s own course of action, which requires active personal agency (Remer & O’Neill, 1980) in implementing informed choices. According to Kosciulek and Wheaton, “The informed choice process begins with the individual’s values, interests, characteristics, and proceeds to an evaluation of availability of resources and alternatives” (p. 209). In addition to a working knowledge of the opportunities present in the contextual rehabilitation environment, any conceptualization of informed choice in the rehabilitation process must include adequate self-understanding on the part of the consumer.

Self-determination is advanced when consumers develop personal knowledge, skills, and beliefs (i.e., empowering personal characteristics) that allow for greater control in the counseling process (Kosciulek & Wheaton, 2003). Development of empowering personal characteristics may be afforded to consumers through opportunities to “develop greater self-awareness, and by teaching decision-making, goal setting, and negotiation skills” (Kosciulek & Wheaton, 2003, p. 210).

As evidenced by the empowerment framework described, advances in contextual self-understanding on the part of the consumer must be considered a crucial determinant of both informed choice and self-determination.

According to Ozer and Bandura (1990), personal and social change through empowerment methods “achieve their effects by equipping people with the requisite knowledge, skills, and resilient self-beliefs of efficacy to alter aspects of their lives over which they can exercise some control” (p. 472). Accordingly, SE is associated with a person’s appraisal of his or her ability to successfully perform particular tasks and gain situational control (Houser et al., 2000). Bandura (1977) postulated that SE encompasses the underlying components of efficacy expectations and outcome expectations. Outcome expectations, similar to LOC, relate to one’s beliefs that certain actions will produce certain results in a given situation, whereas efficacy expectations relate to one’s beliefs about the personal ability to perform those actions. Accordingly, advances in contextual self-understanding, both in relation to personal attributes and environmental contexts, offer the potential to improve SE perceptions. In turn, improved SE holds the potential to spur the self-deterministic behavior instrumental to personal empowerment (Kosciulek & Wheaton, 2003).

Ozer and Bandura (1990) indicated that SE can be enhanced by four primary methods: (a) mastery experiences, (b) social persuasion, (c) changes in physiological and emotional states, and (d) modeling of coping strategies. With regard to mastery experiences, success through personal action strengthens SE, whereas performance failures serve to weaken SE in relation to a specific undertaking. In addition, Ozer and Bandura suggested that “positive social appraisals have their greatest impact when challenges are structured in graduated steps that are likely to bring success” (p. 474). Furthermore, positive SE may be promoted through efforts to “enhance physical status, reduce stress and negative emotional proclivities, and correct misinterpretations of bodily states” (Bandura, 1995, pp. 4–5). Finally, SE beliefs can be altered through the “modeling of coping strategies and providing exemplifications of attainments for comparative self-appraisal” (Ozer & Bandura, 1990, p. 474).

Opportunities for self-appraisal in light of the exemplary attainments of others can enhance self-understanding in relation to personal capacity, as well as in relation to the environmental context in which the exemplary behavior was achieved. Specific descriptions and displays that convey the vocational success of persons with disabilities through assistive technology and reasonable accommodations can facilitate comparative self-appraisal and advance self-understanding in relation to contextual rehabilitation and work environments. Modeling strategies, especially those rich in meaningful context for specific consumers, offer potential for enhanced SE and facilitation of consumer empowerment.

Thus, contextual self-understanding involves understanding oneself in relation to the opportunities present in
the environment(s) in which one is expected to function, such as human service environments that place value on individual success (e.g., rehabilitation counseling). Such environments employ mechanisms by which the potential for individual success is enhanced (e.g., policies of informed choice and self-determination, reasonable accommodation, assistive technology). Understanding the empowering mechanisms of contextual environments serves to enhance not only outcome expectations but also efficacy expectations by furthering one’s knowledge of how the application of personal capacity can facilitate success in specific environmental contexts. According to Bolton and Brookings (1996), “Empowerment is ultimately a personological construct . . . [that] entails the acquisition of values and attitudes that are incorporated into the individual’s personal worldview and thus constitute a foundation for action” (p. 3).

Strauser and Ketz (2002) pointed out the fundamental difference between SE and LOC: “Self-efficacy focuses on the perception of ability to act competently and effectively, locus of control focuses on the perception of control” (p. 22). As such, LOC approximates the outcome expectations described by Bandura (1995). Individuals who perceive life events as generally beyond their personal control (i.e., largely the result of chance or in the control of powerful others) tend to exhibit a more externally oriented LOC; individuals who perceive the outcome of life events, especially accomplishment-related life events, to be generally within their personal control (i.e., largely the result of personal action) tend to exhibit a more internally oriented LOC (Skinner, 2003). According to Kosciulek and Wheaton (2003), empowerment is facilitated when rehabilitation consumers adopt self-deterministic behavior. Consumer self-determination, by definition, requires active involvement and a belief that personal action will result in personal accomplishment. Accordingly, self-determination is facilitated by positive efficacy expectations and an orientation toward internal LOC.

Persons with disabilities experience disempowerment in many situations and roles as the result of disability (Houser et al., 2000). The experience of disempowerment may alienate and denigrate persons with disabilities and result in a shift toward negative efficacy expectations and external LOC. MacDonald (1971) viewed powerlessness and external locus of control as synonymous terms. Social learning and LOC theory, however, hold that perception of control can be adjusted through learned reinforcement (Rotter, 1966; Skinner, 2003). Rehabilitation interventions designed to refocus consumer perceptions of control to a more internal orientation, and perceptions of efficacy expectations toward a more positive orientation, can facilitate self-deterministic behavior and advance consumer empowerment. Likewise, vocationally oriented LOC and SE perceptions can serve as important indicators of empowered status for self-deterministic behavior in rehabilitation counseling.

In light of the theoretical contention that LOC can be reoriented through reinforcement (Rotter, 1966; Skinner, 2003), consumer orientation toward internal LOC in relation to specific rehabilitation goals may be amenable to consistent and meaningful opportunities to engage in self-deterministic behavior based on informed decision making. According to social learning theory, self-deterministic behavior must be consistently reinforced to be valued by consumers. Gaining contextual self-understanding, especially in environmental contexts with a commitment to consumer empowerment, is related to the development of positive SE (see Ozer & Bandura, 1990), the capacity for informed choice, and the adoption of self-deterministic behavior (see Kosciulek & Wheaton, 2003) and has been viewed as a rewarding result of the counseling process by career development consumers (Niles, Anderson, & Cover, 2000). In a study by Niles et al. (2000), career counseling consumers indicated “a preference for focusing on specific career plans and career decision making by exploring self and work options” (p. 149).

Contextual self-understanding is crucial to empowered status in any given context. If an individual does not have a appreciable degree of self-understanding in relation to environmental opportunities, that individual cannot know with any certainty what can be achieved, what he or she might hope to achieve, or what course of action he or she would like to pursue. Persons with limited contextual self-understanding make imminent choices based on a present understanding of interests, capacities, and environmental opportunities. However, when those choices, including choices related to vocational development, are based on incomplete or inaccurate understanding, they are suspect in terms of immediate and future success. In any given context, including rehabilitation counseling, a person must understand his or her rights, privileges, and authority to act (i.e., self-understanding in relation to an environmental context), as well as his or her capacities and desires (i.e., self-understanding of personal attributes) before he or she can make informed decisions about what course to pursue (i.e., self-determination). Accordingly, vocationally oriented SE and LOC measures can be employed to gain insight into consumer capacity for meaningful participation in vocational rehabilitation (see Betz & Taylor, 2001; Skinner, 2003; Strauser & Ketz, 2002). Figure 1 depicts the underlying importance of contextual self-understanding in specific empowerment processes.
Method

Participants

Study participants were identified through two facilities of a private, nonprofit, community-based rehabilitation program that provides a variety of services (e.g., vocational assessment, job readiness classes, work adjustment, job development) to individuals with wide-ranging disability types in the central Kentucky region (see the Results section for participant demographics). Traditional vocational assessment practices, as established in the rehabilitation counseling literature (Breeding, 2005), were organized and facilitated through the evaluating agencies. Data collection was conducted by trained and experienced vocational evaluators employed with the rehabilitation facility.

Materials

Self-Directed Search (SDS). The SDS (Holland, Powell & Fritzsche, 1994), based on more than 25 years of research, identifies six broad personality types that have been linked to overarching work environments and specific jobs within those environments: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), and Conventional (C). Form R of the SDS reported a normative sample of 2,602 students and working adults. Internal consistency coefficients ranged from .90 to .94 for the three-digit summary code (e.g., IRE, SAE) and from .72 to .92 for the different section scales (i.e., Activities, Competencies, and Occupations). Multiple studies have demonstrated moderate to high concurrent validity with Holland’s Vocational Preference Inventory. Form E of the SDS reported a normative sample of 719 individuals. Internal consistency coefficients ranged from .94 to .96 for the summary code and from .81 to .92 for the different section scales. Predictive validity studies conducted by the authors and based on a comparison of vocational aspiration codes and summary codes demonstrated hit rates of 50.3% and 44.8% for adults and 55.1% for adolescents. Related research suggests that Holland’s theory holds wide applicability across culture, ethnicity, gender, and disability status (Szymanski & Hershenson, 1998; Weinrach & Srebalus, 1990).

Work-Interest Profile for Rehabilitation Counseling (WIPRC). Interest assessment has been widely used as a primary vocational assessment intervention in career counseling (Aiken, 2003) and rehabilitation counseling settings (Power, 2000). Accordingly, proactive interest assessment represents a fundamental method of enhancing contextual self-understanding in relation to work. The WIPRC consisted of a worksheet, which adapted, with publisher permission, the standard method of SDS results dissemination and use. The WIPRC worksheet was developed for this study to represent an efficient intervention that can be applied during vocational assessment to address the rehabilitation consumer’s need for contextual self-understanding related to vocational options. The adaptations provided by the WIPRC are viewed as potentially empowering to consumers as they provided additional information related to making informed vocational decisions and gaining understanding of procedural processes and opportunities inherent in rehabilitation counseling environments. As the adaptations applied only
to procedures employed after standardized interest results were generated, the fundamental psychometric properties of the SDS were unaltered by use of the WIPRC worksheet with the treatment group. In specific, after SDS results were generated, the WIPRC intervention provided the following:

1. A detailed definition of the individual work personality code (i.e., elaboration of the meaning of the SDS summary code, based on Holland’s definitions, which is not provided by standard SDS administration).

2. An emphasis on current legislative intent to provide rehabilitation consumers with meaningful opportunities for participation, informed choice, and self-determination in rehabilitation counseling activities (not provided by standard SDS administration), as follows:

   Recent legislation is concerned with making sure that persons with disabilities have meaningful opportunities for informed decision making and participation with rehabilitation goal development and selection of services. To participate with rehabilitation services, it is very important for you, and the people assisting you, to learn about your work-related interests and other important personal characteristics.

3. An emphasis on the potential for persons with disabilities to gain access to a wide and increasing range of occupations through reasonable accommodations and assistive technology (not provided by standard SDS administration), as follows:

   Keep in mind . . . through assistive technology and reasonable accommodations, such as job site modifications and job restructuring, persons with many different types of disabilities have become successful in a wide variety of jobs that may not have been previously accessible. If any job were accessible, in what types of jobs would you be most interested?

4. A tentative exploration of matching occupations across all functional capacity levels, with consumer identification of up to five or more occupations of highest interest related to the SDS work personality summary code (same procedure as standard SDS administration).

5. A consumer identification of up to 10 or more occupations of highest interest related to the SDS work personality similar codes (same procedure as standard SDS administration).

6. A consumer-directed rank ordering of the top 10 occupations of interest (not provided by standard SDS administration).

7. A copy of the WIPRC worksheet to treatment group participants, which included additional vocational counseling related to proper interpretation and use of results (i.e., potential for gender and disability bias; location of additional information related to vocational choices).

Regarding standardized administration of the SDS, Holland et al. (1994) noted in “The Rule of Full Exploration” that “unfortunately, clients often look only for occupations whose codes are identical to their own. They cease filling out the SDS . . . and thus fail to locate occupations within all permutations of their code” (p. 20). Accordingly, as the SDS is self-directed by nature, consumers also often fail to proceed to the suggested next steps without counselor intervention during traditional vocational assessment activities. Thus, control participants concluded standard SDS administration with results determination, and the treatment group received the WIPRC intervention. The WIPRC was utilized in an attempt to remedy consumer ambivalence by providing a structured method to fully realize the inherent opportunity to gain contextual self-understanding related to work interests and rehabilitation environments through direct counselor intervention.

Career Decision Self-Efficacy Scale (CDMSE). The CDMSE is designed to assess “an individual’s degree of belief that he/she can successfully complete tasks necessary to making career decisions” (Betz & Taylor, 2001, p. 6). According to Uffelman, Mezydlo, Diegelman, Wagner, & Bardash, (2004), the CDMSE is “an often used and well regarded measure” (p. 370). The CDMSE provides information related to “accurate self-appraisal, gathering occupational information, goal selection, making plans for the future, and problem solving” (Betz & Taylor, 2001, p. 7).

According to Betz and Taylor (2001), the CDMSE evidences high reliability in a variety of research situations. The normative sample, which consisted of 346 college-age students, reported internal consistency reliability coefficients ranging from .86 to .89 (subscales) and .97 overall (total score; Taylor & Betz, 1983). Overall internal consistency reliability was reported at .94 for the 25-item (i.e., short form) total score. Subsequent studies involving individuals of varying age, culture, and race/ethnicity (e.g., White college students, racial/ethnic minority college students, South African university students, Australian and South African high school students, lower socioeconomic status middle school students ages 12 to 15 years, and a Hebrew version)
reported similarly strong results (Taylor & Betz, 1983). The specific demographics of persons with disabilities involved in the referenced samples were not provided. However, based on the CDMSE's strong psychometric qualities, including face validity for the present study, it was deemed the most appropriate instrument available for the SE measure in question. According to Betz and Taylor (2001), "There is extensive evidence for the validity of the CDMSE" (p. 9). Evidence of concurrent validity is established by virtue of strong correlations with the Career Decision Scale (Osipow, Carney, & Barak, 1976) and My Vocational Situation (Holland, Daiger, & Power, 1980). Construct validity also is evidenced by virtue of strong correlations with the Career Beliefs Inventory and the Career Beliefs Scale (Krumboltz, 1991).

Work Locus of Control Scale (WLCS). Spector (1988) developed the WLCS as a "measure of generalized control beliefs in work settings" (p. 335). The 16-item scale requires examinees to choose from among six Likert-type responses ranging from agree very much to disagree very much. Spector reported reliability coefficients ranging from .75 to .85 across six independent samples. The samples consisted of (a) 1,151 business administration and industrial psychology undergraduate students from a large state university; (b) 41 department store sales and support employees; (c) 101 mental health agency workers and supervisors; (d) 292 district managers, store managers, and store clerks in the convenience store industry; (e) 161 mental health facility workers with various positions; and (f) 496 municipal managers from the state of Florida. Although demographic information related to participant disability status is unavailable, the WLCS represents a well-established, domain-specific measure of LOC that has been widely utilized in rehabilitation-related research. According to Strausser and Ketz (2002), "Validity has been demonstrated with the WLCS and organizational variables (i.e., job satisfaction, commitment, intention, autonomy, influence, role stress, consideration, and initiating structure) as well as other LOC measures (e.g., Rotter's I-E scale)" (p. 23).

Procedure

Subsequent to pretest measures for the CDMSE and WLCS, the control group received traditional vocational assessment activities as follows: (a) initial intake interview (structured format across participants), (b) achievement assessment (same across participants), (c) cognitive functioning assessment (same across participants), and (d) standard interest assessment via the SDS through results determination. Posttest measures of the CDMSE and WLCS were taken before any discussion with participants by evaluators at a subsequent staffing scheduled for a later date. In the event no staffing session was conducted within 30 days, follow-up efforts were initiated by mail, with telephone assistance as needed, to obtain posttest measures. All posttest measures were taken by trained vocational evaluators with examinees who were familiar with instrument formats.

Results

Participant Demographics

Forty participants (20 in treatment [T], 20 in control [C]) completed the research study. Investigation of participant demographics (gender, age, ethnicity, education, and marital status), pretest to posttest days, and pretest measures revealed no significant differences across the two research sites. In addition, there was a very high degree of similarity with regard to disability types reported across the sites. Therefore, it was concluded that all data could be combined for further descriptive and inferential statistical analysis. The average number of pretest to posttest days was 68.8 for the T group and 64.0 for the C group across facilities, with an overall range of 2 to 178 days (see the Limitations of the Data section for additional discussion). Aggregated demographic data are summarized as follows: (a) gender: female (47.5%) and male (52.5%); (b) age in years: 16 to 18 (17.5%), 19 to 28 (37.5%), 29 to 38 (12.5%), 39 to 48 (22.5%), 49 to 58 (7.5%), and missing data (2.5%); (c) ethnicity: American Indian or Alaska Native (2.5%), Asian (2.5%), Black or African American (20%), White (72.5%), and two or more races (2.5%); (d) education: fewer than 12 years (20%), high school graduate (50%), at least 1 year of college (20%), associate's degree (2.5%), and bachelor's degree (7.5%); and (e) marital status: divorced (7.5%), married (17.5%), separated (5.0%), and single (70%).

Research Question 1

Our first research question asked, "What is the effect of traditional vocational assessment on consumer empowerment as reflected by work-related LOC and career decision SE measures?"

Hypothesis 1 postulated, "Work-related LOC assessment (i.e., WLCS) administered pretraditional and posttraditional vocational assessment practices with the control group will result in no significant increase (i.e., reorientation toward internal LOC)." Results of a paired samples \( t \) test supported Hypothesis 1, \( t(19) = 1.67, p = .06 \) (see Table 1 for a detailed summary of paired samples \( t \) tests by group, hypothesis, and measure). Interestingly, a
Table 1
Summary of Paired Samples t Tests by Group, Hypothesis, and Measure

<table>
<thead>
<tr>
<th>Group</th>
<th>Hypothesis</th>
<th>Measure</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>(M_{\text{Pretest}})</th>
<th>SEM_{Pretest}</th>
<th>(M_{\text{Posttest}})</th>
<th>SEM_{Posttest}</th>
</tr>
</thead>
<tbody>
<tr>
<td>C 1</td>
<td>WLCS</td>
<td>19</td>
<td>1.67</td>
<td>.06</td>
<td>48.8</td>
<td>2.9</td>
<td>44.2</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>T 3</td>
<td>WLCS</td>
<td>19</td>
<td>0.28</td>
<td>.39</td>
<td>39.2</td>
<td>2.7</td>
<td>38.4</td>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>C 2</td>
<td>CDMSE</td>
<td>19</td>
<td>-0.40</td>
<td>.35</td>
<td>84.9</td>
<td>3.8</td>
<td>87.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>CDMSE</td>
<td>19</td>
<td>-2.23</td>
<td>.02*</td>
<td>83.4</td>
<td>4.4</td>
<td>91.1</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>Scale 1</td>
<td>19</td>
<td>-1.66</td>
<td>.06</td>
<td>16.5</td>
<td>1.1</td>
<td>17.9</td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>Scale 2</td>
<td>19</td>
<td>-2.39</td>
<td>.01**</td>
<td>16.8</td>
<td>0.8</td>
<td>19.1</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>Scale 3</td>
<td>19</td>
<td>-1.29</td>
<td>.10</td>
<td>17.2</td>
<td>1.0</td>
<td>18.2</td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>Scale 4</td>
<td>19</td>
<td>-1.99</td>
<td>.03</td>
<td>16.0</td>
<td>1.1</td>
<td>17.7</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>T 4</td>
<td>Scale 5</td>
<td>19</td>
<td>-2.38</td>
<td>.01**</td>
<td>17.0</td>
<td>0.7</td>
<td>18.2</td>
<td>0.8</td>
<td></td>
</tr>
</tbody>
</table>

Note: CDMSE = Career Decision Self-Efficacy Scale; WLCS = Work Locus of Control Scale. The table denotes significant increases for the treatment (T) group on the overall CDMSE score, CDMSE Scale 2: Occupational Information, and SCMSE Scale 5: Problem Solving. Scale significance reflects a standard Bonferroni adjustment to a \(p < .01\) adjusted significance level (i.e., \(p < .05/5\) scales \(.01\)). See Table 1 for CDMSE scores for control (C) group.

\*\(p < .05\). \**\(p < .01\).

Table 2
Paired Samples t Test Results for Control Group Scores on Career Decision Self-Efficacy Scale (CDMSE) Subscales

<table>
<thead>
<tr>
<th>Subscale</th>
<th>df</th>
<th>t</th>
<th>p</th>
<th>(M_{\text{Pretest}})</th>
<th>SEM_{Pretest}</th>
<th>(M_{\text{Posttest}})</th>
<th>SEM_{Posttest}</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Self-Appraisal</td>
<td>19</td>
<td>-37</td>
<td>.36</td>
<td>18.2</td>
<td>0.86</td>
<td>18.6</td>
<td>1.10</td>
</tr>
<tr>
<td>2. Occupational Information</td>
<td>19</td>
<td>-65</td>
<td>.26</td>
<td>17.2</td>
<td>0.85</td>
<td>17.8</td>
<td>1.12</td>
</tr>
<tr>
<td>3. Goal Selection</td>
<td>19</td>
<td>-83</td>
<td>.21</td>
<td>17.2</td>
<td>0.83</td>
<td>18.2</td>
<td>1.07</td>
</tr>
<tr>
<td>4. Planning</td>
<td>19</td>
<td>48</td>
<td>.32</td>
<td>16.7</td>
<td>0.97</td>
<td>16.1</td>
<td>1.02</td>
</tr>
<tr>
<td>5. Problem Solving</td>
<td>19</td>
<td>-43</td>
<td>.34</td>
<td>15.7</td>
<td>0.93</td>
<td>16.4</td>
<td>1.27</td>
</tr>
</tbody>
</table>

Note: The table denotes lack of significant increase in the group receiving traditional vocational assessment (i.e., control [C] group) on all self-efficacy measure scales (i.e., all \(ps > .05\)).

near significant decrease in pretest and posttest means was observed with the control group.

Hypothesis 2 postulated, “Career decision SE assessment (i.e., CDMSE) administered pretraditional and posttraditional vocational assessment practices with the control group will result in no significant increase.” Results of a paired samples \(t\) test supported Hypothesis 2, \(t(19) = -0.404, p = .35\) (see Table 1). Paired samples \(t\) test results for CDMSE scales also supported Hypothesis 2 (i.e., all \(ps > .05\); see Table 2).

Research Question 2

Our second research question asked, “What is the effect of proactive vocational assessment practices that seek to enhance consumer contextual self-understanding related to work and rehabilitation counseling environments on consumer empowerment as reflected by work-related LOC and career decision SE measures?”

Hypothesis 3 postulated, “Work-related LOC assessment (i.e., WLCS), administered pre– and post–proactive vocational assessment practices that include administration of the WIPRC with the treatment group, will result in a significant positive change (i.e., orientation toward internal LOC) in the measures taken as compared with the control group.” Results of a groups-by-trials repeated-meaures ANOVA, which examined the within-participants factor of changes in pretest and posttest measures over time and the between-participants factor of group membership, failed to support hypothesis 3. Overall, \(F\) tests for Time and Time \(\times\) Group interaction were not statistically significant. An overall significant effect for group was observed, \(F(1, 38) = 4.17, p = .05\). The \(F\) test for group computes an overall mean for each group from the pretest and posttest means and compares those grand group means for differences (Hopkins, 1997). The significant \(F\) test for group does not imply the
difference is a result of the independent variable under investigation; rather, it simply implies randomization of subjects to groups may not have been entirely effective for the WLCS variable. However, in light of a nonsignificant \( F \) test for group with regard to the subsequent CDMSE analysis, the significant difference is likely attributable to simple variance (E. Kifer, personal communication, November 3, 2005). It is interesting to note that both the C and T groups experienced a decrease from pretest to posttest means, with the C group experiencing a more substantial decrease (i.e., \( C = -4.6 \) points; \( T = -0.8 \) points; see Table 1) on the LOC variable.

Hypothesis 4 postulated, “Career decision SE assessment (i.e., CDMSE), administered pre- and post-proactive vocational assessment practices that include administration of the WIPRC with the treatment group, will result in a significant positive change in the measures taken as compared with the control group.” Results of a series of groups-by-trials repeated measures ANOVA \( F \) tests, which examined the within-participants factor of changes in pretest and posttest measures over time and the between-participants factor of group membership, provided some support for Hypothesis 4. Overall, CDMSE \( F \) tests for Time, Group, and Time \( \times \) Group interaction were not statistically significant. However, results of a paired samples \( t \) test revealed a statistically significant increase in overall pretest and posttest scores for the T group, \( t(19) = -2.23, p = .02 \) (see Table 1); no significant difference was observed for the C group (\( p = .35 \)).

Groups-by-trials repeated-measures ANOVA \( F \) tests for CDMSE Subscales 1, 3, 4, and 5 were not statistically significant (see Table 2 for subscale labels). However, it should be noted that paired samples \( t \) tests revealed statistically significant increases in pretest and posttest scores for the T group on Subscale 2: Occupational Information, \( t(19) = -2.39, p \leq .01 \); Subscale 4: Planning, \( t(19) = -1.99, p = .03 \); and Subscale 5: Problem Solving, \( t(19) = -2.38, p \leq .01 \) (see Table 1). No significant differences were observed for the C group (\( p = .26, p = .32, \) and \( p = .34, \) respectively; see Table 2). Applying a Bonferroni adjustment (Sankoh, Hugue, & Dubey, 2006) to mitigate the potential for a Type I error (i.e., rejecting a true null hypothesis) inherent in comparing group differences on CDMSE scales (i.e., .05 [significance level chosen]/5 scales = .01 [adjusted significance level]) denotes a significant difference between groups for Subscale 2: Occupational Information and Subscale 5: Problem Solving.

In addition, a significant main effect for Time was observed with regard to CDMSE Subscale 2: Occupational Information, \( F(1, 38) = 4.72, p = .04, \) partial \( \eta^2 = .11 \). \( F \) tests for Group and Time \( \times \) Group interaction were not statistically significant. The \( F \) for Time tests “whether the overall mean difference score (across both groups) is different from zero” (Becker, 2000, p. 6), whereas the \( F \) for Time \( \times \) Group interaction tests “whether the mean difference score for the treatment group is different from the mean difference score for the control group” (p. 6). Thus, the significant \( F \) test for Time indicates an overall significant increase across both groups over time, whereas the nonsignificant \( F \) test for Time \( \times \) Group interaction indicates the significant increase does not depend on group membership. In this case, the C group experienced a slight increase sufficient to negate significance based on group membership. However, as indicated, a paired samples \( t \) test revealed a significant difference for the T group (\( p = .02 \)), whereas no difference was observed for the C group (\( p = .26 \); see Table 1).

### Discussion

Paired samples \( t \) tests (a) confirmed the absence of significant gains in the empowerment-related variables under investigation (i.e., career decision SE, work-related LOC) for those receiving traditional vocational assessment activities in the control group (see Tables 1 and 2) and (b) identified significant gains in the treatment group in the overall career decision SE measure, as well as specific measure subscales (i.e., Occupational Information and Problem Solving; see Table 1).

### Work Locus of Control

With regard to the work LOC measure, results suggest the traditional assessment activities employed in the present study did not foster an overall perception of workplace control or influence among consumers. In fact, results demonstrate a decrease in the work LOC variable across both groups. Despite a more substantial decrease in the pretest to posttest control group mean scores (\( -4.6 \) points) as compared to the treatment group (\( -0.8 \)) any positive difference attributable to the WIPRC intervention was not statistically significant. For the present study we can only note with disquiet the overall negative change evident in both groups (see Table 1).

Mandates for active consumer participation, informed choice, and primary decision making will continue to be difficult for consumers without a perception of adequate influence over what they can expect to transpire in working environments and as a result of working in general. Measures such as the WLCS can provide insight to individual consumers regarding their perceptions of work-related
control. Accordingly, counselors could make use of such insight to individualize rehabilitation interventions aimed at bolstering an internal orientation, which is associated with self-deterministic behavior.

**Self-Efficacy**

Career decision SE represents an empowerment-related variable of considerable interest. However, study findings demonstrate that traditional assessment activities, as employed in the present study, do little to enhance consumer SE related to critical vocational choice and career development activities (e.g., finding out about occupations, accurately assessing personal abilities, selecting a training or career goal, identifying employers relevant to personal career interests; see Tables 1 and 2). Mandates for active participation, informed choice, and primary decision making will continue to be difficult for individual consumers without adequate confidence that (a) he or she possesses the ability to successfully prepare for, engage in, and perform the actions necessary to achieve a desired vocational outcome (i.e., efficacy expectations); and (b) personal action undertaken to improve vocational prospects will ultimately result in a desirable vocational outcome (i.e., outcome expectations).

The presence of significant effects noted for the treatment group on the overall CDMSE variable and specific subscales (i.e., Occupational Planning, Problem Solving; see Table 1) provide evidence that the career decision SE variable may be amenable to reorientation in assessment settings through proactive interventions designed to enhance related contextual self-understanding. Measures such as the CDMSE can provide direct insight for individual consumers with regard to the SE required to successfully complete the overall vocational choice process, including the specific actions required for each related step (i.e., selecting a vocational goal based on informed choice, obtaining any necessary education/training, identifying prospective employers, completing a successful job search, and maintaining desirable employment with potential to lead to long-term career development). Accordingly, counselors can make use of such insight to individualize rehabilitation interventions aimed at helping consumers bolster positive SE in vocational development, which also is associated with self-deterministic behavior. Activities inherent in the rehabilitation counseling process (e.g., intake, assessment, vocational counseling, planning, job development and placement, follow-up) can be used by counselors to enhance consumer self-understanding in relation to environmental opportunities (i.e., contextual self-understanding) and promote the development of positive SE in both counselor-assisted and self-directed vocational development efforts.

**Limitations of the Data**

Due to the extended time frame between pretest and posttest measures, historical bias and maturation represent potential threats to the present study and limitations of the data. However, the threats are mitigated in several ways. First, the pretest baseline measure established similarity between groups with regard to prestudy events. Second, the pretest baseline measure demonstrated there had been no significant change over time for the control group on any study measure, whereas significant differences were observed with the treatment group on several measures. Third, as participants were referred from the state–federal rehabilitation program for vocational assessment, a high degree of similarity with regard to professional service activities during the pretest and posttest timeframe is likely. Accordingly, significant posttest differences between group means are noteworthy for the present study.

Although the present research study utilized a convenience sample of rehabilitation consumers presenting for vocational assessment services, random selection from the larger population was approximated by selecting study participants from rehabilitation facilities that serve a wide range of consumers with varying types of disabilities. As with most studies, wide generalizability to the extended rehabilitation counseling population is limited to some extent by the characteristics of the convenience sample chosen. However, in the present study, research participants included more younger than older adults; more high school graduates than those with postsecondary degrees or less than a high school education; more Caucasians than those of other race/ethnicity; more single than married adults; and more representation of mental health disorders, attention-deficit/hyperactivity disorder, and learning disabilities than all other types of disabilities combined. Accordingly, with respect to the specific sample characteristics of age, race/ethnicity, education level, marital status, and disability type, study participants are well represented in the extended rehabilitation counseling population and the generalizability of results is strengthened.

Additional limitations to the present study may be represented by (a) sample size, (b) differences associated with the posttest timeframe across consumers within groups, and (c) the duration and intensity of the stimulus employed. Additional study participants would have increased statistical power to detect group differences. Additionally, although there was no significant difference in the mean time frames from pretest to posttest measures
between the treatment and control groups, the average length of the time frame (i.e., approximately 64 to 68 days) may have resulted in different experiences among consumers within groups. Furthermore, if more time could have been apportioned to the intervention under investigation (i.e., WIPRC), the stimulus could have been employed with greater duration and/or intensity, potentially resulting in the detection of a more substantial treatment effect.

Implications for Future Research

Many writers (Conte, 1983; Curnow, 1989; Goldberg, 1992; Hershenson, 1981; Syzmanski, Hershenson, Enright, & Ettinger, 1996) have described the need for research-based, vocational development theory and models that relate more specifically to the experiences of persons with disabilities. Despite significant progress through the informed application of seminal career theories and concepts, as well as recent contributions related to ecological assessment, the need to address empowerment in vocational development remains a crucial concern to persons with disabilities.

Rehabilitation counseling is charged with addressing consumer empowerment for informed choice and self-determination throughout the rehabilitation process. That charge translates to developing effective and expeditiously methods to promote the development of empowerment-related variables within systems faced with time and financial resource constraints. In vocational assessment in particular, innovative methods are needed to incorporate alternatives to traditional testing, including qualitative and ecological assessment, along with standardized, norm-referenced measures that address validity concerns appropriately for individuals with disabilities. Rehabilitation counseling consumers need to perceive the necessary control and possess the necessary confidence to seek out and understand the information required to make informed decisions about rehabilitation goals and services. Information seeking is a self-deterministic behavior that should be encouraged and reinforced. Furthermore, rehabilitation counselors and agencies should strive to equip individual consumers with that knowledge through proactive interventions aimed at the identification and remediation of deficits in critical self- and environmental-understanding. Consumer-driven goals that reflect adequate contextual self-understanding in relation to rehabilitation counseling opportunities offer the potential to foster outcomes that more accurately reflect consumer capacities, needs, and desires. Improved outcomes offer greater potential for work adjustment, job tenure, and career development subsequent to rehabilitation counseling services.

According to the Rehabilitation Services Administration (2003), consumer self-understanding of vocational assets is a precursor to active involvement in rehabilitation processes (as cited in Prachyl, 1998). The present study focused on interest assessment as a proactive means to enhance crucial contextual self-understanding related to work. Other interventions that could be conducted effectively and expeditiously during vocational assessment include addressing consumer contextual self-understanding of aptitudes, academic achievement, personality, motivation, temperaments, work-readiness, and other personal variables; as well as environmental variables related to the nature and scope of available services, the rights and responsibilities of all parties involved, and the provisions of disability-related legislation. With regard to research implications, empowerment-related variables of particular interest include (a) informed choice, self-determination, consumer-counselor working alliance, decision-making skill, goal-setting skill, planning skill, negotiation skill, personal adjustment skill, knowledge of available resources and alternatives, and learning facilitated through outcome experiences (Kosciulek & Wheaton, 2003); (b) active agency, skill in accepting personal problems as challenges rather than as immutable obstacles, and the development of a sense of personal power (LOC; Remer & O’Neill, 1980); (c) SE (efficacy expectations and outcome expectations) with adjustment through mastery experiences, modeling strategies, social persuasion, and changes in physiological and emotional states and related perceptions (Bandura, 1998; Ozer & Bandura, 1990); and (d) LOC, with reorientation through learning and reinforcement (Rotter, 1966; see also MacDonald, 1971; Spector, 1988; Skinner, 2003).

References


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