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CORRECTION
Clinician’s attitudes to people with severe mental illness can significantly influence their recovery (Addison & Thorpe 2004; Coursey, Curtis, Marsh et al, 2000; Lauber, Anthony, Jdacic-Gross et al, 2004; Rosen, Hadzi-Pavlovic & Parker 1998; Thornicroft, Rose, Kassam 2007). Stigma driven attitudes, such as beliefs that people with severe mental illness cannot be employed, or that employment causes relapse, are common among health professionals and mental health professionals in particular (Casper, Oursler, Schmidt & Gill 2002; Avanti, Samakouri, Kalamara et al, 2009; Marwaha, Balachandra & Johnson, 2009; Ulrich, Wallen, Feister et al, 2005). Such attitudes can increase self stigma by reinforcing negative beliefs that employment is either too difficult or too challenging in their current circumstances (Adewuya & Oguntade 2007; Schneider 1998; Schulz 2007; Young et al, 2000).

Clinicians may also avoid talking about employment with mental health patients, or fail to consider vocational goals when designing treatment and care plans (Bertram & Howard, 2006). Negative attitudes towards employment and low expectations for vocational recovery, may result from a sampling bias known as the ‘Clinicians’ Illusion’ (Cohen & Cohen, 1984). This bias can result in disagreement about the vocational prospects of those with severe mental illness. Disagreement can arise between clinicians, between clinicians and rehabilitation specialists, and between clinicians and researchers. Cohen and Cohen explain how this arises from difference in the populations sampled. The clinician typically samples those currently experiencing an acute onset or relapse of psychosis, where the person is usually not employed and not expected to be employed. In contrast, rehabilitation specialists and researchers typically sample people in less-acute phases of illness who are actively seeking vocational rehabilitation. Further, clinicians working in the public mental health system often have an exclusive clinical focus with no requirements to measure vocational functioning either at commencement or as outcomes at discharge from treatment and care. Hence, compared to rehabilitation specialists and researchers, clinicians may less frequently observe vocational functioning, and consequently may be pessimistic about its feasibility and its role in recovery (Corker et al., 2013; Hatfield, Huxley & Mohamad, 1992).

The potential for mental health services to generate and maintain a negative vocational bias is recognised by the
Individual Placement and Support (IPS; Bond 2004; Bond & Drake, 2014) approach to Supported Employment. IPS is specifically designed for people with severe mental illness using public funded community mental health services. One of eight core principles of this approach is that continuing treatment and care is integrated with evidence based supported employment. As well as improving vocational outcomes (Bond, 2004) such service integration exposes clinicians to a less-biased sample, by providing information about client vocational progress which they otherwise would not receive. Hence, an implication of implementing IPS is that it ought to lead to less sampling bias and fewer negative attitudes or reservations among mental health professionals, about the value of employment in recovery. Conversely, a less successful IPS program with low fidelity to the principle of inter-service integration is less likely to counter sampling bias and any pre-existing negative attitudes to employment among health professionals.

In summary, client success in supported employment programs can also depend on attitudes of mental health professionals. If these attitudes are negative, or insufficiently supportive, or reserved, it is less likely that the person will be referred to the supported employment program, and less likely that clinical care will be coordinated with employment assistance. This may hinder the development of integrated services, and delay access to an effective program for those who could also benefit from that program. Despite the potential importance of unbiased clinicians’ perceptions to the delivery of integrated services, to our knowledge there is no standardised measure of health professional attitudes to employment.

A promising measure of clinician attitudes in psychiatric rehabilitation (Casper, Oursler, Schmidt, & Gill, 2002) was located. Another captured willingness to refer clients to supported employment (Casper & Carloni, 2007). A third measure assessed knowledge of IPS principles (Dreher, Bond & Becker, 2010). This did not quite fit our purpose because it seemed designed to assess the more detailed knowledge of IPS principles and practices acquired during formal training. We therefore considered a new scale was needed to monitor health professionals’ general support for an employment program when this was integrated into a public funded community mental health service.

The content of the new scale was informed by several sources. A previous survey of local health professionals involved in an IPS program in 2009 found they were keen to support effective integrated employment programs. Items for the new scale were influenced by the findings of this survey and by the more general items in the Psychiatric Rehabilitation Beliefs, Goals, and Practices scale (Casper et al., 2002). However, most of the early items tested failed our initial test-retest reliability expectations. On reflection, the failed items seemed to be transparent, enabling respondents to tell us what they think we wanted to know about their attitudes. We found a potential solution to transparency in the work of Sommer et al (2012). These authors measured attitudes indirectly by asking about the proportions of clients on their caseload that they have discussed employment with, and the proportions they perceive as capable of full time employment, or of part time employment.

The aim was to investigate the preliminary psychometric properties of the new scale which we named the Health Professionals Perceptions of Employment (HPPE) scale. We expected it to help identify any negative vocational bias and unsupportive attitudes. This information is needed to both understand the quality of service integration, and to check whether a successful employment program has the expected positive effect on correcting any health professionals’ negative vocational bias, or clinicians’ illusion.

Methods

Respondents

Thirty four mental health professionals participated in the final reliability study. All were from three community mental health teams that had been involved in an expanding implementation of IPS in a north Brisbane region over the previous five years.

Procedure

The team leaders who volunteered to conduct the survey were trained in its administration and asked to record any feedback relevant to the face validity and acceptability of questions and response options. Prior to administration, they were encouraged to discuss the survey with peers and seek further comments and feedback on all questions. This feedback was used to make further minor revisions. Once all revisions were agreed, team leaders approached potential participants during team meetings. Those who agreed (there were no refusals) to participate, provided written informed consent, completed the survey, and committed to repeat it again at a later date. Data collection ceased once more than 30 usable test-retest pairs of complete surveys were obtained.

Participants provided individual characteristics on a cover sheet, namely: age, sex, years worked in mental health, health discipline, position title, mental health team name and mental health district. Surveys were collated into test-retest pairs and de-identified by team leaders. The surveys were then passed to the research team for analysis. Ethical review and approval was provided by the Prince Charles Hospital Human Research Ethics Committee.

Analysis

Completed questionnaires were analysed using STATA version 11. Descriptive statistics and the appropriate reliability coefficients were reported at the question level, and where possible by response option. The following psychometric properties were considered most relevant to this analysis: face validity, respondent acceptability, test-retest reliability, and internal consistency.

Face validity is the extent to which the language is appropriate and item construction appears meaningful,
consistent in meaning and in interpretation, and congruent with the construct that the instrument was designed to measure. Respondent acceptability is the degree to which the instrument is acceptable to its intended respondents (in this case mental health professionals) and considers response burden, missing responses, and administration time (Ulrich et al., 2005). Missing information and comments made by respondents during administration were noted by the team leader administering the survey.

Test-retest reliability represents the degree of agreement obtained when the same survey instrument is completed by the same respondent within a specified timeframe. An optimum timeframe is selected to enable respondents to forget their previous responses, while not so long that real change occurs between administrations in the constructs being measured. In the case of this measure, we considered it important to examine test-retest reliability at both question, and at a response option, levels so that poor performing items could be revised or removed. The varied nature of items required the calculation of several different reliability coefficients.

For items that generated near continuous response data, Intra-Class Correlations (Shrout & Fleiss, 1979; using a two-way mixed effects model for single measures) and Pearson Correlation coefficients were calculated. For ordinal and categorical response options Kappa and Weighted Kappa statistics were utilised (Landis & Koch, 1977). Some questions (or response options) had insufficient variation to calculate a reliability coefficient, and in these cases the percent agreement for each response option were reported. Internal consistency was examined using Cronbach’s alpha analysis (Cronbach, 1951).

Results

Thirty four community mental health team members responded at both survey waves. Fifty nine percent were female. The following disciplines were represented: Mental Health Nurse (65%); Occupational Therapist (15%); Psychologist (6%); Psychiatrist (3%); Social Worker (6%); Team Leader (3%); and Visiting Medical Officer (3%). Mean age was 44.4 years (SD 11.7). Males were older than females on average: (Males mean 49.1 years; Females mean 41.1 years). The mean retest time was 50 days (range 29-87 days). Time taken for survey completion, including informed consent, averaged 15 minutes. At baseline 50% of respondents had some supervisory responsibility. Respondents reported a mean active caseload size of 22 clients, and a mean 14.7 years worked in mental health.

Face Validity and Respondent Acceptability

Questionnaire completions were excellent with no missing information detected other than respondents’ age. Six respondents (3 males; 3 females) did not provide this on the cover sheet. In these cases, an age estimate was obtained from the team leader who administered the survey. The mean completion time was 15 minutes which included explaining the project and obtaining informed consent. Face validity was considered good because no respondents made suggestions for revising items that would further improve the scale. No adverse comments were made about any items, and no objections to the length or complexity of the measure were noted. However, when analysing the results Question 11 proved difficult to interpret. This is because it seemed to have a dual meaning (refers to both learning and growing), which could be assessed technically as correct in either direction. On the basis of this ambiguity and our subsequent interpretation difficulty, we eliminated this question from the revised scale.

Test Retest Reliability

The results of the test-retest reliability analysis are shown in Table 1. As expected, questions asking for current factual information were the most reliable (e.g. Q1 and Q2), and questions which required recall or a degree of judgment were less reliable. However, all items except one met our expectations for moderate reliability or better. Question four (In your case review meetings, and in other planned meetings with mental health team members, how often are clients employment issues discussed by anyone?) achieved only fair reliability when collapsed into a dichotomous response (Kappa=0.28). This question was removed from the revised scale on the basis that it did not achieve a minimum of moderate reliability or better.

Internal Structure

Internal consistency was examined via Cronbach’s alpha. The questions that related to the construct of ‘value of employment in recovery’ (Q1, Q2, Q3a, Q3b, Q4, Q5, Q6, Q7, Q9, Q12) had a combined alpha of 0.56 which is an acceptable result for a brief scale. Only one question contributed negatively to the total alpha (Q3b). The reason for this remains unclear, but the question remains relevant and is otherwise considered sufficiently reliable. Hence these internal consistency results were not used as grounds to remove this question.

Sample Characteristics

Responses to questions four to six indicated that this was a vocationally aware sample of mental health professionals. An IPS employment program had been in place in the district for two years prior to this survey (Wagorn, et al., 2012) and the three mental health teams surveyed were involved in that program. Hence it was not surprising that 97% of respondents at baseline reported access to a co-located employment specialist, and reported discussing individual vocational goals with 69% of active case-managed clients. These results are encouraging and support the anecdotal impressions of team leaders that the mental health professionals surveyed valued the IPS program and the contributions of the co-located employment specialists.

Improvement Suggestions

Two questions provided the opportunity for respondents to write open ended comments to improve the integrated employment program. One of these asked about any problems health professionals may have experienced in making referrals to the employment specialist. At baseline 50% of respondents
indicated no problem with the referral process. The problems specified were classified into three themes. Twenty four percent indicated a lack of consistent client motivation and client engagement as a problem for the program. The second theme concerned problems attributed to communicating with the employment specialist and their limited understanding of mental health issues. This was reported by 17% of baseline respondents. The third theme represented issues raised by 9% of respondents concerning how client wellness adversely impacted on an otherwise smooth referral process.

At the second survey similar issues were raised which could again be collected into the same three themes. The only difference between the second and the first survey was that more respondents identified issues at the second. At the repeated survey, 38% indicated no problem within the referral process, while 29% attributed some difficulty could again be collected into the same three themes. The problems specified were classified into three themes. Twenty four percent indicated a lack of consistent client motivation and client engagement as a problem for the program. The second theme concerned problems attributed to communicating with the employment specialist and their limited understanding of mental health issues. This was reported by 17% of baseline respondents. The third theme represented issues raised by 9% of respondents concerning how client wellness adversely impacted on an otherwise smooth referral process.

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Table 1. HPPFE Item level test–retest reliability (n=34).

<table>
<thead>
<tr>
<th>HPPE Survey Items and response options</th>
<th>T1 n (%)</th>
<th>T2 n (%)</th>
<th>T1 Mean (SD)</th>
<th>T2 Mean (SD)</th>
<th>Pearson ICC</th>
<th>Kappa</th>
<th>Kappa’</th>
<th>N (% Agree)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Approximately how many active clients do you have on your current caseload?</td>
<td>22 (64.7)</td>
<td>27 (77.1)</td>
<td>81.6 (29.0)</td>
<td>77.1 (22.9)</td>
<td>0.459</td>
<td>0.454</td>
<td>26/34 (76.5)</td>
<td></td>
</tr>
<tr>
<td>2. Do you have responsibilities for supervising or mentoring other staff?</td>
<td>Yes</td>
<td>17 (50.0)</td>
<td>17 (48.6)</td>
<td>0.339</td>
<td>0.382</td>
<td>20 (58.8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Please consider your active caseload. Of the active clients, if appropriate employment assistance was provided, what proportion do you consider to be a fair distribution? [K scale range 0–100]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>4. Currently capable of full time competitive employment</td>
<td>Yes</td>
<td>19 (55.9)</td>
<td>19 (55.9)</td>
<td>8.8 (1.8)</td>
<td>8.9 (1.8)</td>
<td>0.529</td>
<td>0.446</td>
<td>0.285</td>
</tr>
<tr>
<td>5. Of the active clients on your caseload, with what proportion have you discussed their individual vocational goals? [K scale range 0–100]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>6. My eight staff members have access to an employment specialist who is capable of assisting clients directly with their individual employment needs</td>
<td>Yes</td>
<td>1 (2.94)</td>
<td>1 (2.94)</td>
<td>0</td>
<td>81.6 (22.0)</td>
<td>0.459</td>
<td>0.454</td>
<td>26/34 (76.5)</td>
</tr>
<tr>
<td>7. Yes, there is a co-located employment specialist linked to this Mental Health team.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>8. Yes, although not co-located with our mental health service, access has been arranged to employment specialist staff of suitable disability employment services in the local area.</td>
<td>1 (2.94)</td>
<td>1 (2.94)</td>
<td>81.6 (22.0)</td>
<td>81.6 (22.0)</td>
<td>0.459</td>
<td>0.454</td>
<td>26/34 (76.5)</td>
<td></td>
</tr>
<tr>
<td>9. If you have access to a co-located employment specialist, how confident are you that the person currently doing that job is successful in helping all referred clients to gain and maintain competitive employment? [K scale range 0–100]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>10. If you have access to a co-located employment specialist, how well is that person currently accepted, and valued by other members of the mental health team? [K scale range 0–100]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11. Does having a mental illness mean clients have a diminished capacity to learn and grow?</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>12. In order, how important is competitive employment in clients’ recovery plan?</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

Note: a. Intraclass Correlation Coefficient based on a two-way mixed effects model for single measures (Shrout & Fleiss, 1979). b. Unweighted Kappa coefficient. c. Yes, there is a co-located employment specialist. Question 10 is not deleted because it asked for a written response. Can you suggest ways that you support clients with their vocational goals, or support the employment specialist to help clients achieve their vocational goals? Information not applicable or a statistic that could not be calculated is marked by ‘—’. The Kappa statistic measure of agreement is scaled to be 0 when the amount of agreement is what would be expected to be observed by chance and 1 when there is perfect agreement. For intermediate values, Landsa and Koch (1977) suggest the following interpretations: below 0.0 Poor; 0.00–0.20 Slight; 0.21–0.40 Fair; 0.41–0.60 Moderate; 0.61–0.80 Substantial; and 0.81–1.00 Almost perfect. Questions 8 and 10 required qualitative responses. Questions 4 and 11 were removed.

The second open ended question asked for three practical ways health professionals could support clients with their vocational goals, or support the employment specialist to help clients achieve their vocational goals. Respondents made specific suggestions that could be classified into four categories. More specific suggestions were made at the first survey, while the themes did not differ at the second survey. The four types of suggestions were to: (1) discuss employment as soon as possible with clients; (2) use a combined meeting of the client, the health professional, and the employment specialist, to promote employment as a significant part of recovery; (3) obtain regular updates from the employment specialist about client vocational progress; and (4) encourage, support, and record clients’ realistic vocational goals.

Discussion

This study examined the initial psychometric properties of a brief measure of health professionals’ perceptions of an integrated employment program. It also examined perceptions of the value of competitive employment in recovery from severe mental illness. The open ended questions were successful at generating specific suggestions from the mental health team about how to improve the employment program. The psychometric properties examined, namely face validity, respondent acceptability, test retest reliability and internal consistency, indicated the scale could be improved if two questions were removed. The revised scale including user instructions is now available on request. This new measure can monitor the degree of support for employment by the clinical team, which can also be considered a proxy for the quality of integration of an employment program within a public funded mental health service.

Monitoring the quality of integration is important because integrating mental health and employment services can be challenging due to the prior existence of the clinician’s illusion (Cohen & Cohen, 1984) particularly in contexts where both service types have historically coexisted separately, without working in collaboration (Sherrington et al., 2010) let alone as a fully integrated joint service (Morris et al., 2010; Waghorn, et al., 2012). Understanding how the clinical team perceives the
role of employment in recovery and how they perceive the employment prospects of their current clients is important because health professional attitudes can determine referral rates and can either help or hinder clients’ vocational progress.

These results reflect favourably on the clinical teams that completed this survey. The three teams involved were part of an earlier trial of IPS that continued and expanded following the research phase, due to the success of the program and the positive support of these teams. These health professionals held more favourable attitudes towards employment than is sometimes reported in the literature (e.g. Avanti et al., 2009; Björkman, Angelman & Jönsson, 2008). This was indicated by the proportions of their current caseloads that they believed capable of full-time competitive employment (14-16%), and capable of part-time competitive employment (35-42%). They also valued the availability of an employment specialist within the team, and maintained a keen interest in the employment program. Respondents discussed vocational goals with 67-77% of active clients on their caseload. These results support the findings of Sommer et al. (2012) that effective employment programs can have a positive influence on the employment and recovery orientations of community mental health services. This is a potential side benefit of supported employment that may not be currently appreciated by mental health leaders that do not accommodate clients’ vocational recovery goals.

Limitations

The main limitation of this measure is that it does not capture all the relevant behaviour of mental health teams that may contribute to the effectiveness of an integrated supported employment program. For this reason we recommend that this survey is used as part of a comprehensive program evaluation plan, perhaps at program commencement and repeated at 12 monthly intervals. Integrated supported employment programs typically require regular external assessments of program fidelity and an outcome evaluation plan which: delineates the cohort, referral and participant characteristics, vocational progress of all individuals, and attrition throughout the follow-up period. Another limitation is that the current study does not provide norms for assessing the quality of service integration. Nevertheless, it appears promising for generating insights into how health professionals perceive employment and how attitudes to employment and recovery can be operationalised. This sample of health professionals were not passive recipients of a supported employment program. Instead they seemed engaged, enthusiastic, and a ready source of information about current issues and suggestions for improvement.

Conclusion

The revised HPPE is an acceptable, reliable, and promising tool for monitoring the integration of a mental health service with an evidence-based supported employment program. Its use is now recommended, not only to monitor integration progress, but to regularly obtain health professional views on how the integrated employment program might be improved.

References


Employer Preferences in Hiring Youth with Disabilities

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Ellen Fabian
University of Maryland

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TransCen, Inc.

The importance of paid work experience while in high school as a significant predictor of post-school employment for youth with disabilities has been well documented. However, given the importance of available and willing employers to offer these work experiences, surprisingly little is known about how employers who work with these programs perceive the hiring process. For this study, employers who had recently hired a youth with a disability from the national multi-site Marriott Foundation Bridges from School-to-Work program were surveyed to determine: (a) what factors motivated them to hire the youth and (b) how those factors differed by respondent role and company size. Findings suggest that the employers’ perceptions of the youth, including their preparedness for the interview, their professionalism, and the ability to perform on the job were the primary motivating factors in their decision to hire. In addition, the importance of the job developer as a facilitator of the job match was valued more highly by small and medium sized employers than by large companies. Employment specialists can use these findings to align their practices with the preferences of employers, ultimately leading to improved employment outcomes for individuals with disabilities.

Employment outcomes for youth with disabilities transitioning from school to work have persistently lagged behind their non-disabled peers (Fogg & Harrington, 2010), with a 2013 report from the U.S. Department of Labor indicating that only 26.4% of youth with disabilities are employed after high school compared to almost 64% of their nondisabled peers (Office of Disability Employment Policy, 2013). Among the most effective interventions for improving post-school employment outcomes for youth with disabilities is having paid employment prior to school exit (Simonsen & Neubert, 2013; Carter, Austin, & Trainor, 2012; Landmark, Ju, & Zhang, 2010; Test et al., 2009). Employment specialists, or job development staff, often play a significant role in assisting these youth to secure a job (Luecking, 2008; Migliore, Butterworth, Nord, Cox, 2012). Not surprisingly, a number of recent books, articles, training programs and technical assistance materials have focused on job development strategies (e.g., Luecking, 2009; Targett & Griffin, 2012). Based on these suggested practices, multiple organizations have developed competencies and professional standards for employment specialists (e.g. The Division on Career Development and Transition of the Council for Exceptional Children, Associations for Persons in Supported Employment, NCWD/Y). One notable lack in many of these resources is inadequate attention to soliciting feedback directly from employers regarding their opinions of the job development practices that motivate them to hire transitioning youth with disabilities.

One of the few, but widely cited, studies available on employer perspectives was conducted for the U.S. Department of Labor, Office of Disability Employment Policy (Domzal, Houtenville & Sharma, 2008). This study surveyed a nationally...
representative sample of businesses. Business respondents commented about preferred job development practices related to representing job applicants with disabilities. Several key themes were identified, including: (a) disability program staff documenting the added value of the applicant/employee to the organization, (b) documenting performance capacity, (c) and responding specifically to business’ bottom line. In addition, companies across size and sector indicated that top management commitment to hiring individuals with disabilities, as well as including people with disabilities into their diversity recruitment goals and practices were positively associated with hiring decisions. Using the same data set, Jasper and Walkhart (2012) identified availability of on-site job coach support services, disability awareness training, and mentoring to be preferred strategies specifically for employers in the leisure/hospitality sector. Several other studies regarding employment practices for people with disabilities found similar themes, including the value of employment support services offered by community-based employment programs (Ju, Roberts & Zhang, 2013) and the importance of the job developer demonstrating the added value employees with disabilities offer the business, as compared to the costs of hiring individuals with disabilities (Simonsen, Fabian and Luecking, 2008; Hernandez et al., 2008; Waterhouse, Kimberly, Jonas & Glover, 2010).

In this study, we explore factors contributing to employer decisions to hire youth with disabilities who were participating in a national multi-site program. The present study focuses on demand-side perspectives by asking employers to identify factors that influence their decision to hire youth with disabilities. The study was conducted using data from the national multi-site Bridges from School to Work program (Bridges) administered by the Marriott Foundation for People with Disabilities (Tilson, Luecking & Donovan, 1994). The Bridges program conducts skill assessments, career planning, job development, placement, evaluation, and follow-up services to urban secondary students with disabilities in seven U.S. cities. The study contributes to the existing literature by: (a) surveying employers about recent hire of one or more youth with disabilities and (b) controlling for diverse program settings and populations by limiting the sample to employers who hired a youth participating in the standardized Bridges program at nine sites across the country.

Research questions guiding this study were:
1) What factors promote/motivate employers to hire a job applicant with a disability; and
2) Do these factors vary by company characteristics such as respondent role and company size?

Method
Bridges from School-to-Work Program.
Bridges was established by the Marriott Foundation for People with Disabilities in 1989. Bridges is a standardized vocational intervention designed to improve employment outcomes of youth with disabilities. Since 1989, Bridges has served nearly 20,000 youth with disabilities across nine urban cities in the U.S.: Atlanta, Chicago, Dallas, Washington, DC, Los Angeles, New Orleans, Philadelphia, Oakland, and San Francisco (Gold, Fabian &Luecking, 2013). Programs are run in collaboration with local school districts and are funded through a combination of local, state, federal and private funds. Despite slightly different funding models between the various sites, the Bridges intervention is standardized and includes three phases: (a) career counseling and job placement; (b) paid work secured with assistance from highly trained Bridges staff; and (c) follow-along support on the job and tracking of job performance. Students receiving special education services are typically enrolled two years prior to exiting school through referrals from school-based personnel or self-referral. Each of the nine sites is led by a site director, who is responsible for hiring and managing between 5-8 employment specialists (known as “employer representatives”), who typically serve approximately 20 students at a time. Fidelity to the model is ensured by the Bridges national office, which provides program oversight, mandatory training, supervisory guidance, and monitors local programs' adherence to the procedures and policies and staff performance. A hallmark of the Bridges program is the comprehensive data management system that tracks the progress of each Bridges youth.

Data Source.
Bridges database contains demographic and employment data for all past and current Bridges participants. Employment specialists are responsible for entering demographic data, recording intervention services, and tracking employment outcomes (i.e. start date, wage, hours, dismissal) for the youth on their case load into the password-protected Bridges online data-management system. The data are reviewed for accuracy by a full-time staff person at the national headquarters in Bethesda, Maryland. All data were downloaded to an Excel file and then the youths’ identifying information was eliminated. From this data set and for the purpose of this study, employers were identified who had recently hired a Bridges youth (between January 2011 and September 2013). Of the 1365 youth who had been hired during this period, there were 1233 unique employers, indicating that several employers hired multiple Bridges youth. Current, valid email addresses were available for 354 or about 28% of these employers.

Sample.
The respondents were 108 employers who hired a Bridges youth from one of the nine program sites between January 2011 and October 2013. Eight of the respondents were eliminated from the final sample because of incomplete surveys. The final sample included 100 respondents (28.25% response rate), representing all nine program sites across the country. The respondents represented diverse industries and business sizes (See Table 1). The respondents were predominantly female (71%) and under 45 years old (68%). Most of the respondents held a Bachelor’s Degree (57%). Sixteen percent had Associate degrees, 22% had high school diplomas or equivalents, and 5% had graduate degrees. Respondents’ roles in the hiring and supervising of the Bridges youth varied. While 51% indicated that he/she was a human resource (HR) representative, 32 percent identified as a general/operations
manager, and 17% said they were a direct supervisor of the Bridges youth.

**Survey**

This Bridges youth follow-up study was developed based on a review of research discussed earlier (e.g., Tilson & Simonsen, 2013; Simonsen et al., 2011; Domza et al., 2008), as well as input from the Bridges’ executive staff. Survey items were developed to measure demographic information of the respondent, information about the company, the employer’s perceptions of the hiring process and the role of the employment specialist. Three experts in the field of job development provided feedback on the extent to which the questions measured the intended construct (content validity), as well as clarity of questions and terminology. Based on these revisions, a brief online survey was developed using Survey Monkey (Survey Monkey Corporation, 1999-2011). The survey was piloted using eight employers identified by Bridges national headquarters staff. These employers provided feedback on the clarity of questions, ease of survey layout, and their ability to respond to the survey items. The final survey that was fielded to the sample included 17 items including: (a) five demographic items about the respondent (age, gender, education, job title, involvement in hiring process); (b) seven items which requested company information (e.g. size, industry, recruitment strategies); (c) two items that required respondents to rate and rank numerous potential factors that motivated them to hire the youth with a disability (e.g. expanding employment opportunities for youth, confidence in the staff person representing the youth); (d) two items soliciting feedback about the role of the Bridges staff in the hiring process; and (e) one general satisfaction question. In this study, the results of the survey items that are aligned with our research questions are presented.

**Procedures**

The survey procedures were reviewed and approved by the University of Maryland Institutional Review Board. An email invitation to all 354 employers was sent out in November, 2013, describing the purpose and nature of the survey and co-signed by the Executive Director of the Marriott Foundation and the primary author of this study. Three separate reminder emails were sent, once per week and the survey was closed in December 2013. Data from all online surveys were exported to an Excel spreadsheet and then the data were imported into SPSS Statistics 18.0 software.

**Results**

The purposes of this study were to identify factors that motivate employers to hire a job applicant with a disability and to understand how these factors might differ by company size and respondent role in the hiring process. Of the 100 respondents, 77% reported that the Bridges employee(s) they hired was currently employed; and most of the respondents (91%) had been directly involved in the hiring process. There was also an interest in identifying other recruiting sources this sample of employers used in addition to the local Bridges program. The sample of employers reported using a variety of recruiting sources (See Figure 1). For example, about 51% used local workforce centers, 70% relied on colleges, and 52% used other disability resources, such as community agencies (50%); and disability advocacy organizations (34%). Only 12% of the employers surveyed reported using local vocational rehabilitation offices for recruitment. We were interested in comparing recruitment sources by size of company, finding that for this sample, the larger the company, the more reliance on local colleges and especially local workforce centers. For example, 83% of companies with more

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Participant demographics</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>71%</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>29%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤35</td>
<td></td>
<td>33%</td>
</tr>
<tr>
<td>36-55</td>
<td></td>
<td>52%</td>
</tr>
<tr>
<td>≥56</td>
<td></td>
<td>9%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>H.S. Diploma/GED</td>
<td></td>
<td>22%</td>
</tr>
<tr>
<td>Associates Degree</td>
<td></td>
<td>16%</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td></td>
<td>57%</td>
</tr>
<tr>
<td>Graduate Degree</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Job Title</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct Supervisor</td>
<td></td>
<td>17%</td>
</tr>
<tr>
<td>General Manager</td>
<td></td>
<td>33%</td>
</tr>
<tr>
<td>HR Representative</td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>Industry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lodging</td>
<td></td>
<td>27%</td>
</tr>
<tr>
<td>Retail</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Food Service</td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>Amusement/recreation</td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>Engineering, Manufacturing &amp; Technology</td>
<td></td>
<td>10%</td>
</tr>
<tr>
<td>Human Services/Education</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Health Sciences</td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Size of Company</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤20 employees</td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>21- 100 employees</td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>101 - 500 employees</td>
<td></td>
<td>39%</td>
</tr>
<tr>
<td>501 - 1000 employees</td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>≥101 employees</td>
<td></td>
<td>36%</td>
</tr>
</tbody>
</table>
than 500 employees relied on local colleges for recruitment and 71% used workforce centers, compared to about 65% of smaller companies relying on local colleges, but only 35% of these smaller companies reported using workforce centers. Larger companies also were more likely to rely on vocational rehabilitation (22%) compared to smaller companies (7% of those with fewer than 100 employees relied on VR). A similar pattern was evident for the companies that used community-based disability organizations as a recruitment source. Sixty-three percent of companies with more than 500 employees used this source compared to 35% of companies with 21-100 employees, and only 7% of companies with fewer than 20 employees.

Factors that Influenced the Hiring of Bridges Youth

Respondents were asked to rate the level of influence of various factors on their decision to hire a youth from the Bridges program using a six point Likert scale (1= Not at all; 6= Very Much; See Table 2). All the mean scores on these items were above 3.6; with respondents rating the item, “Needed employee to fill a position” the lowest (3.68), and “Confidence in the staff person representing the youth” and the youth’s” ability to perform the job” the highest (5.16). Respondents were asked to identify the most important reason of the nine factors provided. In this case, 31% indicated that the youth’s “ability to perform the job” was the most important reason; followed by the “youth’s professional appearance and preparedness for the interview” (20%). Interestingly, only 3% of respondents indicated that the most important reason for hiring the Bridges youth was to fill a current position. The other lowest rated factor was the “reputation of the Bridges program.” About 29% of the respondents’ primary motivation for hiring a Bridges youth could be described as “socially desirable.” These reasons included “expanding employment opportunities” for people with disabilities (11%) and youth (7%) as well as “giving back to the community (11%).”

Impact of Company and Respondent Characteristics

Prior research examined whether company size or respondent role was related to hiring practices. This study explored the extent to which factors motivating this sample of employers to hire differed by the respondents’ role (direct supervisor, HR professional, or general manager) and company size. Although neither of the chi-square statistics were significant for either size $\chi^2(24, N=100)=14.81; p=.924$ or role $\chi^2(16, N=100)=19.26; p=.255$, they yielded interesting patterns (Tables 3-6). For example, almost 38% of general managers and 33% of human resource professionals selected “youth’s ability to perform the job” as

Table 2

Factors' influence on decision to hire Bridges youth

<table>
<thead>
<tr>
<th>Factors in decision to hire youth</th>
<th>Rating (Scale 1 to 6)</th>
<th>Rated Most Important Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth’s ability to perform the job</td>
<td>5.16 .94</td>
<td>31 31</td>
</tr>
<tr>
<td>Youth’s professional appearance and preparedness for the interview</td>
<td>5.03 .98</td>
<td>20 20</td>
</tr>
<tr>
<td>Commitment to expanding employment opportunities to PWD</td>
<td>4.93 1.35</td>
<td>11 11</td>
</tr>
<tr>
<td>Opportunity to give back to the community</td>
<td>5.06 1.36</td>
<td>11 11</td>
</tr>
<tr>
<td>Confidence in Bridges staff</td>
<td>5.16 1.20</td>
<td>8 8</td>
</tr>
<tr>
<td>Commitment to expanding employment opportunities to youth</td>
<td>4.82 1.34</td>
<td>7 7</td>
</tr>
<tr>
<td>Desire to diversify workforce</td>
<td>4.48 1.60</td>
<td>6 6</td>
</tr>
<tr>
<td>Reputation of Bridges program</td>
<td>4.98 1.33</td>
<td>3 3</td>
</tr>
<tr>
<td>Needed employee to fill position</td>
<td>3.68 1.62</td>
<td>3 3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>
the most important factor in their hiring decision, compared to only about 12% of direct supervisors. Interestingly, almost 24% of direct supervisors endorsed the item, “expanding employment opportunities for people with disabilities” as most important, compared to only 8% of HR professionals and 9% of general managers. While nearly 18% of direct supervisors indicated that the most important factor in their decision to hire the Bridges youth was to expand employment opportunities for youth, only 8% of HR professionals and none of the general managers indicated that this was the strongest motivator in their decision to hire. A comparison of the mean ratings of these factors, across all three groups, highlights other differences (Tables 4 and 5). For example, the extent to which the reputation of the Bridges program influenced the hiring decision was rated higher by general managers (m=5.0) and HR professionals (m=5.1), but deemed slightly less important (m=4.6) by direct supervisors. Direct supervisors’ mean rating for the item, “[hired] to fill an open position” was 3.2, compared to 4.2 for general managers, and 3.5 for HR professionals. Given the small sample size, these mean differences were not significant 

<table>
<thead>
<tr>
<th>Role</th>
<th>Direct Supervisor</th>
<th>General Manager</th>
<th>HR</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youth’s professional appearance/preparedness</td>
<td>n</td>
<td>4</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>% within role</td>
<td>23.5%</td>
<td>15.6%</td>
<td>21.6%</td>
<td>20%</td>
</tr>
<tr>
<td>Youth’s ability to perform</td>
<td>n</td>
<td>2</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>% within role</td>
<td>11.8%</td>
<td>37.5%</td>
<td>33.3%</td>
<td>31%</td>
</tr>
<tr>
<td>Reputation of Bridges</td>
<td>n</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>% within role</td>
<td>5.9%</td>
<td>3.1%</td>
<td>2.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Confidence in Bridges staff</td>
<td>n</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>% within role</td>
<td>5.9%</td>
<td>12.5%</td>
<td>5.9%</td>
<td>8.0%</td>
</tr>
<tr>
<td>Commitment to diversify</td>
<td>n</td>
<td>0</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>% within role</td>
<td>0%</td>
<td>12.5%</td>
<td>3.9%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Needed an employee</td>
<td>n</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>% within role</td>
<td>5.9%</td>
<td>3.1%</td>
<td>2.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Expand opportunities for youth</td>
<td>n</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Expand opportunities for people with disabilities</td>
<td>n</td>
<td>4</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>% within role</td>
<td>23.5%</td>
<td>9.4%</td>
<td>7.8%</td>
<td>11%</td>
</tr>
<tr>
<td>Give back to community</td>
<td>n</td>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>% within role</td>
<td>5.9%</td>
<td>6.3%</td>
<td>15.7%</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>n</td>
<td>17</td>
<td>32</td>
<td>51</td>
</tr>
<tr>
<td>%</td>
<td>17%</td>
<td>32%</td>
<td>51%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Finally, the study assessed whether the interaction of the role of the respondent and size of company yielded any patterns in terms of ratings of motivating factors to hire. A MANOVA was used to explore the interaction effect, but the multivariate

Size of company also revealed different patterns of responses to the factor identified as most important in the hiring decision. Company size was divided into four categories: (a) less than 20; (b) 21-100; (c) 101-500; and (d) greater than 500. As Table 2 indicates, the two most important motivating factors related directly to the youths: “ability to perform the job” (31%) and “the youth’s professional appearance/preparedness for the interview” (19%), but when the items were segmented by company size, clear differences emerged. For example, the influence of “confidence in the staff person representing the youth” varied across company size. The overall endorsement of this item as the most important factor in hiring was only 8%. However, 15% of respondents in the largest companies (more than 500 employees) rated this as the most important item in their hiring decision, compared to only 3% of companies with fewer than 500 employees, and none of the companies with less than 100 employees endorsed this item as most important. In terms of socially desirable hiring goals, smaller companies were more likely to endorse the following factors: (a) “commitment to diversifying their workforce,” (b) wanting to “give back to the community,” (c) expanding employment opportunities to “people with disabilities” and (d) “expanding employment opportunities to youth” as the most important reason to hire a Bridges youth. However, there are some differences within company size. For example, 36% of companies with fewer than 500 employees rated one of these
difference was not significant \([F(2,54)=1.16; p=.266]\). The only variable that was significant in the MANOVA was hiring to fill a vacancy \([F(2,11)=2.04; p=.033]\). The pooled mean for “hiring to fill a vacancy” was particularly low for supervisors across company size \((m=3.24; SD=1.4)\) compared to general managers across company size \((m=4.3; SD=1.5)\).

**Discussion**

The purpose of this descriptive study was to explore factors influencing employers’ decision to hire a youth with a disability, and the extent to which perceptions differed by company characteristic and respondent role. The sample included 100 employers who had hired a youth from the Bridges from School to Work program between January 2011 and October 2013. Approximately half of this sample \((52\%)\) utilized disability-specific recruitment sources \((e.g.\) disability advocacy groups, vocational rehabilitation, etc.) to fill vacancies. This is significantly higher than the percentage indicated in a national sample of representative businesses \((Domzal et al., 2008)\) which found that only 13.6% actively recruited people with disabilities. It is also important to note that few of the respondents indicated that the most important reason for hiring was to fill an open position \((only 3\% endorsed this as the most important factor), and the overall mean ratings for this factor was only 3.68, or the lowest among the nine factors.

We also looked for differences in hiring decisions by company size and respondent role; that is, whether the respondent identified her or himself as a general manager, direct supervisor, or HR professional. Although the sample size was small, and the study was under-powered in terms of being able to detect significant differences, some interesting patterns emerged when we explored these differences. Respondents’ roles were assessed. Direct Supervisors indicated that the youth’s professional appearance/preparedness was the most important factors in the hiring decision process. However, HR professionals and general managers indicated that the youth’s performance capacity was the most important decision in hiring. Consistent with these findings, Domzal et al. \((2008)\), in their study of a nationally representative sample of senior executives regarding their disability recruitment and hiring practices, found that the applicant’s performance capacity was the primary reason for hiring across company size and sector. In the present study, direct supervisors rated youth’s performance capacity 5.0 \((SD =1.2)\) on a 6-point scale, indicating that even though it is not the most important item for them, it certainly is an important factor in the hiring decision.
In terms of agency or employment specialist-related factors important in the hiring decision, it is worth noting that the employers’ confidence in the employment specialist had the highest mean rating across the entire sample (5.2; SD = 1.2) out of nine factors. As can be seen in Tables 5 and 6, confidence in the employment specialist was important across company size, (where means ranged from 4.9 to 5.3), and, even more so, respondent role. The rating of the reputation of the agency (in this case, Bridges) in the hiring decision was also an important factor (means ranging from 4.7 to 5.3). Clearly, establishing a strong relationship with the employment specialist is highly valued by this sample. This finding is consistent with much of the job development literature, which emphasizes the importance of employment specialist characteristics and skills in the job development process (Luecking, 2008; Migliore et al., 2012; Tilson & Simonsen, 2013). Simonsen, Fabian, Buchanan and Luecking (2011) pointed out the similarity between employer perceptions of effective job development strategies identified in these studies and the demand-side job development approach that has emerged in the rehabilitation literature (Chan, Strauser, Gervey & Lee, 2008; Luecking, 2008). The demand-side approach emphasizes job development staff identifying and addressing business needs and demonstrating how the job seekers they represent can add value to the business (Simonsen et al., 2011; Gilbride & Stensrud, 1999; Cuozzo & Buchanan, 2006).

Interestingly, employers identified a number of ‘socially desirable’ factors as important contributors to the decision to hire. Three of the factors that fit into this category: (a) “desire to diversify the workforce,” (b) “desire to expand job opportunities for youth,” and (c) “commitment to give back to the community” collectively accounted for about 35% of primary factors endorsed by employers as influencing the hiring decision. However, examination of the means for these items across size and respondent role suggests that hiring to diversify the workforce reveals the lowest means across the two dimensions as compared to the other socially desirable goals.

**Implications.**

Several implications for job developers emerge from this study. Among the factors that employers indicated as important contributions to their hiring decisions, filling an existing vacancy was rated the lowest. This finding validates recent literature in the field which has suggested that simply assisting applicants with disabilities to apply for advertised positions is an ineffective way to secure jobs in the community (Luecking, 2011; Ju et al., 2013). Instead, much of the recent literature encourages job development professionals to develop relationships with employers in order to assist them to identify unmet (and unadvertised) personnel needs and subsequently, customize tasks for qualified applicants who can fill those needs (Luecking, 2009; Migliore et al, 2011). Thus, customized employment, as this approach is known (ODEP, 2013), encompasses several of the highly rated factors this sample of employers indicated were important considerations in the hiring process. These include: (a) having confidence in

<table>
<thead>
<tr>
<th>Table 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most important hiring factor by size of business</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Appearance</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Youth’s ability to perform</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Reputation of Bridges</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Confidence in Bridges staff</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Commitment to diversify</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Need employee</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Expand opportunities for youth</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Expand opportunities for people with disabilities</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Give back to community</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>% within role</td>
</tr>
<tr>
<td>Total</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>%</td>
</tr>
</tbody>
</table>
the role of the job developer; (b) documenting the performance capacity of the job candidate in relation to the specific demands of the business and (c) maintaining a relationship with the job developer.

Another important finding from this study, and one supported by other studies (e.g., Domzal et al., 2008), is the value in documenting the performance capacity of the youth. As indicated, this factor was important across size and respondent role. However, in the context of the current study where filling a vacant position emerged as unimportant, we interpret this finding to mean that job developers need to be prepared to document the capacity of their applicant to address specific unmet business needs. In other words, how will this applicant add value to the business’ bottom line, rather than how well will this applicant fill an existing position. These findings also discredit the notion of using want ads and job opening postings as the primary or most effective ways to develop employment opportunities for people with disabilities. Rather, direct job developer contact and interaction with employers to learn of business’ operational needs are far more useful strategies.

Another finding with implications for the field is the relative importance respondents attached to hiring for ‘socially desirable’ reasons across company size. Smaller companies expressed the desire to expand employment opportunities for youth and larger companies indicated a desire to give back to the community. This could be explained by the stated and obvious intent of the Bridges program to assist youth with disabilities to find jobs. Respondents may be more compelled to respond favorably to this item. This finding warrants further exploration to determine if this finding is unique to employers who work with Bridges youth or influenced by the perceived social desirability of responding positively to these items. In any case, appealing to employers’ good will or charity as a reason to hire an applicant with a disability is clearly not sufficient, given the importance attached to these social goals as compared to other factors. In the context of the current study, job developers would initially want to demonstrate how the particular applicant adds value to the business’ bottom line, and then suggest how such a hire is consistent with a company’s overall social goals. Importantly, it’s not the size of the company, or the role of the respondent that matter in a desire to achieve social goals. Rather, these motivations follow after establishing a trusting relationship and presenting a business-related reason to hire the candidate.

Limitations.

Although the findings of the study are interesting, there are limitations. The first is that those employers sampled had hired youth from the

| Table 6 |
|-----------------|-----------------|-----------------|-----------------|
| **Descriptive statistics for company size by hiring factor** | **Size of Company** | **Total** | **Total** |
| | ≤ 20 | 21-100 | 101-500 | ≥500 |
| Appearance | | | | |
| Mean | 5.00 | 5.07 | 5.08 | 4.98 | 5.03 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.265 | .730 | 1.085 | .935 | .979 |
| Youth’s ability to perform | | | | |
| Mean | 5.17 | 5.21 | 5.33 | 4.98 | 5.16 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | .983 | 1.051 | .838 | .987 | .940 |
| Reputation of Bridges | | | | |
| Mean | 5.17 | 5.29 | 4.82 | 5.00 | 4.98 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.169 | 1.139 | 1.537 | 1.204 | 1.326 |
| Confidence in Bridges staff | | | | |
| Mean | 5.33 | 5.36 | 4.92 | 5.29 | 5.16 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.211 | 1.082 | 1.458 | .929 | 1.195 |
| Commitment to diversify | | | | |
| Mean | 4.17 | 5.14 | 4.33 | 4.44 | 4.48 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.329 | 1.460 | 1.611 | 1.659 | 1.598 |
| Need employee | | | | |
| Mean | 3.33 | 3.93 | 3.51 | 3.80 | 3.68 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.366 | 1.639 | 1.636 | 1.662 | 1.620 |
| Expand opportunities for youth | | | | |
| Mean | 4.67 | 5.07 | 4.85 | 4.73 | 4.82 |
| n | 1.6369 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.366 | .917 | 1.424 | 1.397 | 1.336 |
| Expand opportunities for people with disabilities | | | | |
| Mean | 4.67 | 5.29 | 4.85 | 4.93 | 4.93 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.211 | .914 | 1.565 | 1.292 | 1.350 |
| Give back to community | | | | |
| Mean | 4.67 | 5.29 | 4.79 | 5.29 | 5.06 |
| n | 6 | 14 | 39 | 41 | 100 |
| Std. Deviation | 1.751 | .994 | 1.472 | 1.289 | 1.362 |
Marriott Foundation’s Bridges from School to Work Program. The majority of the sample had a positive experience with the program. As a result, these findings may not be generalized to a national sample of all employers, even though some of the findings were consistent with those drawn from national studies (e.g., Domzal et al., 2008).

Another limitation is the small size, which impacts the power of the study to detect significant differences that might exist, as well as compromises the potential generalizability of the results to a larger, diverse sample. While the response rate (28.25%) is in line with similar types of web-based surveys of businesses (e.g. Lozar-Manfreda et al., 2008; Jin, 2011), the relatively small pool of potential participants with usable contact information is another limiting factor.

Conclusion
Transitional youth with disabilities often rely on formal supports (e.g. teachers, transition specialists, employment specialists) to help negotiate the transition process. While considerable research has examined general employer attitudes toward hiring individuals with disabilities (Ju et al., 2013; Luecking, 2008); and general preferred practices (Domzal et al., 2008; Waterhouse et al., 2010), this study explored how employers responded regarding recent hires from a highly successful standardized youth employment program. The findings of this study lend support to best practices in job development, such as developing relationships and customizing jobs; and suggest how job developers can integrate various approaches in order to achieve employment outcomes. Transition specialists play a critical role in helping youth with disabilities connect with employers in the community and their ability to respond to the direct practices that employers find most important in the hiring process will facilitate their success.

References


Disability, Health, Independent Living, and Rehabilitation Research Leaders from Traditionally Underrepresented Racial and Ethnic Populations: Career Development and Success Factors

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This article provides a comprehensive overview of select research skill and leadership building opportunities and research infrastructure systems that contribute to research leaders’ from traditionally underrepresented racial and ethnic populations and communities (i.e., African Americans, Native Americans, Latinos, and Asians) in the field of disability, health, independent living, and rehabilitation career development and success. After a short presentation of the Social Change Model of Leadership (SCML) and issues relative to the current insufficient supply of such research leaders, the article shifts focus to a detailed synthesis of the available peer review and grey literature and policy on research career development and success factors. Critical contemporary issues affecting these target groups are discussed. Recommendations for advancing the current state-of-the-science for improving the research and leadership skills and career development outcomes for investigators from these populations, especially those with disabilities, are presented.
populations and communities (i.e., African Americans, Latinos, American Indians, and Asians). Section 21 of the Rehabilitation Act Amendments of 1998 serves as the single most important piece of U.S. federal legislation aimed at empowering members of these target populations to achieve rehabilitation success. This legislative mandate is predicated on the U.S. Congress’ findings that such persons differ on rehabilitation experiences across all junctures of the state-federal vocational rehabilitation (VR) system, and they continue to face numerous challenges in pursuit of achieving successful outcomes (Balcazar, Suarez-Balcazar, & Taylor, 2010; Manyibe, Moore, & Kampfe, 2012; Schneider, 2011). These challenges include, but are not limited to, the following: (a) language barriers (Balcazar, Oberoi, Suarez-Balcazar, & Alvarado, 2012; Perryman Group, 2008); (b) cultural traditions and attitudes about disability and health (Schneider; Velcoff, Hernandez, & Keys, 2010); (c) limited number of professional researchers in the field of disability, health, and rehabilitation from underrepresented groups (Epps & Guidry, 2009; Moore et al., 2012a; 2012b; National Institute on Disability and Rehabilitation Research [NIDRR], 2011); and (d) physical, social, and informational isolation from mainstream health and rehabilitation agencies (Schneider).

Existing policy initiatives coupled with these current challenges continue to complicate U.S. rehabilitation and healthcare systems. For instance, the U.S. Rehabilitation Services Administration (RSA) Standard and Indicator 2.1 directive continues to hold state vocational rehabilitation agencies (SVRAs) accountable for achieving prescribed benchmarks; ratio of minority to non-minority service rate. This performance indicator is the ratio of the minority service rate divided by the non-minority service rate, which must be $>0.80$ to meet the 2.1 indicator (New York State Education Department, 2013). Consequently, SVRAs must constantly monitor this compliance standard.

Access and outcome disparities are manifestations of rehabilitation and health system failures and their lack of responsiveness to the challenges and realities that many PWDs from underserved racial and ethnic populations face. These inequalities present a myriad of problems that call for an increased supply of disability, health, independent living, and rehabilitation researchers from these groups and communities who embrace cultural context across the scientific paradigm to develop and address the hypotheses that warrant attention. Research leadership is a vital factor in exploring and addressing the health and functioning, employment, and community living and participation needs of PWDs (Moore et al., 2012b; White, Simpson, Gonda, Ravesloot, & Coble, 2010). Their scientific products can inform medical, clinical, and rehabilitation practice with evidence-based interventions and findings, influence public policy affecting rehabilitation outcomes among PWDs, and contribute to a knowledge base for the training and development of practitioners (Broussard, 2009; Schultz, Koch, & Kontosh, 2007). These leaders are also pivotal in mentoring and molding the available talent pool of junior level investigators, with the aim of developing the next generation of research leaders.

The purpose of this review was to synthesize the available peer review and grey literature (e.g., monographs, government technical reports, white papers), and policy on opportunities and research infrastructure systems that could contribute to disability, health, independent living, and rehabilitation research leaders’, especially those with disabilities, from underrepresented racial and ethnic groups career development and success. A set of recommended approaches that can be considered for advancing the current state-of-the-science for improving the research and leadership skills, and career development outcomes for investigators from these populations are presented. Using constructs from the Social Change Model of Leadership (SCML) as a theoretical framework (Brown, 2012), an analysis was conducted of the available peer review and grey literature and policy. This model aligns directly with the inherent supposition that research leaders can be developed, and more specifically systematic processes representing opportunities (e.g., mentorship, post-doctoral training fellowships, grant writing workshop participation) and research infrastructure (e.g., mini-grant research seed monies, research presentation travel funds, library research resources, technology support) can be leveraged to develop theses leaders. The subsequent section will discuss this theory within the context of disability, health, independent living, and rehabilitation research leadership. The literature review covers the following topics: (a) differential disability and health condition prevalence rates among underserved populations; (b) the inadequate pool of disability, health, and rehabilitation research leaders from underrepresented populations; and (c) select factors (i.e., opportunities and research infrastructure systems) that contribute to their career development and success.

Social Change Model of Leadership

The SCML model was developed by a team of leadership educators and scholars employed in the Higher Education Research Institute at the University of California, Los Angeles in 1996. This approach has been used extensively to study ethical leadership (Brown, 2012; Fine, 2007) and student leadership development and practice (Buschlen & Dvorak, 2011; Davis, 2013). Cilente (2009) adopted the SCML model to integrate already established leadership development concepts and to train leaders who may not hold traditional roles of leadership, but want to make positive change. Within this model, leadership is considered as a process rather than a position, and the outcome is an understanding of how one can facilitate positive change, as well as increased self-knowledge and leadership competence (HERI, 1996). The SCML has three constructs or dimensions; individual values, group values, and society/community values (Cilente, 2009; HERI).

As depicted in Figure 1, the arrows connecting the various components are important elements as they represent a dynamic relationship whereby each level interacts with and influences the others and each value is interconnected to others (Cilente, 2009). In this model, individual value is represented as personal research qualities that enhance group functioning and make social change possible. Individual value is defined
as the researchers’ intellectual, leadership, and research skills growth, and his/her ability to contextualize research participants’ values and cultural customs, and rationale for personal choice (Cilente, 2009). The group value element emphasizes working together as part of a research team to achieve goals. At the group level, there are ways individuals collaborate that enhance their own qualities and impact change among others. At the community/society level, leadership activities can be directed to address social concerns, and these service activities can nurture individual qualities and group interactions. The community/society value places a high importance on leaders giving back to communities through volunteering, acting ethically, and civic engagement.

In this model, research leaders exert their influence on constituent groups to develop policy and practice changes that shape the scholarly discourse and ultimately our environmental context. Such change is also facilitated by mentoring junior level investigators in an effort to increase the pool of researchers from underrepresented racial and ethnic populations available to study problems and disparities leading to new policy and research initiatives (Bazata, Cressy, Warren, & Evans, 2011). The next generation of research leaders from these groups can be developed through research mentorship program participation focused on increasing their research and leadership skills, while being simultaneously nurtured by academic institutions to engage in societal and community work and model effective leadership and problem solving skills that demonstrate how to accomplish change for common good (Astin & Astin, 2000).

**Differential Disability and Health Condition Prevalence Rates**

Different disability and health condition prevalence rates exist between Americans belonging to various racial/ethnic groups. Among individuals between the ages of 18 and 64, 10.4% of non-Hispanic Whites, 7.9% of Hispanics, and 4% of Asians reported having a disability in 2011 compared to 13.6% of African Americans, and 17.1% of American Indians or Alaskan Natives (Erickson, Lee, & Von Schrader, 2012). In addition to higher rates of disability, these populations also experience poorer health when compared to non-Hispanic Whites. For example, adult Hispanics, American Indians or Alaska Natives, and African Americans with disabilities are significantly more likely to report fair or poor health (55.2%, 50.5%, and 46.6%, respectively) compared to non-Hispanic White and Asian individuals with disabilities (36.9% and 24.9%, respectively) (Wolf, Armour, & Campbell, 2008). Moreover, PWDs from diverse populations are underrepresented with regard to overall access to rehabilitation and public health services (Moore, Johnson, & Washington, 2011; NIDDR, 2006; Taylor-Ritzler, Suarez-Balcazar, Balcaza, & Garcia-Iriarte, 2008).

Disability health disparities arise from inaccessible physical environments, social assumptions and prejudices, and inflexible policy and systems that assume that everyone must be able to independently complete forms, undress unaided, transfer to high examination tables, and communicate in English to receive standard health care services (Yee, 2011). Further complicating the matter, according to the Institute of Medicine (IOM), is the increased number of aged adults with more complex health concerns and the limited number of health care para-professionals and professionals with the requisite knowledge and skills to effectively care and help facilitate their successful rehabilitation (Khatutsky, Wiener, & Anderson, 2010). In light of existing high turnover and vacancy rates, the health care industry have turned to populations not traditionally employed in long-term care settings, such as older workers, transitioning Temporary Assistance for Needy Families (TANF) participants, former military personnel, and immigrants. High rates of poverty and barriers to health care experienced by PWDs from underserved populations and communities further contribute to their rehabilitation needs (Perryman Group, 2008).

The current tendency for higher rates of disabilities coupled with health condition prevalence is expected to result in larger numbers of these consumers seeking rehabilitation and public health services (Groomes, Kampfe, & Mapuranga, 2011). Systems complexities along with new and emerging trends impacting the health and function, community participation, and successful rehabilitation of underserved populations and their communities may warrant new and expanded research agendas. To this end, a ‘critical mass’ of research leaders from underrepresented groups who embrace cultural context is needed to answer the questions that need to be

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**Figure 1: The Social Change Model of Leadership.** Adapted from Cilente (2009).
addressed to better inform rehabilitation, independent living, and health agency policies and practices.

**Inadequate Pool of Research Leaders from Underrepresented Populations**

The role and importance of racial and ethnic context serve as a focal point for inquiries examining its influence on scholarly productivity and research and development (hereafter referred to as R&D) grant procurement across the federal disability research enterprise landscape (Moore et al., 2012a; Shaver, Schachner, & Mikulincer, 2005; Yang et al., 2013). Several findings have generated widespread debate regarding the unfairness of the federal research agencies’ (e.g., NIDRR, National Institutes of Health [NIH]) grantee selection systems (Yang et al., 2011; 2013). As an initial step in addressing such inequalities, investigators have examined and identified select impediments (e.g., race) to federal research grant procurement.

Recent empirically derived commentary reflects a consensus in the field on the disparate R&D participation rates for investigators from racial and ethnic groups, while the identification of explanatory variables appears to be mixed. For example, Ginther et al. (2011) examined the association between a U.S. NIH RO1 applicant’s self-identified race and ethnicity and the probability of receiving an award. They found that African Americans were 10 percentage points less than Whites to be awarded NIH funding after controlling for educational background, country of origin, training, previous research awards, publication record, and employer characteristics. The authors recommended that NIH consider implementing a “leverage points for policy intervention” in an effort to address bias in the review process (Moore, Aref, Manyibe, and Davis, 2015).

Yang et al. (2013) conducted a response inquiry two years later, and expressed their uneasiness about the heterogeneity of interpretations growing out of racial and ethnic bias and peer-review association studies. The researchers argued that current research productivity indices (e.g., h-factor index: number of publications and citations) fail to take into account co-author contributions, and thus co-authors do not receive output credit share. As such, they developed a new model by expanding the operational definition of the research productivity explanatory variable used in the Ginther et al. (2011) studies to include co-author credit. Their findings suggest that when co-authorship credit is taken into account, the NIH process is not biased against African American faculty scholars. These findings contradict those of Ginther et al’s findings and contribute to the continued scholarly discourse on the topic.

**Critical Mass theory**

‘Critical mass’ theory was developed by sociologists Marwell and Oliver (1993) to understand ‘critical mass’ dynamics (Centola, 2013). It can be defined as “the level of activity above which a behavior becomes self-sustaining” (Centola, 2013, p. 239). For the purpose of this article we define ‘critical mass’ as the number of disability, health, and rehabilitation research leaders of color needed to sustain high quality research productivity and thus significantly improve related access and outcome rates among PWDs from traditionally underserved racial and ethnic populations and communities. From a minority community perspective, the ‘critical mass’ theory posits that a minority group will influence change and group interactions when it reaches ‘critical mass’ (Santiago & Andrade, 2010; Torchia, Calabro & Huse, 2011). Torchia and colleagues argue that when the size of a subgroup reaches ‘critical mass’, the subgroup’s degree of influence on group interests and related phenomena increase (e.g., rehabilitation and health outcome disparities). According to Centola, mechanisms governing individual incentives determine any given collective behavior, regardless of whether the system is strongly or weakly self-reinforcing. In other words, strong incentives are very important in increasing participation.

The concept of critical mass has been increasingly used to explain how marginalized groups in society can make a difference in specific professional and cultural contexts (Carrigan, Quinn, & Riskin, 2011; Childs & Krook, 2008; Santiago & Andrade, 2010; Torchia et al., 2011). In the Supreme Court case of Grutter V. Bolinger, the majority opinion found that enrolling a ‘critical mass’ of students of color was in line with the University of Michigan’s law school’s legal position that diversity was essential to its educational mission (Santiago & Andrade, 2010). Political scientists and activists have also used the concept of ‘critical mass’ to argue that the numbers of women must dramatically increase (i.e., reach the ‘critical mass’ threshold) in legislative bodies for them to be able to influence the formulation and implementation of women-friendly policies (Childs & Krook, 2008). Scholars have also used the theory to investigate and demonstrate that an increased number of women directors on corporate boards contributes to firm innovation (Torchia et al., 2011). Other researchers (i.e., Carrigan et al., 2011) have used the theory to examine whether a gendered division of labor exists among science, technology, engineering, and mathematics (STEM) faculty. Their findings demonstrated that attaining ‘critical mass’ was positively associated with resource distribution and time allocation. Consequently, Carrigan and colleagues concluded that ‘critical mass’ theory could be used as a tool to bring about cultural transformation in academic institutions. Some of the reasons describing the need to develop a critical mass of disability, health, and rehabilitation research leaders are discussed below.

**Need for Research Leaders from Underrepresented Populations**

On July 21-22, 2011, as a part of its strategic planning efforts, the flag-ship agency for the federal disability agenda (i.e., NIDRR) held its first “Research Capacity-Building Summit: Critical Conversations on Repositioning NIDRR’s Investment for the Future.” During this watershed event, external experts and NIDRR grantees were convened to gather critical information to help the agency develop effective strategies and initiatives for improving its research capacity building activities. Expanding the numbers of research leaders of color available to successfully compete for and participate in feder-
ally sponsored disability, health, independent living, and rehabilitation research was mentioned as a challenge to increasing their research capacity and productivity in the NIDRR RCB Summit 2011 Report (NIDRR, 2011). There are several factors that support increasing the number of these investigators:

1. Public health statistics show that individuals from racially and ethnically diverse groups possess disproportionately higher disability prevalence rates (Erickson et al., 2012), and their rehabilitation experiences can be improved through environmental modification context.

2. Other statistics show that PWDs from underserved populations continued to have differential rehabilitation experiences (e.g., access and outcome rates) when compared to Whites with disabilities (Balcazar et al., 2012; Moore et al., 2011).

3. Data document that investigators from underrepresented groups are more likely than their White counterparts to focus on health and rehabilitation issues that have a disproportionate impact on traditionally underserved racial and ethnic populations and their communities (Chow, Foster, Gonzalez, & McIver, 2012; HSS, 2011; Shimasaki, 2013).

4. Investigators from underrepresented populations, including those based at minority entities, bring unique cultural nuanced perspectives and experiences that enhance the potential for understanding the factors that underlie racial/ethnic variation in disability, health, and rehabilitation experiences (Moore et al., 2012a; Shavers et al., 2005).

**Research Leadership Career Success Factors**

There are several possible factors that lead to the career development and success of disability, health, and rehabilitation research leaders (Rubio et al., 2011; Zacher, Rosing, Hening, & Frese, 2011). For the purpose of this review, these factors are classified under opportunities or research infrastructure, either contributing to individual skill development (i.e., research methods and grant writing abilities) or providing the support and resources that promote individual or multidisciplinary teams’ R&D agenda development, respectively. To illustrate the concepts of these select factors, and their application to research leadership career development, we have provided the conceptual model in Figure 2. The depictions that follow are simple models that do not precisely represent the intricacies and complexities of reality, but serve to illustrate the relationships.

**Opportunities**

For the review’s purpose, opportunities are defined as factors aimed at building individual investigators’ research skills (i.e., research methods and grant writing abilities) and research self-efficacy. The literature indicates that prevalent opportunities for building such skills exist in the form of research mentorship, post-doctoral training fellowships, research grant writing workshops (Cariaga-L, Dawkins, Enger, Schotter, & Spence, 2010; Moore & Ward, 2010; Villalba & Young, 2012), research methods and statistics courses, and community engagement and service (August & Waltman, 2004; Bennett et al., 2011; Herbers & Desai, 2012; Nivet, 2010; Sutherland, Wilson, & Williams, 2013). The section that follows will discuss each of these factors and their role in developing research leaders.

**Mentorship.** Mentoring has been defined as a fundamental form of human development where one person invests time, energy, and personal know-how assisting the growth and ability of another person (Borders et al., 2011; Knouse, 2013). Mentoring often involves protection, support, networking, career socialization, inspiration and belief in each other, and promoting excellence and passion for work (Thomas, Willis, & Davis, 2007). Successful leaders oftentimes report benefiting from mentors who have supported, nurtured, and promoted their career goals and aspirations. Senior researchers, as mentors, provide support, feedback, information and advice to junior level investigators on professional and personal matters (Knouse, 2013). Functional mentoring is strongly correlated with success in academia and in the fields of disability and rehabilitation (Oakleaf, 2010). These interactions should focus on skill development, self-efficacy building, and career enhancement (Schulze, 2010). Career advancement for junior level investigators through ‘soft skill
Building’ is another important facet of research mentorship. Personal or soft skill abilities are important factors for building one’s career. In this regard, mentors should provide their protegés with information, advice, protection, sponsorship, feedback, and role modeling concerning the mentees’ careers—what behaviors to display or avoid, what job experiences to pursue, what job experiences to avoid.

Seasoned investigators in the field of disability, health, independent living, and rehabilitation with cross-cultural competence should not only focus on enhancing research skills, but also provide their unique personal knowledge, culture and regional experiences and perspectives. This close and trusting relationship increases self-efficacy among protegés (Pittenger & Heimann, 2000). Feldman and Rupert (2010) conducted a study of junior level faculty scholar mentees at the University of California-San Francisco that examined the association between mentoring and self-efficacy. Their findings revealed that junior level faculty scholars who had a mentor possessed higher levels of academic self-efficacy. Studies have also shown that senior level faculty scholars working directly with junior level faculty scholars on projects significantly increases the academic productivity for both parties (Borders et al., 2011; Evans & Forbes, 2012; Griffin, 2012). Mentorship has been linked to enhanced research productivity (Cohen et al., 2012; McGill & Settle, 2012) and promoting success among investigators from these populations (Kameny et al., 2014).

Post-doctoral training fellowships. Post-doctoral fellows represent temporary academic or research position appointments, usually one to three years, involving full-time research or scholarship. Research fellowships are designed to allow senior research leaders/principal investigators (PIs) to mentor and train fellows in the art of conducting R&D and developing research proposals. The ultimate goal is to support junior level investigators to become independent researchers, leaders and grant-writers (Mendoza & Smart, 2013). During post-doctoral training, fellows sharpen their research focus, engage in collaborative teaching and research, benefit from mentoring and leadership experience, and incrementally take the lead in R&D projects. An aim of this exposure and experience is for them to gain empowering knowledge and skills that enable them to recognize their potential as leaders, which ultimately increases the pool of research leaders. Remarkably, “The NIH and the Agency for Healthcare Research and Quality (AHRQ) funding for fellowships and grants dominate the landscape of health and medical RCB in the U.S.” (NIDDR, 2011, p. 7).

One such post-doctoral training program is NIDRR’s Advanced Rehabilitation Research and Training (ARRT) program. This fellowship program provides research training and experience at an advanced level to individuals with doctorates, or similar advanced degrees, who have clinical or other relevant experience (Moore et al., 2012a). The ARRT program focuses on training select post-doctoral participants with clinical, management, or basic research experience to prepare them for careers in disability and rehabilitation. Fellows are provided with research skills and knowledge that is assumed to be beneficial not only to them, but to the wider research community (Moore et al., 2012a).

Junior level investigators from underrepresented groups can sometimes feel isolated from opportunities to work with seasoned investigators, making post-doctoral training one of the best opportunities to interact with senior researchers, ask for professional advice, and improve their research and leadership skills. Historically, such opportunities have not been provided to them and thus interactions with senior investigators in the development of disability, health, and rehabilitation research have been encouraged. Still, the issue of which post-doctoral training model(s) is more effective for building their research skills and self-efficacy prevails. The single model employed to provide mentorship opportunities to investigators in general (i.e., ARRT model) may not altogether be appropriate for investigators from underrepresented populations. In light of the importance of cultural context, there may be a need for a more holistic and supportive research team model of mentorship to facilitate their research skill and self-efficacy growth in relation to the conduct of high-quality rehabilitation research.

Upon completion of fellowship opportunities such as the ARRT program, trainees most often seek academic or research positions within research institutions rather than at minority entities (e.g., historically Black colleges or universities, Hispanic serving institutions, and American Indian Tribal Colleges and Universities). In short, such traditional post-doctoral training programs do not represent an effective pipeline to increasing the supply of investigators of color as few trainees will elect to accept employment at minority entities, which are generally teaching or research oriented. Given this inherent significant limitation, post-doctoral training experiences that involve faculty already employed at minority entities is perhaps a more viable approach for increasing their numbers in the pipeline. Therefore, the ARRT model, although commonly applied across many traditionally White institutions (TWIs), may not translate to remarkable outcomes in terms of increasing the numbers of qualified investigators of color.

Research grant writing workshops/seminars. Faculty scholar academic rank and tenure status are oftentimes influenced by grantsmanship success (Carson, Bartneck, & Voges, 2013; Lucas & Murry, 2011). Grant writing workshops serve as a training avenue for researchers to discuss grant projects, share information and experiences, and interact with fellow grant writers about competitive ideas. Participants are provided the opportunity to increase their awareness of their abilities, or the lack thereof, and to interact with others and learn practical skills in technical and professional areas (Ellingson, Reiers, Molloy, & Sutton, 2005; Henderson, Dancy, & Niewiadomska-Bugaj, 2012). These activities provide researchers with a prospect to collaborate with other professional researchers to address complex problems which can improve their probability of successful research grant procurement. Research shows that participating in grant writing workshops is positively correlated to obtaining funded grants.
and experiencing career success (Gitlin & Lyons, 2013). In
addition, attending workshops can help junior level inves-
tigators with the process of learning how to organize grant
and manuscript writing, and build networks as an important
leadership feature (McGill & Settle, 2012).

According to Villalba and Young (2012), “it is clear that
learning the process of producing quality grant applications
requires a considerable investment of time; however, the pay-
off for such effort is higher quality R&D and thus increased
relevance and credibility for researchers” (p.13). To this end,
grant writing workshops should focus on training participants
in areas such as (a) identifying the funding agency and re-
sources, (b) getting to know the mission and goals of the fund-
ing agency, (c) making a case for the need of the project, (d)
understanding and following directions for writing the grant
(Blanco & Lee, 2012), (e) working with personnel in office of
sponsored programs, (f) building a research team, (g) seeking
and receiving extensive feedback, and (h) serving on grant
review panels (Villalba & Young, 2012). Based on the im-
portance of these skills as reflected in the literature, it is safe to
hypothesize that research grant writing is a contributor to the
success of disability, health, and rehabilitation research lead-
ers.

Research methods and statistics courses. One attribute
that can distinguish the average ‘run of the mill’ researcher
from the research leader is an advanced understanding and
value for research design and statistical methods. An investi-
gator’s ability to employ varying quantitative and qualitative
research designs, and analyze resulting data has proven valu-
able in disability, public health, and rehabilitation research.
The past forty years have seen growth in the development of
evidence-based medicine using advanced statistical method-
ology (Cadarso-Suárez & González-Manteiga, 2007). Sta-
tistical methods and analyses are often used to communicate
research findings, support hypotheses, and give credibility
to research methodology and conclusions in the field of dis-
ability, health and rehabilitation (Lexell & Downham, 2005;
Lubetzky Vilnai, Ciol, & McCoy, 2014; Polgar & Thomas,
2013).

Statistics theory bridges the gap between research meth-
ods and evidence-based health and rehabilitation practice
(Polgar & Thomas, 2013). Doctoral students in disability,
health, and rehabilitation disciplines are oftentimes required to
enroll in and successfully matriculate thorough basic research
methods and statistics courses to meet program completion
requirements. However, much more advanced training in
methods and data reduction techniques may be required in or-
der for investigators to become proficient in understanding
the theory and application. Applied advanced statistical and re-
search methodologies help disability, health, independent liv-
ing, and rehabilitation researchers to make strong data-based
decisions in data-analytic projects and gain confidence to do
research in this field (Garfield & Ben Zvi, 2004). These skills
are considered to be a requisite to becoming a research leader.

Professional community engagement and service. Profes-
sional community engagement such as serving as editor
of professional refereed journals, editorial board consultants,
elected officials/leaders of professional organization/associa-
tion, and professional conference participation is essential to
developing career success as a research leader. Research lead-
ers are well represented on the editorial boards or reviewers of
journals, and extremely active in their respective professional
organizations and research conferences (Minkler & Walle-
stein, 2010). Professional community-involved research is not
a methodology but rather an approach that represents a partic-
ipatory and cooperative process (Westfall, VanVorst, Main, &
Herbert, 2006; Wright, Wright, Diener, & Eaton, 2014). This
Collaborative process between researchers and professional
communities helps to ensure that community members invest
themselves in research and are able to consume related find-
ings and recommendations, while simultaneously addressing
mutual social concerns and developing policy (Hacker, 2013;
Strand, Cutforth, Stoecker, Marullo, & Donohue, 2003). As a
result of this level of engagement, professional community-
members are empowered with the realization of their own
capabilities to be researchers and to induce desired changes
within their communities (Morisky, Ang, Coly, & Tiglao,
2004).

Conference presentation attendance provides investiga-
tors with an opportunity to network and form relationships,
facilitate the expedient and regular publication of their papers,
and to present and discuss research with senior investigators
(Foray & Lissoni, 2010). Presentations are important for junior
level investigators’ research leadership development for sev-
eral reasons. First, well-prepared presentations and repeated
exposure to a large audience of fellow researchers can im-
prove their communication and presentation skills (Wood,
2011). Second, cutting-edge information presented to junior
level investigators helps to inform their agendas, and can in-
spire additional R&D concepts (Day, 2012). Third, attending
a conference is an opportunity to meet senior researchers in-
side or outside fields, discuss R&D ideas and establish col-
laborations and partnerships (Louw & Zuber-Skerritt, 2011;
Marin & Wellman, 2011). Conference attendance also pro-
vides these investigators an opportunity to discuss with sea-
soned research leaders from underrepresented populations is-
ues related to overcoming research barriers, balancing work
and family life, etc.

Research Infrastructure

Research infrastructure is defined as “as the physical
and human resources for research within the business, re-
search, and academic environment of the university program”
(Videka, Blackburn, & Moran, 2008, p. 294). Research in-
frastucture plays an increasingly important role in creating
conducive environments that attract the best researchers and
build bridges between research communities and scientific
disciplines (Foray & Lissoni, 2010). They can play a vital
role for contributing to the career development and success of
disability, health, and rehabilitation research leaders (Moore
et al., 2015). Moreover, university research culture relies on
the infrastructure (e.g., buildings that house classrooms, labs,
and libraries, information technology) (Auranen & Nieminen, 2010), which constitutes the foundation for vibrant disability, health, and rehabilitation R&D programs that contribute toward junior level investigators’ development and career success as research leaders (McGill & Settle, 2012; Sutherland et al., 2013). Several select characteristics of research infrastructure are discussed below.

**Administrative culture.** Administrative culture plays a key role in faculty scholar job satisfaction and research productivity (August & Waltman, 2004; Ellingson et al., 2005; Ryan, Healy, & Sullivan, 2012). First, these customs are important for enhancing faculty scholar development that can lead to the career development and success of disability, health, rehabilitation research leaders. They help to foster the development of tools such as newsletters, workshops and seminars, peer discussion groups, mentoring groups, classroom observations, career counseling, research assistance, and sabbaticals (Boyd. 2000). Learning units in the academy oftentimes create professional development programs (Herman, 2013) aimed at addressing faculty scholar needs such as learning to publish research. Due to budgetary concerns, administrators have become increasingly creative in supporting such development activities (Boyd). A second role administrative culture plays is developing research productivity and research culture. Santo, Engstrom, Reetz, Schweinle, and Reed (2009) explored faculty scholar productivity barriers and supports, and reported the following findings: (a) a low but widely varying publication output among the respondents over the 6-year time frame of the study; (b) most respondents did not believe they had adequate time to conduct research; and (c) participants were less internally driven to do research. Based on these results, the following recommendations were presented: (a) encourage new faculty scholars to become active beyond the institution; (b) encourage faculty scholars to set aside uninterrupted time dedicated to research activities on a weekly basis; (c) develop a website containing institutional research-related resources, information on existing R&D programs, links to journals, and examples of research productivity to make faculty scholars aware of existing resources; (d) provide statistical help through research assistants; (e) at meetings praise faculty scholars who have published; and (f) consider providing some reward system for on-going scholarship activities for senior tenured faculty scholars American Library Association.

**Mini-grant research seed money programs.** Institutional sponsored mini-grant programs enable researchers to conduct small scale projects, and in some cases secure additional external funding to extend their current R&D agendas (Hicks, 2012). These campus-based policy initiatives promote research, outreach, and other creative activities and are designed to improve junior level researchers’ competitiveness for grant funding and research skills, and ultimate ability to develop publications and patents. In many institutions of higher education, these programs help early career faculty scholars establish R&D agendas and successfully transition into new scholarly areas. This support catalyzes career growth in terms of research productivity and quality and quantity of scholarly activity, and contributes to a culture of creativity, innovation, and entrepreneurship that positively impacts individuals and communities.

**Research dissemination/presentation travel funds.** Research travel funds provide an avenue to conduct R&D and attend professional workshops and conferences. The need for institutions to provide travel funding is imperative for enhancing faculty scholars’ professional development (Camblin & Steger, 2000; Cariaga-L et al., 2010). This funding is beneficial to junior level investigators for two reasons. First, the use of research travel funds can be effective for forming collegial relationships and networking opportunities (Santo et al., 2009). Second, travel funds can be used to develop professional networks that are beneficial for establishing a research agenda with other colleagues who share similar R&D interests. Santo et al. (2009) noted the importance of such internal funding as a means to increase faculty scholar productivity. Similarly, Videka et al. (2008) promoted the allocation of travel funds to support faculty research productivity. Without travel support, many faculty scholars are unable to present their research and learn about cutting-edge and emerging issues impacting the field. This lack of exposure as a leader and research consumer presents significant barriers to research leadership skill building opportunities (Mendoza & Smart, 2013). Visibility and branding are key components in promoting an R&D agenda. If junior level researchers seeking to establish themselves as leaders are not visible as contributors to the knowledge-base (e.g., presenting research, serving on professional boards at conferences, attending think-tank meetings) then they may not be seen as a leader among their peers (Stoddart, Bugge, Shepherd, & Farquharson, 2014).

**Methodological and statistical analysis consultation.** Statistical analysis and research methodology consultation is an important resource for junior level investigators’ development as future eminent scientists in the field of disability, health, and rehabilitation, and serves as an essential research infrastructure item for influencing research productivity. The significant role that this resource plays in generating reliable and credible data and findings is reflected at both the macro and micro levels of R&D. From a macro-R&D perspective, federal agencies such as NIDDR encourages its sponsored investigators within their model systems programs (e.g., Spinal Cord Injury (SCI), traumatic brain injury (TBI), and Burn National Data and Statistical Centers) to analyze high-quality longitudinal data using such statistical tools and resources (Miller, 2012). Moreover, NIDRR funds disability statistics centers under its Rehabilitation Research and Training Center (RRTC) program to provide junior level investigators, policy makers, advocates, and PWDs access to disability statistics through reports that track key indicators and an annual compendium that allow investigators and others to access additional statistics.

From a micro-R&D viewpoint, junior level investigators call upon individuals with training and expertise in statistics (i.e., statisticians) and methodology (e.g., methodologists) to advise them on R&D scientific procedures, to include the
development of proposal sections that address the research methodology criterion (i.e., research questions, sampling procedures, data collection procedures, data analysis techniques). This resource is critical to producing credible applied research and findings, based on scientific rigor, that can be effectively translated into practice for improving health and rehabilitation outcomes among PWDs. A major criticism of disability and rehabilitation research is the lack of statistical power and non-rigorous research paradigms. As such, statistical analysis and methodology consultation resources are crucial to producing high-quality disability, health, and rehabilitation R&D (Hand & Everitt, 2007). The modeling of scientific rigor in practice to junior level investigators through their collaboration with statisticians and methodologists and generated deliverables can help to develop a personal standard for excellence to be embraced throughout their careers.

**Technological support.** Technology supported R&D activities can contribute to faculty scholars’ career advancement and success within the professoriate (Dubrin, 2012). Such technology is advantageous to investigators conducting R&D for two reasons. First, technology serves as an effective platform to modernize teaching and research methodologies; enable new possibilities in research, scholarly endeavors and creative activity; and increase opportunities for R&D funding (Altbach & Salmi, 2011). Contemporary technology uses within the R&D context include, but are not limited to, word processors for developing R&D reports; electronic library databases for conducting comprehensive literature reviews; ENDNOTE computer software installation for building research bibliographies; the internet for examining supplemental R&D resources; emails, Skype, and e-portfolio for collaborating with multi-disciplinary research team members and research fellows; on-line surveys for collecting data; and statistical software (e.g., Statistical Analysis System [SAS], Statistical Package for the Social Sciences [SPSS]) and qualitative data analysis software (e.g., NVivo). Realizing this power, federal agencies such as NIDRR have encouraged researchers in sponsored RRTC, Disability and Rehabilitation Research Project (DRRP) and Rehabilitation Engineering Research Center (RERC) programs to apply advanced technology in their R&D activities aimed at promoting the full inclusion and integration of PWDs into society and to solve rehabilitation problems (Rivard, 2012).

Second, technological infrastructure promotes institutional visibility (e.g., websites, Facebook, and social media platforms) and facilitates the communication of R&D and related service impacts to key stakeholders. This increased visibility can increase institutional prestige, thus positioning investigators to attract funding necessary to the next generation of research leaders who can address common social problems and serve the communities (Sanberg et al., 2014). Given its importance within the R&D context, junior level investigators from underrepresented racial and ethnic backgrounds should be provided with opportunities to continuously update technological skill sets and further develop their competence and performance in disability, health, and rehabilitation research. The ability to apply new cutting-edge technological support-ed methodology and solutions to R&D efforts can improve investigator productivity, and thus advance their careers. Informational technology technical assistance and consultation should be readily available and highly responsive to the R&D needs of investigators developing their agendas (Stewart, Link, Wernert, Barnett, & Miller, 2012).

**R&D laboratory/office space.** R&D laboratory space provides an environment for investigators to effectively conduct R&D. Office space and work environment impact investigators’ productivity (McGill & Settle, 2012; Ryan et al., 2012) and level of job satisfaction, an important contributor to career success and research programs’ wax and wane (Herbers & Desai, 2012). Orgambidez-Ramos and Borrego-Alésb (2014) explored structural empowerment as an antecedent of job satisfaction in university settings. They reported that supervision supported access to resources is important for productivity and career advancement. R&D cannot occur unless it is supported by a variety of environmental resources (Min trom, 2008) such as personnel, formal and informal rules of conduct, physical resources, such as office space, laboratories, financial resources, and administrative competence.

**Sabbatical leave programs.** The importance of sabbatical leave as a factor linked to investigator research career success is well documented (Mamiseishvili & Miller, 2010; Sima, 2000). This commitment provides faculty scholars with time release from traditional academic duties to focus on activities such as research, service, and practice, and helps to renew the energies necessary to be an effective teacher and/or researcher (Mamiseishvili & Miller, 2010; Zahorski, 1994). Additionally, these programs increase research productivity and job satisfaction while decreasing burn out and stress (Davidson et al., 2010; Sventy et al., 2011). Faculty scholars can leverage their release time to initiate new research, catch up with R&D agendas, produce publications and novel discoveries, build new networks and collaborate with entrepreneurs or other universities (Davidson et al., 2010).

The literature discusses select factors relating to faculty scholar participation in sabbatical leave programs (Mamiseishvili & Miller, 2010). For instance, Mamiseishvili and Miller (2010) explored contributors to sabbatical leave program participation and reported that (a) tenure, full professorship, and years since rank achieved were significantly and positively associated with sabbatical leave program participation, and (b) tenure, funded research, and higher publication record were significantly and positively associated with participation in sabbatical leave programs. These findings suggest that sabbaticals are considered to be a reward for service, performance, participation, or scholarly achievement (Mamiseishvili & Miller, 2010).

**Library resources.** The primary purpose of libraries is to support teaching, learning and research in ways consistent with and supportive of the institution’s mission and goals (Bello, 2011). Library infrastructure plays a critical role in providing junior level investigators needed R&D resources. The library continues to be central in the distribution of both
print and online resources (Maron & Smith, 2009). The competence, availability, and usage of library resources may be a factor in the career development and success of disability, health, and research leaders. Such resources and services support the researchers in terms of quality, depth, and diversity of creative concepts, while simultaneously supporting the institution’s curriculum and research (Okafor, 2011). As a result, university libraries are often considered the most important resource center of an academic institution (Oyewusi & Oyebode, 2009). Studies show that the contribution of library resources to citations in manuscripts submitted for peer review publication consideration (Kaufman, 2008; Oakleaf, 2010) and the preparation of R&D grant proposals, both funded and unfunded, are important (Oakleaf, 2010). Jankowska (2004) examined the most popular information needs of professors. The researcher reported that e-mail and document delivery, electronic journals, books, text, forms, and online library services offered by the library were among the most important items needed by faculty scholars. Maughan (1999) identified the following use of library resources and services: (a) 99% of the faculty scholars reported using the library for their own research; and b) 65% of them noted the use of the library for preparing grant proposals. Remarkably, 60% reported insufficient experience to evaluate the library instructional services.

**Recommendations for Advancing the State-of-the-Science**

The purpose of this review was to synthesize the available peer review and grey literature (e.g., monographs, government technical reports, white papers), and policy on opportunities and research infrastructure systems that could contribute to disability, health, independent living, and rehabilitation research leaders’ of color, career development and success. This analysis provides a contextual understanding of the role that research and leadership skill building opportunities, research infrastructures, and federal research entity policies and initiatives may play in helping junior level investigators to develop stellar research careers. NIDRR, NIH and other agencies across the federal entity landscape (e.g., AHRQ, and Office of Disability, Aging, and Long-term Care Policy), as well as minority entities, are well positioned to facilitate change. In an effort to promote this change, a set of recommended approaches that can be considered for advancing the current state-of-the-science on improving the research and leadership skills and career development outcomes for investigators from these populations are presented. Based on this analysis, key observations indicated the following: (a) there is a current shortage of research leaders of color in the field of disability, health, independent living, and rehabilitation available to develop and address the large questions that policy makers, practitioners, advocates, and PWDs need answered; (b) opportunities such as formal mentorship programs, post-doctoral training fellowships, and research grant writing seminars are linked to career success among investigators; and (c) research infrastructure systems such as minority entity administrative culture, availability of research travel funds, statistical and methodological consultation availability, and adequate library resources and databases are crucial for career development.

In terms of research capacity building opportunities for developing career success, research mentorship programs and grant writing seminars can be sponsored through minority entity and/or federal agency funding, while formal post-doctoral training programs are generally federal agency supported. These activities are crucial for training junior level investigators to write and procure R&D grants and contracts, and develop research publications. However, the field of disability, health, and rehabilitation continues to experience a shortage of leaders from underrepresented backgrounds and communities available to support junior level investigators either through formal mentorship or post-doctoral training programs. This insufficiency might be resolved through the development of additional mentorship and post-doctoral fellowships available to investigators of color, to include those at minority entities. These observations may warrant the need for future researchers to examine which federal agency research capacity building policy and systems strategies and initiatives (e.g., mentorship models, post-doctoral training approaches, and grant writing training models) are more effective for increasing the number and quality of disability, health, and rehabilitation research leaders from these groups available to conduct the R&D and mentor the next generation of leaders.

The emerging key research infrastructure systems factors are no less important to junior level investigators’ career development. Minority entity administrative culture has historically placed little value on R&D while greater emphasis has been generally devoted to teaching and/or service. The emphasis placed on research varies greatly by institution. Thus research 1 universities require a great deal of research while research 2 universities do not. A more balanced approach, albeit appropriate to the institution’s mission and function, can perhaps be struck and may be needed to support the research career development of junior level investigations. The availability of institutional research travel funds is crucial in supporting junior level investigation to attend conferences, present their research and gain knowledge about current R&D in the field. Junior level faculty scholars may also need statistical and methodological consultation for developing this research. Their exposure to scientific rigorous processes provides them an opportunity to see and mimic behaviors and attitudes that lead to the development of excellence in R&D. Last, but not least, there may also be a need for minority entity administrators to increase funding to purchase needed library resources and databases. The availability of library resources has been found to increase research productivity (Association of College and Research Libraries, 2010). Moreover, due to technological advances and related virtual systems, there is also a need to conduct training to show faculty scholars how to find electronic journals and articles in the library system. This skill may be critical in developing the future cadre of research leaders. These observations warrant future explorations as to the correlation or “cause and effect” of research infrastructure systems issues on junior level investigators of color research career development.
In response to research infrastructure systems issues at minority entities, future investigators can perhaps learn lessons from the Petri dish paradigm (i.e., facilitator for cell growth) as conducted by microbiological scientists who routinely introduce food and media to a specimen in this natural or synthetic environment to grow bacteria cultures. Thus, the Petri dish model facilitates bacterial growth only after the introduction of the media to the specimen followed by a period of incubation (Casadevall, 2010). Growing the number of minority entity-based investigators of color can be viewed in the same light; the interventions/media (i.e., research infrastructure resources, technical assistance and consultation, formal mentorship programs) are introduced to the specimens (i.e., investigators, sponsored program personnel, administrators, students, staff persons, research assistants) within minority entity “natural environment context” (i.e., Petri dish). The specimen are then incubated over a period of time through qualitative-phenomenological approaches whereby researchers make sense of the research capacity building phenomenon by contrasting, comparing, replicating, cataloging, and classifying observations. Thus, federal agencies should strongly consider funding research capacity building exploratory qualitative and mixed-methods studies in the “natural environmental context”, where the phenomenon can be studied and understood as a complex system that is more important than the sum of its parts. Future scale-up evaluation studies could be employed to identify promising models.

**Conclusion**

This review was undertaken to expand current knowledge about research leadership career development factors among junior level investigators from traditionally underrepresented racial and ethnic groups and communities. The review highlighted the inadequate pool of research leaders and several select factors that might contribute to their career success. The synthesis provides a compelling argument for future exploratory studies aimed at identifying the association between these factors and research career success among respective target populations. As such, emerging future research questions that are worthy of scientific inquiry include: (a) What select research and leadership skill building factors contribute to the career success of research leaders from traditionally underrepresented racial and ethnic population? and (b) What research infrastructures and systems facilitate research and leadership skill building among research leaders from these populations? There exists a need to explore the impacts of such factors on the career success to current disability, health, and rehabilitation research leaders in an effort to increase the overall understanding. Subsequent findings could help provide federal agencies with a road map for future scale-up exploration evaluations and the development of national priorities focused on developing the existing R&D talent and leaderships skills of the next generation of research leaders (Dubrin, 2012). Research leadership can aid in addressing disability, health, and rehabilitation concerns and problems (Porter & Kramer, 2011).

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Predicting Vocational Rehabilitation Services That Contribute to Successful Outcomes for Individuals with Diabetes Mellitus

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Diabetes mellitus (diabetes) is a health condition that is becoming more prevalent with each passing year. Since diabetes can have a substantial impact on the health and well-being of those with the condition, it is important for the state-federal vocational rehabilitation system to understand how affected individuals are being vocationally rehabilitated. This exploratory study utilized RSA-911 data from fiscal year 2011 to predict which vocational rehabilitation (VR) services contributed to successful competitive employment outcomes for those with diabetes. The five VR services that produced the highest odds ratios with respect to successful case closures were as follows: On-The-Job Supports, Job Placement Assistance, College or University Training.

Definitions of Diabetes and Limitations

Diabetes mellitus (diabetes) is categorized into two types, Type I and Type II. Type I diabetes, historically known as insulin dependent diabetes mellitus, is caused by insulin deficiency, resulting from a loss of normal insulin secretion from the pancreas (Scobie & Samaras, 2009). Over 50% of individuals with the type I disease are diagnosed before the age of 15 years (Daneman, 2006). Type I diabetes makes up 90% of childhood/adolescent diabetes cases in western countries (Libman, LaPorte, Libman & Arias, 2011).

On the other hand, type II diabetes is characterized by a mix of metabolic factors, including insulin resistance in both muscle and liver, resulting in hyperglycemia. Type II diabetes is generally considered to be a lifestyle disease (Scobie & Samaras, 2009). The Centers for Disease Control and Prevention (CDC) (2013) indicates that approximately 90-95% of all diagnosed incidents of diabetes are of the type II variety.

One of the challenging aspects of diabetes is that it is frequently undiagnosed due to many of the symptoms appearing to be fairly minor; individuals with type II diabetes often have no symptoms (American Diabetes Association, 2013). At the same time, there are indications that early detection of the disease, and subsequent treatment can lessen the chance of developing diabetes-related complications.
Some of the most common functional limitations for individuals with diabetes are as follows: 1) hypo/hyperglycemia management; 2) fatigue/weakness; 3) decrease of visual acuity; 4) nerve damage; 5) cognitive impairment; 6) stress; 7) sensitivity to temperature extremes; 8) increased hunger/thirst; and 9) frequent urination (Job Accommodation Network, 2014; American Diabetes Association, 2014). Thus, rehabilitation counselors will need to become cognizant of the functional limitations of consumers with diabetes, in order to develop an effective rehabilitation plan for each consumer.

Diabetes is a complex condition, contributing to many health and disabling conditions for millions of Americans. It is estimated that 25.8 million people (8.3 percent of the population) have diabetes in the United States; of these, 18.8 million are diagnosed, and 7 million are undiagnosed (American Diabetes Association, 2013; Scobie and Samaras, 2009). According to the American Diabetes Association (2013) and the Centers for Disease Control and Prevention (2013), almost all of those with diabetes are of working age (25.6 million). These numbers speak directly to the enormity of the problem in the United States; this is a health issue that shows no signs of diminishing. Indeed, it is projected that a staggering 48.3 million people in the United States will have diabetes by the year 2050, accounting for approximately 12% of the total U.S. population (Geiss & Cowie, 2011).

On a worldwide basis, there are approximately 382 million adults with diabetes. It is anticipated that this number will increase to 592 million by 2035, and it is projected that by 2030, at least one in 10 adults in the world could have diabetes (International Diabetes Federation, 2013).

While obesity is a particular risk factor for diabetes and related complications (Ryan, 2009), most diabetes prediction models do not take the increasing frequency of obesity into consideration. Thus, the future incidence of diabetes could very well exceed current estimates (Pavkov, Geiss, Beckles & Williams, 2010).

Moreover, diabetes is the seventh leading cause of mortality in the United States (Heron, 2007; CDC, 2013); this position has remained consistent over the past 10 years. According to 2010 data (CDC, 2013), 69,071 people died in the U.S. as a result of diabetes. While the incidence of diabetes is a far-reaching public health issue in the United States, and the world at large, the study and related information outlined in this article focuses on the case of diabetes within the United States.

Rehabilitation Counseling Issues

Vocational rehabilitation (VR) consumers with diabetes may have a multitude of diabetes-related factors that have an adverse impact on daily life function. This in turn can translate into difficulty in retaining or obtaining employment. The complexity of diabetes, along with the ever-increasing number of individuals with the condition, make it more important than ever to properly address the unique VR needs of those with diabetes.

With so many individuals with diabetes at working age, there are enormous costs to the United States economy. For example, it is a significant drain on the health care economy (Newcomer, 2011). As such this is an issue worthy of concern to the vocational rehabilitation community. Both the American Diabetes Association (ADA) (2013), and the CDC (2013) have highlighted the associated total cost of diabetes to the economy as $174 billion dollars ($116 billion dollars for medical costs, and $58 million dollars for disability, work loss, and premature mortality). If additional costs associated with undiagnosed diabetes, pre-diabetes, and gestational diabetes are included, the total cost of diabetes-related issues is upward of $218 billion.

Employees with diabetes can add a significant burden to employers’ health care costs (Leong, Summers, Birnbaum, Kemner, Lentz, & Greenberg, 2001). There is research indicating that those with diabetes who are employed have a higher rate of absences than those without diabetes (Kivimaki, Vahtera, Pentti, Virtanen, Elovainio, & Hemingway, 2007; Skerjanc, 2001). Those with diabetes may have a reduction in overall productivity, in part, as a result of increased absenteeism as compared to those without diabetes (Tunceli, Williams, Bradley, Pladevall, Nerenz, & Lafata, 2005). Griffiths and Moses stated that workers with diabetes utilize sick leave at a rate of nearly twice that of non-disabled workers (as cited in Rumrill, Millington, Webb & Cook, 1998). Lavigne, Phelps, Mushlin and Lednar (2003) stated, “... diabetes explains reductions in work efficiency…” (p.1129). In addition, Tunceli, Zeng, Habib and Williams (2008) noted that by 2050, more that 1.46 million individuals would be unable to work, and another 780,000 would have diabetes-related work limitations.

The loss of work productivity associated with diabetes shows the extent of the vocational implications of diabetes. The projected data related to the incidence of diabetes also indicates that there will be an ever-increasing need for vocational rehabilitation services for individuals with diabetes for many years to come.

The functional limitations of individuals with diabetes varies greatly depending on the severity of the condition (symptoms) and the type of task being attempted. In addition, the condition has an unpredictable course (Rumrill, Millington, Webb, & Cook, 1998).

At the same time, diabetes does not prevent individuals from engaging in almost all occupations, and they are protected in many counties by legislation protecting against disability discrimination (Frier & Strachan 2010). Thus, it is important for rehabilitation counselors to address employment-related issues with their consumers with diabetes.

Research indicates that diabetes has an adverse impact on employment. For example, Songer (1989) found that those with type I diabetes are 2.5 times more likely to be rejected.
as a job applicant when compared to their siblings that do not have diabetes. Further, research shows that individuals with diabetes lose their jobs at a rate three times greater than that of non-disabled workers (Robinson, 1989). Rumrill (1997) found that even those individuals with diabetes who remained employed, experienced problems associated with maintaining their employment, with reference to worksite accessibility, performance of essential job functions, job mastery, and job satisfaction. There is also evidence that there is a gender disparity with regard to the impact of diabetes on employment; there is a negative impact on employment for males with diabetes, but not for females with diabetes (Brown III, Pagan, & Bastida, 2005; Bastida & Pagan, 2002).

In addition, there is evidence that workers with diabetes believe that they experience discrimination from their employers. Rumrill (1998) reported that 24.2% of respondents experienced some form of employment discrimination related to their diabetes. Heins, Arken, Nord, Houston, and McGill (1994) note that 64% of doctors reported that their patients with diabetes had encountered barriers related to their work environment. Moreover, unemployment rates for those with diabetes are significantly higher than for individuals without diabetes (Von Korff, et al., 2005). It is worth noting that low employment rates for those with diabetes is not due to a lack of desire to work (Ali, Schur, & Blanck, 2011). In addition, Nishita, Uehara and Tom (2011) found that 34% of individuals with diabetes believed that their condition would adversely impact their employment situation. Thus, it is important for rehabilitation professionals to be mindful of the potential diabetes-related stigma faced by individuals with diabetes in the workplace, from both the employer and co-workers. Rehabilitation counselors should also pay attention to issues associated with adherence to anti-diabetic medication, especially among individuals with diabetes who are unemployed. Davis-Ajami, Nahata, Pearson, Seiber, and Balkrishman (2012) found that unemployed individuals with diabetes were significantly less likely to observe their prescribed oral anti-diabetic medication regimen as compared with employed individuals with diabetes.

Need for Research

While the incidence of diabetes continues to skyrocket in the United States, there is a non-stop plethora of articles discussing it in the mainstream media. However, there is a dearth of vocational rehabilitation literature that explores the needs of VR consumers with diabetes. With diabetes on the increase, there likely will be a corresponding increase in individuals with serious diabetes-related health issues that will elevate to the level of eligibility for services through vocational rehabilitation systems. Accordingly, it is important at this time to take an in depth look at how the vocational rehabilitation system is currently working for individuals with diabetes.

Method

Research Question

The purpose of this study was to predict which vocational rehabilitation services were likely to lead to successful competitive employment case closures within the state-federal vocational rehabilitation system. The research question for the study was: What vocational rehabilitation services predict successful competitive employment case closures for individuals with diabetes within the state-federal vocational rehabilitation system?

Data Set

Each VR agency (within the state-federal VR system) utilized a procedure in collecting the necessary information that makes up the RSA-911 data. During the life of a VR case, VR staff completed the information that makes up the RSA-911 data set, typically at case opening and case closure stages (Sabo & Klein, 2006). The RSA-911 follows federal guidelines established by the Rehabilitation Services Administration (Rehabilitation Services Administration, 2010) and are used in each state.

Data Analysis

Logistic regression was the data analysis procedure utilized in this study, in order to regress successful employment on the services rendered. This was carried out using the subset of all consumers with diabetes, as their primary disability within the dataset. The study utilized 22 dichotomous indicator variables to represent which services were rendered for each consumer. Thus, the relative contributions of different causes to a single event or outcome (employment) were investigated simultaneously. Multivariate (MV) analyses come with their own rules and assumptions: MV analysis requires that some assumptions be tested first. If data does not meet with these assumptions, the analysis results will not be correct and strong. Tests for checking the multivariate normality include Cox & Snell. In addition, frequencies were generated for all variables involved in the analysis.

Logistic regression is a multivariate technique that allows one to evaluate each variable’s impact on a successful employment outcome, while holding the other variables in the model constant. By evaluating the significance of each independent variable in the model, one is able to evaluate whether a particular variable has a significant impact on the dependent variable, when the other variables in the model are controlled. Logistic regression also allows for the calculation of the odds ratio. An odds ratio value for an independent variable (service) that is greater than 1 indicates that the odds of getting a job are higher than the odds of those that did not receive this service.

Demographic Information

Sample

The population of interest in this study included all consumers of the United States state-federal public VR system, whose VR cases were closed (status 26) in competitive employment during FFY 2011. Subjects were obtained through examination of the 2011 consumer data through the RSA-911 reporting system. The population consisted of 589, 773 consumers who sought services from state-federal agencies during FFY 2011. Data from all state agencies and the District
of Columbia were utilized for this study. The total number of individuals from the population with a primary disability identified as diabetes was 8,643. The sample used for the study was limited to individuals with major disability codes that indicated diabetes as their primary disability (XX16). During multivariate analysis, the data set was also filtered to include those closed successfully (status 26). The number of VR consumers who were identified as having a primary disability of diabetes, and who were successfully rehabilitated (status 26) for FFY 2011 was 2,621. It is important to note that all successfully rehabilitated (status 26) closed consumers with diabetes were included in this sample, regardless of the severity of their diabetes.

**Total Diabetes:**

The total sample consisted of 5,646 (65.3%) white individuals; 2,683 (31.0%) African Americans; 1,019 (11.8%) Hispanic or Latino Americans; 97 (1.1%) Asian Americans; 276 (3.2%) Native Americans or Alaskan Natives; 60 (0.7%) Hawaiians or Pacific Islanders; and 26 (0.4%) cases with missing data. (The total numbers of individuals by race/ethnicity were higher than N, and percentages equaled greater than 100%, since consumers could report as multi-racial/ethnic in the RSA-911 data collection system.)

With regard to gender, there were 4,807 males (55.6% of the total cases closed) with diabetes as the individual’s primary disability during FFY 2011 and 3,836 females (44.4% of the total cases coded) with diabetes as their primary disability. There was one case reported as missing.

**Successful Diabetes:**

The sample consisted of 1,746 (66.6%) white individuals, 789 (30.1%) African Americans; 293 (11.1%) Hispanic or Latino Americans; 26 (0.9%) Asian Americans; 86 (3.2%) Native Americans or Alaskan Natives; 9 (0.3%) Hawaiians or Pacific Islanders; and 26 (1.1%) cases with missing data. (As described earlier, the total numbers of race/ethnicity were higher than N, and percentages equaled greater than 100%, since consumers could report as multi-racial/ethnic in the RSA-911 data collection system.)

With reference to gender, there were 1,394 males (53.2% of the total cases closed [status 26]) during FFY 2011, and 1,227 females (46.8% of the total individuals with diabetes who had cases closed [status 26] during FFY 2011). There was one case reported as missing.

**Variables**

The dependent variable was a successful employment outcome (status 26), with success defined as working in competitive employment at the time the case was closed. Those cases closed (status 26) as homemakers, sheltered workshop workers, or as unpaid family workers were not considered to have had a successful competitive employment outcome. The 22 independent variables that were used in the analysis were selected as they were the available VR services that could be provided to VR consumers within the state-federal VR system. The variables consisted of the following:


**Procedure**

The authors used archival data (RSA-911) amassed by the Rehabilitation Services Commission during FFY 2011. (The VR field office staff collected and entered RSA-911 data that was gathered in a central computer system. This information was then reported by each state to the Rehabilitation Services Administration to make up the totality of the RSA-911 dataset.) The Statistical Package for the Social Sciences (SPSS) calculated the descriptive and inferential statistics used for this investigation.

**Results**

Table 1 shows the inferential statistics for consumers with diabetes whose cases were closed during FFY 2011. It includes available data on all of the variables under investigation. The significant statistics in Table 1 illustrate that the odds ratios, Exp(B) column, does not reflect a relationship due to chance. Additionally, significant p-values in the table indicate those services for which a significant effect was provided. If the corresponding Exp(B)>1, this indicated that the service improved the likelihood of employment. On the other hand, if Exp(B)<1, it indicated that the service had a negative effect on employment.

The results demonstrate that of the 22 offered rehabilitation services (independent variables), 11 services were found to be significant predictors of whether a person would obtain a successful employment outcome. The results relating to these 11 rehabilitation services (independent variables) are described as follows: 1) for those who received Assessment, the odds of getting a job were higher by a factor of 1.157 as compared with the odds for those who did not receive this service; 2) for those who received Diagnosis and Treatment of Impairment, the odds of getting a job were higher by a factor of 2.086 as compared to the odds for those who did not receive this service; 3) for those who received VR Counseling and Guidance, the odds of getting a job were higher by a factor of 1.943 as compared to the odds for those who did not receive this service; 4) for those who received College or University Training, the odds of getting a job were higher by a factor of 3.504 as compared to the odds for those who did not receive this service; 5) for those who received Occupational/ Vocational Training, the odds of getting a job were higher by a factor of 1.545 as compared to the odds for those who did not receive this service; 6) for those who received
On-The-Job Training, the odds of getting a job were higher by a factor of 1.715 as compared to the odds for those who did not receive this service; 7) for those who receive Job Placement Assistance, the odds of getting a job were higher by a factor of 2.921 as compared to the odds for those who did not receive this service; 8) for those who received On-The-Job Supports, the odds of getting a job were higher by a factor of 8.137 as compared to the odds for those who did not receive this service; 9) for those who received Maintenance, the odds of getting a job were higher by a factor of 1.697 as compared to the odds for those who did not receive this service; 10) for those who received Rehabilitation Technology, the odds of getting a job were higher by a factor of 1.757 as compared to the odds for those who did not receive this service; 11) for those who received Job Placement Assistance, the odds of getting a job were higher by a factor of 1.807 as compared to the odds for those who did not receive this service.

The results indicate that the VR services offered within the VR state-federal system into the logistic regression model.

In this study, several VR services were identified as predicting increased odds of securing competitive employment among individuals with diabetes. The VR service that increased the odds of securing competitive employment the most was On the Job Supports (8.137).

In this multiple logistic regression study, 11 VR services were identified as predicting increased odds of successfully securing competitive employment among consumers with diabetes during FY 2011. By having the highest odds ratios, the following five VR services are shown to be the most successful in predicting competitive employment among consumers with diabetes in closed VR cases.

As noted above, the VR service that increased the odds of securing competitive employment the most was On the Job Supports (8.137). This VR service category is defined as “support services provided to an individual who has been placed in employment in order to stabilize the placement and enhance job retention. Such services include job coaching, follow-up and follow-along, and job retention services.” (RSA, 2010, p. 28).

On-the-job supports can be vitally important to many VR consumers; services in this category have the potential to provide significant supports to VR consumers as they transition into employment. For example, on-the-job supports provide intensive VR interaction to VR consumers; any on-the-job issues that might have a detrimental impact on employment success can be addressed quickly, thus offering VR consumers increased likelihood for employment success.

The results indicate that the VR service with the second largest odds impact for a successful competitive employment outcome is college or university training. This seemingly mirrors society in general since those with college/university degrees have higher rates of employment than those with less education. For example, individuals with bachelor’s degrees have an unemployment rate of 4.5%; those with only high school degrees have an unemployment rate of 8.3%; and those with less than a high school education have an unemployment rate of 12.4% (Department of Labor, 2013).

While not in the top five VR services, occupational/vocational training was also found to be a significant service for consumers with diabetes in securing employment, with an odds ratio of 1.545. Thus, both educationally based service categories showed significance in the odds for employment among consumers.

### Discussion

This exploratory study analyzed the RSA-911 data set to address which VR services predicted a greater likelihood of successful competitive employment among consumers with diabetes. Since this study was exploratory, and from all indications, the first of its type, we included all VR services addressed which VR services predicted a greater likelihood of successful competitive employment among consumers with diabetes.

The total amount of variance explained by this model (Cox and Snell’s) was 24.0%. This result indicates an adequate fit of the model. We interpreted it as the percentage of variation in the outcome variable that is explained by the predictors in the model. While it does not provide information on the significance of the result, it is a measure of how well the model fits the data.

### Table 1: Statistical results for the logistic regression model of successful employment outcomes.

<table>
<thead>
<tr>
<th>Variable</th>
<th>β</th>
<th>SE of β</th>
<th>Wald χ²</th>
<th>df</th>
<th>Sig</th>
<th>Exp(β)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>0.146</td>
<td>0.062</td>
<td>5.509</td>
<td>1</td>
<td>0.019</td>
<td>1.157</td>
</tr>
<tr>
<td>Diagnosis and Treatment of Impairments</td>
<td>0.735</td>
<td>0.059</td>
<td>155.884</td>
<td>1</td>
<td>0.000</td>
<td>2.096</td>
</tr>
<tr>
<td>VR Counseling and Guidance</td>
<td>0.664</td>
<td>0.064</td>
<td>109.397</td>
<td>1</td>
<td>0.000</td>
<td>1.943</td>
</tr>
<tr>
<td>College or University Training</td>
<td>1.254</td>
<td>0.086</td>
<td>211.755</td>
<td>1</td>
<td>0.000</td>
<td>3.504</td>
</tr>
<tr>
<td>Occupational/Vocational Training</td>
<td>0.435</td>
<td>0.101</td>
<td>18.473</td>
<td>1</td>
<td>0.000</td>
<td>1.545</td>
</tr>
<tr>
<td>On-The-Job Training</td>
<td>0.539</td>
<td>0.202</td>
<td>7.112</td>
<td>1</td>
<td>0.008</td>
<td>1.715</td>
</tr>
<tr>
<td>Basic Academic or Literacy Training</td>
<td>-0.553</td>
<td>0.322</td>
<td>2.948</td>
<td>1</td>
<td>0.086</td>
<td>0.575</td>
</tr>
<tr>
<td>Job Readiness Training</td>
<td>-0.162</td>
<td>0.113</td>
<td>2.085</td>
<td>1</td>
<td>0.149</td>
<td>0.850</td>
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<tr>
<td>Disability Related Augmentative Training</td>
<td>-0.025</td>
<td>0.102</td>
<td>0.061</td>
<td>1</td>
<td>0.804</td>
<td>0.975</td>
</tr>
<tr>
<td>Miscellaneous Training</td>
<td>-0.087</td>
<td>0.097</td>
<td>0.807</td>
<td>1</td>
<td>0.369</td>
<td>0.416</td>
</tr>
<tr>
<td>Job Search Assistance</td>
<td>-0.103</td>
<td>0.092</td>
<td>1.262</td>
<td>1</td>
<td>0.261</td>
<td>0.790</td>
</tr>
<tr>
<td>Job Placement Assistance</td>
<td>1.072</td>
<td>0.080</td>
<td>178.246</td>
<td>1</td>
<td>0.000</td>
<td>2.921</td>
</tr>
<tr>
<td>On-The-Job Supports</td>
<td>2.096</td>
<td>0.098</td>
<td>455.043</td>
<td>1</td>
<td>0.000</td>
<td>8.137</td>
</tr>
<tr>
<td>Transportation Services</td>
<td>0.019</td>
<td>0.071</td>
<td>0.071</td>
<td>1</td>
<td>0.790</td>
<td>1.019</td>
</tr>
<tr>
<td>Maintenance</td>
<td>0.529</td>
<td>0.087</td>
<td>36.764</td>
<td>1</td>
<td>0.000</td>
<td>1.697</td>
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<tr>
<td>Rehabilitation Technology</td>
<td>0.563</td>
<td>0.089</td>
<td>40.148</td>
<td>1</td>
<td>0.000</td>
<td>1.757</td>
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<tr>
<td>Reader Services</td>
<td>-1.621</td>
<td>0.479</td>
<td>11.431</td>
<td>1</td>
<td>0.001</td>
<td>0.198</td>
</tr>
<tr>
<td>Interpreter Services</td>
<td>-1.168</td>
<td>0.582</td>
<td>4.028</td>
<td>1</td>
<td>0.045</td>
<td>0.311</td>
</tr>
<tr>
<td>Personal Attendant Services</td>
<td>-2.322</td>
<td>0.888</td>
<td>6.842</td>
<td>1</td>
<td>0.009</td>
<td>0.098</td>
</tr>
<tr>
<td>Technical Assistant Services</td>
<td>-0.290</td>
<td>0.181</td>
<td>2.579</td>
<td>1</td>
<td>0.108</td>
<td>0.748</td>
</tr>
<tr>
<td>Information and Referral Services</td>
<td>0.020</td>
<td>0.071</td>
<td>0.080</td>
<td>1</td>
<td>0.778</td>
<td>1.020</td>
</tr>
<tr>
<td>Other Services</td>
<td>0.268</td>
<td>0.068</td>
<td>15.515</td>
<td>1</td>
<td>0.000</td>
<td>1.307</td>
</tr>
</tbody>
</table>
with diabetes receiving vocational rehabilitation services. This indicates that education may be key in securing competitive employment among consumers with diabetes in both the short-term and in the long-term.

Job placement services were found to increase the odds of success by 2.921. Job placement is defined in the RSA case-reporting manual (2010) as follows: “Job placement assistance is a referral to a specific job resulting in an interview, whether or not the individual obtained the job” (p. 28).

Job placement services are at the core of many vocational rehabilitation plans to assist consumers with specific job openings that correspond to his/her unique skills, abilities, and interests. Job placement services can be invaluable in providing consumers with direct assistance in navigating the difficult employment search landscape.

Fourth on the list of VR services showing the greatest odds for successful competitive case closure was diagnosis and treatment of impairments. While one might assume that this is a service provided to virtually all consumers, this is not necessarily the case. Diagnosis and treatment of impairments is clearly important in allowing consumers with diabetes to maximize their abilities, and thus improve employment prospects.

The VR service that landed fifth on the list was VR counseling and guidance. The RSA case-reporting manual (2010) describes this service as follows:

Vocational rehabilitation counseling and guidance means discrete therapeutic counseling and guidance services that are necessary for an individual to achieve an employment outcome, including personal adjustment counseling, counseling that addressed medical, family, or social issues, vocational counseling, and any other form of counseling and guidance that is necessary for an individual with a disability to achieve an employment outcome. This service is distinct from the general counseling and guidance relationship that exists between the counselor and the individual during the entire rehabilitation process (p. 26).

Certainly, the relationship between the VR counselor and their consumers can set a solid foundation for the consumer’s overall success within the VR state-federal system. At all levels of counseling, the counseling alliance (relationship) is shown to be an important aspect for the success of the consumer. Those in the VR world would do well to ensure that this is a key focus of VR services.

This study has demonstrated that the aforementioned VR services have the most predictive value with regard to successful VR case closure, as evidenced by the elevated odds ratio in the regression model. There is little research addressing any aspect of the unique vocational rehabilitation needs and/or VR outcomes of those individuals with diabetes receiving VR services through the state-federal VR system. When conducting and reviewing ex post facto research, it is important to remember that cause and effect cannot be established. However, this study attempts to lay the foundation for further research on VR services that correlate with increased successful competitive employment outcomes among consumers with diabetes.

VR counselors need to commit to working with each consumer as a unique individual when developing the consumer’s Individualized Plan for Employment. The knowledge that VR services on the macro level increase odds of employment success can serve as an inspiration to counselors in their work with individual consumers with diabetes.

Diabetes is a complex physical condition; for many people, it can lead to significant physical impairments and disabling conditions, requiring vocational rehabilitation in order to return to the workplace, or retain competitive employment. Individuals with diabetes can also experience many emotional/psychological challenges in dealing with the condition. These additional emotional/psychological challenges may also be problematic when assisting individuals with diabetes with employment-related issues. It is important that rehabilitation counselors are aware of these potential issues, know how to identify them, and if necessary, are able to provide assistance (within the individual rehabilitation counselor’s scope of competency) or refer consumers to relevant services.

Limitations of the Study

This was an ex post facto study. While ex post facto studies are very common, and very useful in social science research, they have certain limitations, including an inherent lack of control of the independent variable or variables; no randomization of the sample; and difficulties in establishing the direction of causality (one cannot ascertain cause and effect, only correlation).

In addition, the RSA-911 data set had fundamental weaknesses. The RSA-911 has a multitude of observers from around the country who input data into this data set; this brings the consistency of the data set into question. This is due to a weakness in instrumentation that jeopardizes internal and external validity. Instrumentation is explained in part by Campbell and Stanley (1963): “changes in observers or scorer used may produce changes in the obtained measurements.” (p.5).

Directions for Future Research

This study contributes to the existing vocational rehabilitation literature by adding to the research addressing which VR services predict successful competitive employment among consumers with diabetes. Due to the complexity of diabetes and its potential impact on other health conditions, it would seem that research looking at diabetes as the secondary disability would hold merit; researching diabetes as a secondary disability is valuable since some VR counselors may have difficulties in determining what is the primary versus secondary disability. (Individuals with diabetes can have multiple, complex health issues/disabling conditions.) In short, further
studies looking into various VR issues associated with individuals with diabetes need to be undertaken.

**Conclusion**

“As diabetes becomes more prevalent in the population, its effects on employment and work productivity are likely to become more pressing for society” (Tunceli, Williams, Bradley, Pladevall, Nerenz, & LaFata, 2005, p. 2666). With the incidence of diabetes skyrocketing over the past 40 years, diabetes is a significant public health concern in the United States. Projections regarding the numbers of individuals that will have the disease in the next several years are dire. While diabetes is a complex disease that can impact many other parts of the body, it is frequently overlooked as a minor health/disabling condition. However, individuals with diabetes can and do die as a result of this disease, and its related complications. Diabetes is the seventh leading cause of mortality in the United States (Heron, 2007; CDC, 2013).

Due to the magnitude of the situation, it is imperative that the VR community educates itself about all aspects of diabetes. Now is the time for the VR community to address the VR community educates itself about all aspects of diabetes.

**References**


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The Ethics and Practice of Social Media Advocacy in Rehabilitation Counseling

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The purpose of this article is to present the concept of social media advocacy as a way for rehabilitation counselors to assist clients who have experienced marginalization in claiming a sense of power and control over their environments. However, assisting clients to self-advocate is a complex process; therefore, a second purpose of this article is to discuss the ethics and practice of using social media to assist clients to self-advocate.

Advocacy is a role and function of rehabilitation counseling (Leahy, Chan, & Saunders, 2003; Leahy, Muenzen, Saunders, & Strauser, 2009). Over the last century, rehabilitation counseling has been an important mechanism for offsetting social disadvantage through legislation and policymaking efforts (Bruyère, 2000; Burton, 1982; Chubon, 1992; Kilbury, Benshoff, & Rubin, 1992). Rehabilitation counseling is thus based on a person-environment fit (Maki & Tarvydas, 2012; Sales, 2007), and a successful rehabilitation outcome is not the result of working with the individual alone, but rather, of understanding the reciprocal interaction between the individual and his/her environment (Hartley & Tarvydas, 2013; Hershenson, 1998; Kosciulek, 1993). As information technology becomes an increasingly integral part of rehabilitation counseling practice (Barros-Bailey, 2012; Byrne & Hartley, 2010; Hartley, Urish, & Johnston, 2006), the emergence of popular social media tools, such as Twitter, Facebook, YouTube, blogs, and wikis may be an additional tool to confront social inequities that have historically impeded the well-being of individuals with disabilities (Alston, Harley, & Middleton, 2008; Middleton, Robinson, & Mu’min, 2010; Middleton, Rollins, & Harley, 1999). However, further discussion is necessary if rehabilitation counselors are to use social media as a method of advocacy.

Attitudes toward disability have improved; however, people with disabilities still experience unfair treatment compared to people without disabilities. Specifically, discrimination towards individuals with disabilities has remained a problem despite the passage of legal protections, such as Section 504 of the Rehabilitation Act Amendments of 1973 and the Americans with Disabilities Act (ADA) of 1990 (Charlton, 1998). For instance, individuals with psychiatric disabilities have unemployment rates as high as 80-90% (Crowther, Marshall, Bond, & Huxley, 2001; Goldberg et al., 1999), and a major reason is the stigma of mental illness: terms such as “unstable” and “volatile” have perpetuated the myth that employing workers with psychiatric disabilities is dangerous (Diksa & Rogers, 1996; Weber, Davis, & Sebastian, 2002). Research indicates that 50% of employers are reluctant to hire someone currently undergoing psychiatric treatment, and 70% are reluctant to hire someone currently taking antipsychotic medications (Goldberg, Killeen, & O’Day, 2005; Scheid, 1999). Similarly, individuals with physical disabilities experience unemployment rates of 60-70%, (Stapleton, O’Day, & Livermore, 2005), and there are deeply rooted beliefs that hiring an individual with a physical disability will require expensive accommodations to make the workplace accessible (Wilson-Kovacs, Ryan, Haslam, & Rabinovich, 2008). As a result of discrimination, individuals with disabilities must negotiate a complex person-environment terrain.

As frontline service providers, rehabilitation counselors can play a vital role in promoting advocacy and empowerment as a rehabilitation outcome (Bolton & Brookings, 1998; Frain,
advocacy is defined as a “behavioral and action oriented, and is an activity that often involves actions to correct some social injustice” (Marini, 2012, p. 486). In addition to fostering their role as advocates for social justice, it is equally important for rehabilitation counselors to place an “emphasis on their responsibility to teach and empower clients to advocate for themselves” (Vash, 1991, p. 14). Importantly, client self-advocacy is the process by which clients “learn to advocate on their own behalf rather than letting others advocate for them” (Chan, Brophy, & Fisher, 1981, p. 196).

History tells us that social movements have often emerged when individuals with disabilities exerted civil rights within the context of their own lives (Hartley, 2012; McCarthy, 2003). For instance, Ed Roberts, a founder of the disability rights movement, exerted his right to participate in society and attend college during the 1970s when very few people with significant physical disabilities lived independently in the community, let alone attended college (Shapiro, 1993). Roberts’ self-advocacy efforts were a catalyst for the disability rights movement (DeJong, 1979). Today, social media is a powerful way to mobilize supporters, foster dialogue with a wide audience, and draw attention to social justice issues that may otherwise go unnoticed (Guo & Saxton, 2014).

As digital information becomes the preferred mode of communication, social media applications may serve as an emerging context to confront social justice inequities that are impeding clients’ well-being (Alston et al., 2008; Middleton et al., 1999; Middleton et al., 2010). As a potential avenue to define and better support the self-advocacy efforts of individuals with disabilities, the purpose of this article is to present the concept of social media advocacy as a way for rehabilitation counselors to assist clients who have experienced marginalization in claiming a sense of power and control over their environments. Focused on the ethics and practice of social media in rehabilitation counseling, the intent is to provide guidance on how to use social media as a means to assist clients to self-advocate.

Social Media

Over the last decade, the development of Web 2.0 applications (also known as “social media”) has led to social networking, defined as the “phenomenon through which Internet users build virtual communities based on common interests, activities, and established friendships” (Chapin & Byrne, 2013, p. 11). Today, approximately 78.2% of people in the United States population use the Internet, including social media technologies, such as Twitter, Facebook, LinkedIn, YouTube, blogs, wikis, and mobile applications (as cited in Chapin & Byrne, 2013). As a population, individuals with disabilities are less likely to have access to computers; however, research indicates that individuals with disabilities who have access spend twice as much time online as their nondisabled counterparts (Gorski & Clark, 2002; Taylor, 2000). Overall, the Internet is having a significant impact on the lives of individuals with disabilities. According to a national survey of Internet users, Taylor (2000) found that 48% of adults with disabilities who had access reported that the Internet significantly improved their quality of life compared to 27% of non-disabled adults. Furthermore, compared to their non-disabled counterparts, adult Internet users with disabilities were significantly more likely to report that the Internet significantly improved their ability to connect to the world around them and reach out to people with similar interests and experiences (Taylor, 2000). Thus, social media has opened the door to a myriad of social and education resources, including opportunities for advocacy.

Consistent with the disability rights mantra – “nothing about us, without us” (Charlton, 1998, p. 3), the development of social media has seen an explosion in technologies that are available for anyone to publish and express one’s opinions, thoughts, and feelings to the public (Boyd & Ellison, 2008; Chapin & Bryne, 2013). In many ways, social media has become the place to “organize disability-rights actions, let others know about disability-related news, promote events, or just find like-minded disability rights advocates” (Haller, 2010, p. 5). Increased production and access to information and knowledge technologies in their personal lives, at work, and across global communities contributes to a surplus of individuals using digital technologies and social media as platforms for media authorship (Brandt, 2009). Encompassing various forms of media, such as text, images, audio, and video, the significance of social media is that it “allows for the creation and exchange of User-Generated Content” (Kaplan & Haenlein, 2010, p. 61).

Despite the increasing potential for greater social media use, within rehabilitation counseling, there is limited information on how rehabilitation counselors can apply social media tools, such as Twitter, Facebook, LinkedIn, YouTube, blogs, and wikis as a means to assist clients to self-advocate. As social media continues to evolve, rehabilitation counselors will need to stay abreast of trends in social media to ensure the competent and ethical practice concerning the use of social media applications, both in their own professional and private lives, as well as the lives of their clients. In what follows, we discuss the practice of social media in rehabilitation counseling as a method of advocacy.

Practice of Social Media Advocacy

Concern for advocacy is not new. According to the CRCC Code of Professional Ethics for Rehabilitation Counselors (hereafter referred to as the Code), “rehabilitation counselors provide clients with appropriate information to facilitate their self-advocacy actions whenever possible” (CRCC, 2010, C.1.a., p. 10). Rehabilitation counselors have a long history of listening to and partnering with persons with disabilities, and the notion of understanding clients within their social milieu is an explicit component of the multicultural counseling competencies (Alston et al., 2008; Middleton et al., 1999; Middleton et al., 2010). With generations of rehabilitation counselors and clients growing up as ‘digital natives,’ social media applications offer an avenue to expand advocacy efforts by “reaching new networks of community actors and...
by mobilizing those networks to take action” (Guo & Saxton, 2014, p. 58). However, assisting clients to use social media to self-advocate is a complex process; therefore, there is a need to situate social media as an intervention within existing client-level models that promote self-advocacy.

Advocates are not born; rather, advocacy is a skill that is learned (Roysircar, 2009). In particular, the well-established Advocate Model may provide a structured approach to integrate social media in rehabilitation counseling as a method of advocacy (Brophy, Chan, & Mar, 1974; Chan et al., 1981; Liu & Toporek, 2012). Intended to assist a client to “exert maximum control over his/her own life, while developing a positive self-concept and confidence that this control will be continuous and replicable” (Brophy, et al., 1974, p. 41), the Advocate Model is a three-phase process: (a) education, (b) facilitation, and (c) implementation to move a client from awareness to action. Although it was developed well before the advent of Web 2.0 and social media, the three-phase structure provides a useful approach to discuss the integration of social media in rehabilitation counseling as a method to promote client self-advocacy.

**Education Phase**

The first step in the education phase is awareness of pain (Brophy et al., 1974; Chan et al., 1981). Rather than pushing for action, in the education phase, effective advocacy requires an understanding of the potential impact of discrimination on mental health, specifically addressing why internalized marginalization can be a source of pain for so many people (Comstock et al., 2008). Unfortunately, the experience of discrimination may be associated with feelings of “alienation, learned helplessness, and internalized hatred” (Roysircar, 2009, p. 288) and may contribute to physical and mental health problems due to generalized stress and stress-related illnesses (Dohrendwend, 2000; Marini, 2012). In response, social media sites are an excellent way to connect with other people who may have experienced a similar problem and found ways to be successful. In addition to Facebook and other mainstream social networking sites, disability-specific sites have emerged, such as the website Disaboom created by a doctor with a spinal cord disability, to be “a place where people with disabilities and their families and friends could find connection with each other” (Haller, p. 9). Often, hearing the viewpoints of community members who have experienced similar injustices may illuminate the problem for the client in a way that holds more weight than discussion with the professional who may not have personal experience with the problem (Chan et al.). In our increasingly digital society, social media is becoming a crucial source of emotional support and understanding.

The second step in the education phase is legal research (Brophy et al., 1974). Using the law as the highest authority, the Advocate Model teaches clients to research primary source materials, such as legislative acts and court interpretations of the law, as well as secondary source materials, such as news stories and journal articles (Chan et al.). In the past, legal research was time consuming and involved considerable effort to review primary source materials. Today, social media websites, blogs, and online forums, offer a complement to traditional forms of learning that took place in libraries and books (Buckingham, 2013; Carr & Porfilio, 2009). As an example, if a client is dealing with employment discrimination, he or she can use the Internet to conduct research on for his or her legal rights under the ADA (1990). Today, anyone with a computer has access to primary source materials, which previously would have required physical access to a legal library. Further, the Internet has opened the door to an extensive amount of secondary source information, including up-to-date Websites, listservs, and blogs, to initiate an online dialogue with others regarding the interpretation of laws and legislation (See Table 1). To be sure, social media has changed the way people obtain information, including legal research.

The third and final step in the education phase is to consider “all of the options which might constitute a solution to the problem” (Brophy et al., 1974, p. 53). In the same way that public policies can affect a client’s life, so, too, clients can use social media to impact larger public policies. Specifically, Guo and Saxton (2014) identified a wide-range of potential social media actions, including “media advocacy, direct lobbying, grassroots lobbying, public events and direct action, judicial advocacy, coalition building, administrative lobbying, voter registration and education, and expert testimony” (pp. 59-60). Today, the simple act of posting information to an online forum may be used to inform the general public about social injustice and discrimination against people with disabilities. As an illustration, the popular online encyclopedia Wikipedia has become a platform to inform the general public about companies that violate labor laws, including the case against Firestone Tire and Rubber Company using child labor in its rubber factory (Kaplan & Haenlein, 2009). Although Firestone won, the court case brought international attention to child labor laws and established a precedent that U.S. companies can be held liable for human rights abuses abroad. The general public may not be aware of the problem, but once aware, may be able to address the problem more systemically.

Social media actions may also be used for more aggressive advocacy strategies, such as organizing public events, lobbying politicians, and facilitating peaceful protests (Guo & Saxton, 2014; Thackeray, Beiger, Burton, & Thackerary, 2013). As an illustration, the power of online social networking was unmistakable in the recent use of Facebook to successfully protest disability benefit cuts in the United Kingdom (Haller, 2014). In addition, a recent social media campaign successfully pressured the State of Maryland to investigate the tragic death of a 26-year-old man with Down syndrome who was excessively restrained by police officers (Greenspan, 2013). Ultimately, the death was ruled a homicide, and legislation was passed to train law enforcement officers about people with intellectual disabilities (Haller, 2014). Similarly, a current social media campaign is responding to the need to provide the Miranda warning in American Sign Language due to a long history of individuals who are deaf failing to respond to police officers’ verbal commands and being excessively
restrained (Lewis, 2014). The applications of social media are endless and can influence social change at the individual, community, and public policy level.

As part of the Advocate Model, the education phase ends when the client chooses a specific course of action and begins to marshal the resources necessary for effective self-advocacy. Thus, prior to moving into the facilitation phase, the rehabilitation counselor and client should carefully weigh the pros and cons of each potential advocacy action, ultimately evaluating if social media advocacy is appropriate based on accurate information and the client’s feelings (Brophy et al., 1974). Importantly, the rehabilitation counselor will not act on behalf of the client, so it is important that the client is ready to take on the responsibilities necessary to learn to assert control over the social justice problem (Chan et al., 1981).

Facilitation Phase

Effective self-advocates must be able to articulate how the problem impacts other community members’ lives (Roy-sircar, 2009), and the first step in the facilitation phase is to frame the specific course of action in an affirmative format “in which the client is motivated to act for rather than against something” (Chan et al., 1981, p. 198). Similar to the way in which Bibliotherapy has been used to assist the personal developmental and therapeutic needs of clients (Marrs, 1995), the emergence of social media offers an endless supply of advocacy narratives (Haller, 2010). Building a critical consciousness regarding the connection between the client’s situation and larger societal issues, blogs written by disability advocates, such as the blog Not Dead Yet (2014) are an excellent resource to promote the notion that individuals do not need to be defined by social justice problems, and there is no reason that these individuals cannot live healthy and successful lives. Further, Twitter accounts written by disability activists, such as Hollywood actress Matlin, may help to connect an individual with a larger sociopolitical movement. Understanding the significance of advocacy may motivate a client to take action, and once action is taken, can assist the client to tolerate the potentially negative consequences of advocacy (Bemak & Chung, 2008). Thus, social media is an invaluable tool to assist the client to form a new understanding of him or herself within a sociopolitical context.

The second step in the facilitation phase is to consolidate the chosen action and begin to develop the tangible resources necessary to be successful (Brophy et al., 1974). In the past, it was recommended that clients consult with their family, friends, and local community members to solicit support and feedback about the chosen alternative (Chan et al., 1981). Today, social media applications have “expanded the use of community networks and online educational opportunities” (Guo & Saxton, 2014, p. 58). For instance, the Disability Rights Education and Defense Fund (2014) is a leading national civil rights law and policy center directed by individuals with disabilities and parents who have children with disabilities. Further, there are online media advocacy courses, such as one developed by Haller (2014) to “introduce advocates to how to use traditional and online media advocacy techniques to build awareness of disability issues” (p. 1). Finally, across the country, Centers of Independent Living (CIL) run by persons with disability are increasingly moving to online forums to disseminate information and mobilize advocacy efforts. Today, social media has made the larger disability rights community available to anyone with a computer, which can be used to assist clients to develop necessary advocacy skills.

The third and final step in the facilitation phase is to ensure that the client is independent and autonomous from the rehabilitation counselor (Brophy et al., 1974). In contrast to the education phase, in which the rehabilitation counselor and client may work together to conduct legal research, towards the end of the facilitation phase, the client should be able to access technology on his or her own or with the help of a trusted friend or family members (Chan et al., 1981). While the rehabilitation counselor will remain connected with the client during implementation, it is important that the client is comfortable with the decision and ability to advocate on his or her own. If the client needs assistance with the advocacy effort, the rehabilitation counselor may encourage the client to request assistance from a community member, family member, or other resources who can help with implementing the chosen social media action (Chan et al.). The process cannot be rushed, and rehabilitation counselors should be careful to allow the client to take as much time as necessary in the facilitation phase.

Implementation Phase

Finally, the Advocate Model promotes action (Brophy et al., 1974). For instance, in the case of employment discrimination, the client can (a) write an email describing the incident to a local newspaper, state legislator, and/or national legislator; (b) collaborate with a Center of Independent Living (CIL) to boycott and/or organize a peaceful protest; (c) consult with a federally funded One-Stop Center and seek to require that the employer attend an ADA (1990) workshop; or (d) email the employer directly with information on Title IV of the ADA and share how, with accommodations, the client can perform the essential duties of the job. While the advocacy action will depend on the individual client as well as the nature of the social justice problem, the following recommendations may improve the potential for successful self-advocacy:

1. **Use written statements.** In the past, written letters were considered one of the most effective advocacy actions (Chan et al., 1981; White, Thompson, & Nary, 1997). Today, written statements via social media have the potential to be even more effective because they can have such wide reach (Levin, 2012). In an increasingly digital world, well-crafted written statements via Twitter, Facebook, and LinkedIn offer a low cost and convenient way to foster dialogic interactions with a large audience (Guo & Saxton, 2014).

2. **Know the medium.** Effective advocates will become familiar with the chosen medium in order to craft an appropriate message that grabs the attention of the intended audience (Levin, 2014). Specifically, Kaplan and Haenlein (2010) noted six types of social media:
“collaborative projects, blogs, content communities, social networking sites, virtual game worlds, and virtual social worlds” (p. 60). It is important to understand the medium with respect to word limits as well as appropriate content.

3. **Be clear and concise.** In the age of texting, it is particularly important to be clear and concise. In addition to a “pithy but interesting” subject line, Levin (2012) recommends the creation of a single sentence to articulate the problem, solution, and necessary action. As a complement to the single sentence, an attached paragraph or single-page message can be used to further inform interested readers. Regardless of length, it is essential to convey the ideas as crisply as possible.

4. **Make specific requests.** In the past, specific advocacy requests were recommended, such as “The purpose of my request is to” and “I request that you/ your agency” (Brophy et al., 1974, p. 58). Today, social media requests may use less formal language, such as “Read this. Check this out. Write to your Congressmen. DO something!” (Levin, 2012, p. 77). Whether the intent is to gather information or to mobilize action, specific requests force an individual or organization to respond in a certain way.

5. **Verify information.** Accurate information is crucial to the credibility of the message (Levin, 2012). Today, it is hard to verify the accuracy of all information posted to the Internet and thus it is essential to double check facts and statistics (Hamm et al., 2013). Even accurate information can be taken out of context and lead to misinterpretations and/or mischaracterization. Thus, it is important to use primary sources to verify the correctness of secondary source information on blogs and websites.

6. **Be civil.** Regardless of the social media tactic, it is important to refrain from using profanity and/or personal attacks. As was true in the past, if a client is interested in future interactions with the organization that is being advocated against, it is important to be seen as civil (Brophy et al., 1974). In contrast to oral conversations, in today’s digital age “flippant or facetious comment, statement, or video post” can easily be captured and disseminated in perpetuity (Cain, 2011, p. 1037). Thus, it is important to carefully review the language and tone before submitting messages.

7. **Maintain a presence.** Interactivity is essential to effective social media advocacy, and social media messages “must be frequently updated and a monitor must respond to comments” (Levin, 2012, p. 76). Rather than attempting to go “viral” with a YouTube video or social media message, the use of abbreviated short statements with links to additional information is a more realistic approach to engage an audience over time.

8. **Document records.** In the past, effective advocacy was premised on the old legal adage: “what is not written does not exist” (Chan et al., 1981, p. 199). Today, a benefit of social media is the ease in which it is recorded and replicated (Barros-Bailey, 2012). Consistent with the Advocate Model, maintaining records can assist with future advocacy efforts as well as provide the client with tangible evidence that something is being done, which can motivate and serve as an example for future advocacy efforts (Brophy et al., 1974).

9. **Develop contacts.** Often, it is more effective to develop relationships with intermediary groups as well as staff members who work for legislators, rather than attempting to write letters to legislators directly (Levin, 2012). Frequently, the role of legislative staff members is to stay abreast of news stories that mention the representative or Senator, including hearing from advocacy groups. In particular, partnering with disability rights organizations, such as Centers of Independent Living, may lead to the development of a supportive list of contacts over time.

Regardless of the advocacy effort, it is important to remember that even if the advocacy effort is unsuccessful, the client has likely learned new advocate skills (Chan et al., 1981). Importantly, self-advocacy is about independence; therefore, the goal of the Advocate Model is to assist a client to develop a self-directed and autonomous approach to advocacy that can be implemented without assistance from the rehabilitation counselor.

Within counseling practice, facilitating client self-advocacy is a complex process that involves assisting clients to manage the negative emotional consequences of marginalization, develop therapeutic goals, and then design advocacy plans to confront the problem. As such, advocacy does not happen overnight, and a benefit of the Advocate Model is that it provides a structured process that rehabilitation counselors and clients can use to move from awareness to action. Further, the Advocate Model is designed to be recursive, rather than linear, meaning that the client can return to the education or facilitation phases even after the implementation phase. For additional information and examples, see the case studies contained in Chan et al. (1981), which describes how the model has been effectively used in the past.

**Ethics of Social Media Advocacy**

As a potential client-level intervention, the ethics of client self-advocacy are complex and the choices rehabilitation counselors and clients make can be difficult (Cottone, & Tarvydas, 2007). The increasingly digital nature of communication via social media will pose new and emerging ethical and practice questions (Chapin & Byrne, 2013). As social media applications continue to evolve, rehabilitation counselors will adapt to the effects, but for now, there is a need for additional discussion regarding potential ethical issues related to the use of social media in rehabilitation counseling as a method to promote client self-advocacy.

**Informed Consent**

Informed consent is an important ethical consideration
(Herlihy & Watson, 2007; Toporek & Williams, 2006; Waldmann & Blackwell, 2010). With regard to facilitating client self-advocacy, the Code mandates that “rehabilitation counselors obtain the consent of clients prior to engaging in advocacy efforts on behalf of specific, identifiable clients” (CRCC, 2010, C.1.d., p. 10). Overall, rehabilitation counselors need to be careful not to hold the principles of social justice above the needs and desires of the individual client. The decision to advocate is the client’s choice and, in some circumstances, the decision to not advocate can be just as empowering as taking action because it is an example of the client choosing to direct his or her own actions (Brophy et al., 1974; Chan et al., 1981). As part of informed consent, rehabilitation counselors should clearly explain the potential advantages and risks of social media advocacy.

Loss of Privacy
Loss of privacy is perhaps the most widely cited risk associated with social media (Boyd & Ellison, 2008; Chapin & Byrne, 2013). Today, the notion of a “digital footprint” means that individuals need to be increasingly carefully regarding the potential “consequences of each online action they take” because information on the Internet has the potential to follow individuals forever (Greseyon, Kind, & Chretien, 2010, p. 1228). Both the client and counselor alike must become increasingly savvy in what information is shared; in addition, shared information should be carefully screened to ensure it is not a breach of confidentiality to the client, counselor, or agency. In addition, rehabilitation agencies may have rules regarding the use of social media and, in some cases, rehabilitation counselors may be prohibited from encouraging clients to post service-related information on social media. Ultimately, information shared online is public record and rehabilitation counselors and clients must be increasingly savvy about what information is shared through social media.

Competence
Rehabilitation counselors need to be aware of the limits of their training and scope of practice and refer clients to other professionals, such as lawyers, if the social justice problem is beyond their competence. However, when appropriate, the Code mandates that “rehabilitation counselors are knowledgeable about local, regional, and national systems and laws, and how they affect access to employment, education, transportation, housing, financial benefits, and medical services for people with disabilities” (CRCC, 2010, C.1.e., p. 10). Given the fact that legislative acts and court interpretations of the law are constantly evolving, the most important consideration is whether the rehabilitation counselor has the time and resources to assist the client to conduct legal research. Further, although the rehabilitation counselor does not need to possess advanced information technology competencies, it is more important to understand the potential benefits and risks of social media and advise the client accordingly.

Accessibility
Access to technology is a concern. According to the Code, “rehabilitation counselors facilitate the provision of necessary accommodations, including physically and programatically accessible facilities and services to individuals with disabilities (CRCC, 2010, C.2.a., p. 11). Unfortunately, the digital divide remains an issue, and research has found that individuals with disabilities are less likely to have physical access to computers than non-disabled people (Gorski & Clark, 2002). Another concern is that assistive technology devices can be expensive and require specialized training (Barros-Bailey, 2012). Thus, rehabilitation counselors cannot expect that all clients will have equal access to computer technology. At the same time, most public libraries offer free Internet access, and advances in information technology are making it possible for anyone with an interest and point of view to effectively access and use social media.

Boundaries
Relationship boundaries are becoming more critical in our increasingly digital world. Specifically, the rehabilitation counselor will want to clarify their role and relationship with the client, including the ethical risks associated with virtual ‘friending’ between counselors and clients (Chapin & Byrne, 2013). Ethics scholars take a strong stance against the erosion of role and relationship boundaries (Cottone & Tarvydas, 2007), and it may be necessary to create a separate social media account to differentiate personal and professional use. While the rehabilitation counselor may not be able to ‘friend’ the client on social networking sites, there may be a way to join more social media listservs in order to demonstrate a personal and professional’s commitment to the client and to the social justice cause (Chan et al., 1981).

As social media continue to evolve, we are likely to see more explicit oversight regarding the use of social media in rehabilitation counseling. As a glimpse into the future, the Code of Ethics of the American Counseling Association (ACA, 2014) was recently revised and now contains specific standards addressing the use of social media in counseling. The standards established in this revision focused primarily on the nature of the virtual presence of both the counselor and client, as well as protecting the privacy and confidentiality of the client. Additionally, these new standards do require that counselors clearly explain to clients “the benefits, limitations, and boundaries of the use of social media” (ACA, 2014, p. 17) as part of the informed consent process. This inclusion of a proactive directive to consider the use of social media to benefit the client provides an indication that the type of constructive use of social media to assist clients, as is proposed here, is likely to become a more common practice for counselors. Thus, in the near future, revisions to the CRCC Code may include specific ethical standards regulating the use of social media in rehabilitation counseling. Until then, it is important that rehabilitation counselors use particular caution with respect to the use of social media.

Implications
The integration of social media advocacy in rehabilitation counseling is not only an intervention to target environmental change, but it is also a therapeutic intervention to increase a
client’s sense of self-worth and agency. In fact, learning to search the Internet for legal information as well as first-person narratives from other individuals who have experienced similar problems may in and of itself lead to more positive rehabilitation outcomes. Furthermore, the act of ensuring that a client has access to social media represents an important distributive justice principle. In fact, the future of rehabilitation counseling practice may increasingly involve helping clients to identify healthy and supportive Twitter feeds as well as therapeutic blogs that highlight can assist individuals to respond creatively and successfully to disability concerns.

As a specialty area of practice within the broader field of counseling, the use of social media as a method of advocacy is consistent with the American Counseling Association (ACA) advocacy competencies to effectively advocate within three domains: the client, community, and public policy (Ratts, Toporek, & Lewis, 2010). Social media can be used to advocate for change in all three domains (client, community, public arena); however, the ACA advocacy competencies place the client’s needs first. Thus, a primary goal of the ACA advocacy competencies, client advocacy, is assisting clients to develop “new strengths, knowledge, and abilities to the point that these clients do not require the assistance of mental health practitioners or other comparable service providers” (Crethar, Rivera, & Nash, 2008, p. 273). In the near future, social media as a method of client self-advocacy may be an increasingly important client-level intervention. In many ways, the world is involved in a major cultural shift with respect to digital communication and media. Considering that new generations of clients, as well as rehabilitation counseling professionals, are likely to be digital natives who grew up using social media, such as Twitter, Facebook, LinkedIn, YouTube, blogs, wikis, and mobile applications, social media may become the preferred format for communication (Chapin & Bryne, 2013). As an example, it is easy to imagine a rehabilitation professional and client setting up a meeting via text messaging. Further, text messaging can be used to provide support and encouragement, such as before a job interview.

In terms of education, there is a wealth of literature on train-the-trainer models, in which rehabilitation education programs teach emerging professionals skills that are then taught to clients. As such, rehabilitation education may want to consider adding additional curriculum that teaches rehabilitation counselors how to help clients to self-advocate using social media. Whether as a stand-alone course or as curriculum infused into other courses, semester long advocacy projects can be designed in which students are required to research and implement a social media advocacy project. In addition, rehabilitation educators can have students compile a list of disability rights websites and blogs. The larger point, it seems, is that rehabilitation educators have a responsibility to ensure that rehabilitation counselors graduating from master’s degree programs have sufficient skills to assist clients to self-advocacy when appropriate, including social media advocacy. In particular, social media blogs, YouTube videos, and civil rights websites are critical resources in an increasingly digital society (See Table 1).

Table 1.
Examples of Social Justice Related Websites

<table>
<thead>
<tr>
<th>Organizations</th>
<th>Websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>AFL-CIO, Civil and Human Rights</td>
<td><a href="http://www.aflcio.org/issues/civilrights/">www.aflcio.org/issues/civilrights/</a></td>
</tr>
<tr>
<td>American Civil Liberties Union</td>
<td><a href="http://www.aclu.org/">www.aclu.org/</a></td>
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<tr>
<td>Bazelon Center for Mental Health Law</td>
<td><a href="http://www.bazelon.org/">www.bazelon.org/</a></td>
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<tr>
<td>Disability Rights Advocates</td>
<td><a href="http://www.dralegal.org/">www.dralegal.org/</a></td>
</tr>
<tr>
<td>Equal Rights Advocates</td>
<td><a href="http://www.equalrights.org/resources/links.asp">www.equalrights.org/resources/links.asp</a></td>
</tr>
<tr>
<td>Ethnic Majority, Civil Rights</td>
<td><a href="http://www.ethnicmajority.com/civil_rights_home.htm">www.ethnicmajority.com/civil_rights_home.htm</a></td>
</tr>
<tr>
<td>Federal Bureau of Investigation, Civil Rights</td>
<td><a href="http://www.fbi.gov/hq/cid/civilrights/civilrights.htm">www.fbi.gov/hq/cid/civilrights/civilrights.htm</a></td>
</tr>
<tr>
<td>Gay Rights Organization</td>
<td><a href="http://www.gayrights.org">www.gayrights.org</a></td>
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<tr>
<td>Leadership Conference on Civil Rights</td>
<td><a href="http://www.civilrights.org/">www.civilrights.org/</a></td>
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<tr>
<td>National Association for the Advancement of Colored People</td>
<td><a href="http://www.naacp.org/">www.naacp.org/</a></td>
</tr>
<tr>
<td>National Council on Independent Living</td>
<td><a href="http://www.ncil.org/about.html">www.ncil.org/about.html</a></td>
</tr>
<tr>
<td>National Organization for Women</td>
<td><a href="http://www.now.org/">www.now.org/</a></td>
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<tr>
<td>National Youth Rights Association</td>
<td><a href="http://www.youthrights.org/">www.youthrights.org/</a></td>
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<tr>
<td>U.S. Commission on Civil Rights</td>
<td><a href="http://www.uscrr.gov/">www.uscrr.gov/</a></td>
</tr>
<tr>
<td>U.S. Department of Health and Human Services, Office of Civil Rights</td>
<td><a href="http://www.hhs.gov/ocr/">www.hhs.gov/ocr/</a></td>
</tr>
<tr>
<td>U.S. Department of Housing and Urban Development</td>
<td><a href="http://www.hud.gov/">www.hud.gov/</a></td>
</tr>
<tr>
<td>U.S. Department of Justice, Civil Rights Division</td>
<td><a href="http://www.usdoj.gov/crt/">www.usdoj.gov/crt/</a></td>
</tr>
<tr>
<td>U.S. Department of Labor, Civil Rights Center</td>
<td><a href="http://www.dol.gov/ocr/programs/crc/">www.dol.gov/ocr/programs/crc/</a></td>
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<tr>
<td>Voices of Civil Rights</td>
<td><a href="http://www.voicesofcivilrights.org/">www.voicesofcivilrights.org/</a></td>
</tr>
<tr>
<td>Women’s Justice Center</td>
<td><a href="http://www.justicewomen.com/">www.justicewomen.com/</a></td>
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With limited literature addressing the use of social media advocacy in rehabilitation counseling, there are multiple avenues for future research. The first is a content analysis of the type of information posted on social media by disability advocates, including message-level analyses to better understand the role of social media in advocacy work (Obar et al., 2012). Another approach is qualitative interviews with disability advocates to examine the impact of social media on the subjective experience of rehabilitation and disability, which may involve participatory action research involving people with disabilities (Marini, 2012). Finally, researchers may want to survey rehabilitation counselors to examine what social media advocacy tactics are most appropriate within particular re-
hhabilitation settings, such as state-federal rehabilitation, private-for-profit rehabilitation, and private-not-for-profit rehabilitation. Overall, researchers may want to examine not only the prevalence of social media, but rather, how clients use social media, and when they do, what is the impact on experience of disability and rehabilitation. Finally, a well-designed social media plan is increasingly essential to disseminate the results of large-scale research projects, including all Rehabilitation Research and Training Centers funded by the National Institute on Disability and Rehabilitation Research (NIDRR). While research itself may or may not focus on the Internet and advocacy, the dissemination of all research findings via social media is a form of knowledge translation that may be used by individuals with disabilities to advocate for civil rights issues.

Conclusion
As information technology becomes an increasingly integral part of rehabilitation counseling practice, the emergence of popular social media tools, such as Twitter, Facebook, YouTube, blogs, and wikis may be an additional tool to confront social justice inequities that are impeding the well-being of individuals with disabilities. In response, this article discussed the ethics and practice of social media as a method of advocacy in rehabilitation counseling with a focus on facilitating client self-advocacy.

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Marini, I. (2012). What we counsel, teach, and research regarding the needs of persons with disabilities: What have we been missing? In I. Marini, Glover-Graff, & M. Millington (Eds.), *Psychosocial Aspects of Disability* (pp. 481-494). Edinburg, TX: Springer Publishing Co.


Disability is a phenomenon that is ubiquitous around the world and its meaning varies greatly across religions and cultures. Disability has been characterized as a series of losses with which one must adjust, including the loss of a sense of control over one’s destiny, the loss of the ability to plan for the future, and the loss of a sense of fairness in the world (Fine, 1991). Factors such as religion and spiritual well-being (i.e., an inclination to find understanding through one’s relationships with a higher power, others and self) are believed to have influence on the adjustment to and acceptance of a disability (Reed, 1992). Research supports religion as a means of coping with a disability (Kaye & Raghavan, 2002). More precisely, religious belief is identified as one’s spiritual perspective and refers to rituals, values, and external formal systems of beliefs. However, beliefs regarding the origins of the universe and life differ substantially among diverse groups of people and are often particularly associated with religious worldviews. Although religion is recognized as an essential component in the world of disability (Treloar, 2002), individual perspectives of disability have been noticeably absent from recent discussions and discourse (Yong, 2011).

For the purpose of this empirical study, the authors will use religion in reference to Buddhism and Christianity. The...
two religions approach the topic of self-acceptance in regard to disability from somewhat different angles. Buddhism is mainly practiced in the Far East, Southeast Asia, and part of the South Asia Indian continent, while Christianity has long secured a solid foothold in Europe and the Americas (Crane et al., 2009). Buddhism draws on the teachings of Buddha and Christianity is based off of the teachings of Jesus Christ. Buddhists believe Buddha did not die for the deliverance of people; instead, Buddhism is an individual effort to shed light on nirvana for the common people. In contrast, Christians believe Jesus Christ died for their sins and their salvation is not an independent effort.

**Views on Disability in Religion**

As spiritual beings, humans seek to understand the reason and purpose of disability. A spiritual question may sound like “What does disability mean to me?” or “Is there a purpose and meaning behind this disability?” A variety of spiritual coping strategies, both religious and nonreligious, may be utilized when an individual is learning to cope with or accept a disability (Baldacchino & Draper, 2001). Buddhism claims that the higher power, Buddha, is equally present in all beings and every part of existence, while Christianity teaches that human beings are born spiritually separate from the higher power, God, due to the original sin committed by Adam and Eve. Religious belief systems, aside from formal religious practice, may be instrumental in promoting acceptance and giving meaning to disability (Bennett, Deluca, & Allen, 1995; Rehm, 1999). Some studies have suggested there are belief differences concerning disability; however, they tend to fall short of focusing on the individual perspective of accepting disability (Schumm, 2010; Swinton, 2011; Yamey & Greenwood, 2004). One philosophical point of view on disability where the two religions diverge from each other is this: The Buddhist tenet of karma suggests that people with disabilities have earned their unfavorable rebirths (Cho & Hummer, 2001; Hampton, 2000) whereas Christian dogmas center on an afterlife in heaven.

**Buddhism**

Historically, people with disabilities have been excluded from participating in many sociocultural and religious practices (Miles, 2002). In recent decades, scholars and practitioners have begun to investigate the Buddhism tenets relevant to disability and people with disabilities (Miles, 2002). Much of the Western world has gradually become more aware of Buddhist traditions and practices, but many misconceptions and erroneous assumptions about Buddhism philosophies and beliefs still exist (Crane et al., 2009; Wallace, 2006). The belief of reincarnation is related to one’s *karma*, the concept concerned with the effects of past decisions on the later rewards or reckoning in the present and future well-being (Hui & Coleman, 2012). Charlton (1998) also discussed reincarnation and the status of disability among Buddhists who felt their disabilities were a direct result of past life deeds. In a pilot qualitative study of healthcare professionals and religious leaders from six major religions, Yamey and Greenwood (2004) found that the explanations of illness by the Buddhist participants tended to place emphasis on karma relating to unfortunate events, which occurred because of an individual’s past transgressions. Subsequently, a disability is usually equated with perpetual suffering and pain. The truth of an end to suffering in Buddhism has meanings related to suffering in life, on earth, or in spiritual life (Hampton, 2000). Buddhists suggest that the Buddha can guide them the way out of *samsara*, the nearly endless round of rebirth with all its suffering and pain. In contrast, Christianity promises an end to suffering and pain and, more importantly, an eternal life.

**Christianity**

Christianity is one of the most common religious belief systems practiced in the United States. The Bible is almost unequivocally written in the viewpoint of individuals without disabilities (Hull, 2003). When God is believed to have powers of sight beyond the ordinary and powers of knowledge beyond the average, it leaves people pondering what this might suggest about persons with disabilities? (Joeckel, 2006). In Christianity the notion of a perfect God is exuded in art, music, literature, offerings, and rituals. Animals with any hints of imperfection are strictly forbidden to be offered to God, likewise, high priests selected to perform solemn worship rites at the temple or church must be able-bodied and have sound minds. God is indeed portrayed as an individual without a disability and Jesus as the miracle worker, who walked with disciples, who, in order to spread the gospel, also lived without disabilities. Researchers point out that the figure of God in the Bible is a stark projection of a human without a disability; therefore, the society’s exclusion of those who are different, such as individuals with disabilities, is not alarming after all (Eiesland, 1994; Hull, 2003). These images and stories of a perfect God cause bewilderment to individual perceptions regarding disability. The exclusive representation of Jesus Christ is that of a healer; therefore, Eiesland (1994) wrote extensively in reference to the “disabled God,” which focuses on post-resurrection Jesus Christ with impaired hands and feet while suggesting fair treatment of people with disabilities. She suggests the power of identification constitutes a moment of validation for people with disabilities and spiritual empowerment.

The healing power of God in Christianity should not be regarded lightly by researchers as sheer superstition. Prayer and a belief in the afterlife have been found to provide cancer patients with slivers of hope for the future as they dealt with end-of-life issues head-on (O’Connor, Wicker, & Germino, 1990). Some Christian leaders question the church for its failure to provide clear instructions on addressing disability and its associated concerns (Blair, 1994; Eiesland, 1994). The church is sometimes unaware that even with the best of intentions, the Christian approach to counseling people may induce more distress than offer comfort (Joeckel, 2006). For instance, telling a person who has just sustained a spinal cord injury that the disability is meant to happen probably will not help assuage any of his or her deep anguish and despair.
Society, Discrimination and the Acceptance of Disability

It comes as no surprise that when measuring equality, people with disabilities tend to occupy the lowest rungs of the social ladder. Despite the passing of the 1990 Americans with Disabilities Act, which mandated an inclusive environment for the acceptance and integration of people with disabilities, stigma and discrimination continue to exist in society. Many people with disabilities face rejection and ostracism until they successfully prove themselves in various aspects of life. To cope with the involuntary negative views bestowed upon them by society, people with disabilities must first internalize a schema to accept their own disabilities. Self-acceptance is defined as an individual’s satisfaction or happiness with him or herself. Acceptance of disability has regularly been associated with the acceptance of loss (Dembo, Levitan, & Wright, 1972; Glueckauf, 1993). Alternatively, the lack of acceptance can be conceptualized in the form of an adjustment disorder (DSM-V, 2013). Failure to accept the long-term limitations of a new health condition or disability can increase psychological distress. Consequently, it can not only further exacerbate adjustment difficulties but also in turn delay the person’s adaptation to his or her changed personal circumstances. It is, therefore, intriguing to see why some people with acquired disabilities seem to react to their new disability identify positively while others respond negatively.

A large body of research focuses on the public response to people with disabilities and the inability of society to remove environmental and social barriers. At-Turki (2012) stresses the need to feature people with disabilities in positive roles in the media in order to change societal negative stereotypical views and perceptions. Deal (2006) measured the attitudes of people with and without disabilities towards other people with impairments using a prejudice scale. The results revealed that both groups of participants expressed similar degrees of negative attitudes. In other words, people regardless of their disability status may hold subtle forms of prejudice towards disability.

Future Time Orientation

People’s perspective of time helps shape how they manage the challenges and adversities in life (Lens, 1984). The sense of time, or the orientation towards living in the present or living in the future, serves as a coping mechanism for people after the onset of a disability. Future time orientation can be understood as the degree to which an individual’s thoughts and actions are engaged or involved with the future (Livneh, 2012, 2013; Martz, 2003). Underlying the concept of time is the individual’s willingness to delay instant gratification in anticipation of attaining a more promising future or reward (Gjesme, 1979). A simplistic scenario would be for a college student to decide whether to go out with friends to watch a movie or to go to the library to study the night before an important examination. The choice made will pose greater stakes and consequences if the student is intent on attending a medical school, where good grades are often one of the most critical admission criteria. Likewise, future time orientation can have an impact on how people with disabilities adjust and accept their chronic illnesses and disabilities (Martz, 2003; Martz & Livneh, 2003). Kielpfon (1977) suggests that perhaps individuals with a later onset of physical disability may experience temporal disturbances due to the excessive amount of time required to perform formerly-known routines. Similarly, in a study of 317 individuals with spinal cord injuries, Martz (2003) found depression, shock, and self-acceptance to be significant predictors of fluctuations in future time orientation among such individuals. Although research has discussed future time orientation in relation to disability, few studies have used religion as a predictor variable. Compared to those who scored lower in future time orientation, Oner-Ozkan (2007) found that individuals who scored higher in future time orientation also scored high in the level of belief in God and level of interest about the future beyond death. Psychologists have mentioned that Buddhists do not place emphasis on the future as much because it generates expectations that may lead to suffering if they are not fulfilled (Charlton, 1998). On the other hand, Christians tend to focus on the future in reference to the afterlife with God in heaven. To them, disability presents only a temporary inconvenience and setback to their existence while on earth. The time of salvation will eventually come when they can truly enjoy an eternal, carefree and pain-free life with God.

Hope

Positive mind sets have been identified with successful coping and good health, while despair and hopelessness have been linked to illness and disability (Scioli et al., 1997). Dorsett (2010) presented results from a 10-year longitudinal study of 46 people with spinal cord injuries, suggesting that hope was an essential factor that helped them cope with their injuries. Hope has emerged as a key element of adjustment, evaluation, and the reconstruction of meaning following injury. Hope is considered multifaceted and consists of three components: affective, cognitive, and collaborative (Farran, Herth, & Popovich, 1995). There are, of course, individual differences in the level of hopefulness especially when acquiring a disability (Dorsett, 2010).

People’s level of hope influences their outlooks on life. In general, hope has been established as having a negative relationship with depression and a positive relationship with satisfaction with life (Chang, 2003). Research further suggested a correlation between hope and health outcomes. In a study of 196 parents of children with intellectual disabilities, Snyder et al. (1996), examined their feelings of hope, positive affects, and psychological well-being. The findings of the study revealed that lower levels of hope and more child behavior problems led to parents’ depression. They further recommended the inclusion of hope as a factor in the study of how people with disabilities cope with stress.

Spiritual Well-Being

For decades researchers have encouraged the incorporation of spirituality and religion into clinical practice (Green,
Benshoff, & Harris-Forbes, 2001). However, very little empirical research has been conducted to assess the role of spirituality on self-acceptance among people with disabilities. Spirituality has been defined in a number of ways, including the way in which individuals answer to all-things sacred (Gaventa, 2001) and the need to find meaning in their existence (Canda, 1999). Spirituality brings meaning and strength during difficult times for people with disabilities; therefore, views of illness and disability are connected with spiritual beliefs (Zhang, Bennett, & Hojnar, 2001).

Disparity exists in opinions as to how spiritual well-being should be addressed between healthcare providers and their patients. Oyama and Koenig (1998) found that 91% of patients indicated that their physicians did not ask questions about spiritual or religious beliefs, and 83% of them wanted their physicians to discuss spiritual or religious beliefs with them. A study by Kozak (2001) found that participants with rheumatoid arthritis indicated that spirituality was beneficial in accepting and dealing with pain. Cadge and Daglian (2008) analyzed 683 written prayers by 536 staff, visitors, and patients. The researchers determined that 21.8% were prayers written to give God thanks, 28% were written as requests, and 27.5% were written to express thankfulness and a request of God. The results from this study suggest that the shift in thinking of the relationship between God or a spiritual power and humans from an authoritarian view to a more psychologically or emotionally supportive relationship can help provide meaning and understanding for people with disabilities.

Although religion is a predictor variable used in behavioral and psychological research to examine adjustments to a disability, to the knowledge of the authors no study has attempted to compare the attitudes of disabled believers from two religions, differing markedly in their philosophically nature living in two countries. Therefore, the purpose of this study was to compare the self-acceptance of one’s disability in international settings, specifically in the context of religions. The two research questions that guided the study were as follows: (1) Are there differences in the levels of self-acceptance in regard to disability among Thai Buddhists and American Christians? and (2) What factors are predictive of self-acceptance in regard to disability in Thai Buddhists and American Christians?

Method

Participants

A total of 98 Thai Buddhists with neuromuscular disorders participated in the study (50 males, 48 females). The average age of the participants was 51.04 (SD = 17.26) years old, ranging from 18 to 92. The average number of years since the diagnosis of a disability was 20.48 (SD = 17.80), ranging from 2 months to 78 years. The marital status of the Buddhist sample was 38 (38.8%) people were never married, 37 (37.8%) people were married, 4 (4.1%) people were divorced, and 19 (19.4%) people who were widowed. In terms of educational attainment, 73.5% (n = 72) had less than a high school education, 15.3% (n = 15) finished high school, 8.2% (n = 8) had an associate degree, and 3.1% (n = 3) had a bachelor’s degree. With regard to employment status, 6.1% (n = 6) worked full-time, 5.1% (n = 5) worked part-time, 17.3% (n = 17) were self-employed, 6.1% (n = 6) were retired, 12.2% (n = 12) were homemaker, 1.0% (n = 1) was student, and 5.2% (n = 51) were unemployed.

A total of 95 American Christians with neuromuscular disorders participated in the study (39 males; 56 females). The average age of the participants was 47.67 (SD = 13.97) years old, ranging from 18 to 84. The average number of years since the diagnosis of a disability was 20.32 (SD = 14.47), ranging from 1 to 56 years. The marital status of the Christian sample was 33.7% (n = 32) were never married, 52.6% (n = 50) were married, 12.6% (n = 12) were divorced, and 1.1% (n = 1) was widowed. In terms of the level of education, 1.1% (n = 1) had less than a high school education, 37.9% (n = 36) finished high school, 11.6% (n = 11) had an associate degree, 33.7% (n = 32) had a bachelor’s degree, and 15.8% (n = 15) had a graduate degree. With regard to employment status, 21.1% (n = 20) worked full-time, 6.3% (n = 6) worked part-time, 5.3% (n = 5) were self-employed, 26.3% (n = 25) were retired, 10.5% (n = 10) were homemakers, 11.6% (n = 11) were students, and 18.9% (n = 18) were unemployed.

Measures

Hope Scale (HS: Snyder, Harris, Anderson, Holleran, Irving, et al., 1991). The HS is a 12-item self-report instrument designed to measure the magnitude of hope in people. Participants rate themselves by using a 4-point Likert type scale (1 = definitely false to 4 = definitely true). Four distractor items #3, 5, 7, and 11 are removed from the summation of scores. The possible scores range from 8 to 32; where higher scores on the HS indicate higher level of hope. The Cronbach’s α coefficients for the Christian and Buddhist samples were .829 and .735, respectively.

Future Time Orientation Scale (FTOS: Gjesme, 1979). FTOS consists of 14 items that are rated on a 4-point Likert type scale (1 = is very true of me, 2 = is fairly true of me, 3 = is not too true of me, 4 = is not true at all of me). Items #1, 3, 4, 5, 6, 7, 8, 9, 11, 12, and 13 are reversed scored, with a possible scores range of 4 to 56. Higher scores on the instrument indicate a stronger orientation toward distant rewards and goals in the distant future. The internal reliability of the FTOS has been measured in terms of Cronbach’s α coefficient ranging from .57 (Martz & Livneh, 2003) to .67 (Halvari, 1991). For this study, the Cronbach’s α coefficient for the Christian and Buddhist samples were .564 and .722, respectively.

Spiritual Well-Being Scale (SWBS: Paloutzian & Ellison, 1991). SWBS consists of two 10-item subscales, namely, the Religious Well-Being (RWB) and the Existential Well-Being (E WB). Each item uses a 6-point Likert type scale (1 = strongly disagree to 6 = strongly agree). Items #1, 2, 5, 6, 9, 12, 13, 16, and 18 are reversed scored. The possible total score ranges from 20 to 120. The Cronbach’s α coefficient for the Christian and Buddhist samples were .920 and .810, respectively.
Acceptance of Disability Scale-Revised (ADS-R: Groomes & Linkowski, 2007). The construct of self-acceptance of disability was measured using the ADS-R, an instrument with 32 items rated on a 4-point Likert type scale (1 = strongly disagree to 4 = strongly agree). Items require reverse scoring include #1, 2, 4, 5, 7, 8, 9, 10, 11, 13, 14, 15, 17, 19, 20, 22, 23, 24, 26, 27, 30, and 31. Possible scores range from 32 to 128. A previous study shows the instrument had a Cronbach’s α coefficient of .89 (Jo, Chen, & Kosciulek, 2010). For the present study, the Cronbach’s α coefficient for the Christian and Buddhist samples were .934 and .894, respectively.

Procedure
American Christian participants were recruited from support groups for people with neuromuscular disorders in a Midwestern state. Survey packets, containing an introductory flyer, an informed consent form, the questionnaire and a prepaid postage envelope, were left with support group coordinators to be distributed during the sessions. The Thai Buddhist participants were people with neuromuscular disorders recruited at a large metropolitan public hospital. Research assistants explained the purpose of the study to patients who were receiving treatments at the facility. All materials were translated in Thai first and then translated back to English separately by two U.S. educated bilingual researchers to ensure accuracy and validity of the statements. The amount of time required to complete each survey was approximately 15 minutes.

Data Analysis
Both descriptive and inferential statistics were utilized to analyze the data. An independent-samples t-test and a chi-square test of independence examined differences in the demographic characteristics of the Buddhist and Christian samples. To understand the differences in the extent of self-acceptance of disability among participants with respect to their sex and religion, a two-way factorial ANOVA was conducted. A one-way ANOVA was chosen to analyze the effect of educational attainment on the dependent variable. Two separate hierarchical multiple regression analyses were performed to explain the variances in the dependent variable for the Buddhist and Christian samples. Demographic variables were entered in the first step of the regression model. Additional predictor variables were entered in the second step of the regression model. Multicollinearity was inspected by calculating the collinearity statistics such as tolerances and variance inflation factors.

Results
An independent-samples t-test was calculated to compare the mean age of Buddhist participants with the mean age of Christian participants. The mean age of Buddhists (M = 51.04, SD = 17.26) was not statistically different from the mean age of Christians (M = 47.67, SD = 13.97), t(188) = 1.471, p > .05. The number of years since the diagnosis of a disability for Buddhists (M = 20.48, SD = 17.80) was not statistically different from that of Christians (M = 20.32, SD = 14.47), t(191) = -0.068, p > .05. A chi-square test of independence was calculated to compare the frequency of educational attainment in Buddhists and Christians. The results revealed that there was a significant difference in the level of education between the two groups, χ²(4) = 117.186, p < .001. Christian participants had received more education than their Buddhist counterparts.

A 2 (sex) x 2 (religion) between-subjects factorial ANOVA was calculated comparing the level of self-acceptance of disability for participants with respect to their sex and religion. A significant main effect for sex was found, F(1, 118) = 4.704, p < .05, η² = .024. Female participants (M = 93.65, SD = 1.45) were more accepting of their disability than male participants (M = 89.00, SD = 1.58). A significant main effect for religion was found, F(1, 118) = 73.104, p < .001, η² = .280. Christian participants (M = 100.48, SD = 1.54) were more accepting of their disability than Buddhist participants (M = 82.17, SD = 1.49). However, the interaction between sex and religion was not significant, F(1, 118) = .929, p > .05, η² = .005.

A one-way ANOVA was calculated to compare the level of self-acceptance of disability for participants with regard to their educational attainment. Participants who had a graduate degree, a bachelor’s degree, and an associate degree were combined into one category due to small representations in numbers for the first two groups. A significant difference was found among participants of three levels of educational attainment, F(2, 189) = 26.081, p < .001. Tukey’s HSD was used to determine the nature of the difference among three different levels of educational attainment. This analysis revealed that participants with less than a high school education (M = 81.04, SD = 10.66) were less accepting of their disability than participants with a college education (M = 98.72, SD = 20.19). Participants with less than high school education were also less accepting of their disability than participants with high school (M = 96.57, SD = 14.52). The difference in self-acceptance of disability between participants with a high school education and those with at least a college education was not statistically significant, p = .737.

Table 1 displays the means, standard deviations and bivariate correlations of the research variables. For the Buddhist sample, the correlation between self-acceptance of disability and age was significant, r = -.238, p < .05. The correlation between self-acceptance of disability and years since diagnosis of disability was significant, r = .282, p < .01. The correlation between self-acceptance of disability and hope was significant, r = .223, p < .05. The correlation between self-acceptance of disability and future time orientation was significant, r = -.373, p < .01. The correlation between self-acceptance of disability and spiritual well-being was significant, r = .664, p < .01. The correlation between future time orientation and spiritual well-being was significant, r = -.360, p < .01. For the Christian sample, the correlation between self-acceptance of disability and hope was significant, r = .663, p < .01. The correlation between self-acceptance of disability and spiritual well-being was significant, r = .371, p < .01. The correlation between hope and future time orientation was significant, r = -.239, p < .05.
Table 2 displays summary of hierarchical multiple regression analyses predicting self-acceptance of disability for Buddhists and Christians. To examine the Buddhist sample, a hierarchical multiple regression was performed by entering demographic variables that consisted of age, sex, number of years since diagnosis of disability, education, marital status, and employment status as a block in the first step. The preliminary model for Buddhists was statistically significant, $F(6, 90) = 4.440, p = .001$ with an $R^2$ of .228 and an adjusted $R^2$ of .177. The standardized $\beta$ for age was -.215, $p = .031$. The standardized $\beta$ for years since diagnosis of disability was .246, $p = .013$. The standardized $\beta$ for marital status .199, $p = .044$. Additional predictor variables including hope, future time orientation, and spiritual well-being were then added to a subsequent model in the second step. The final regression equation was found to be statistically significant, $F(9, 87) = 13.753, p < .001$ with an $R^2$ of .587 and an adjusted $R^2$ of .545. The change in $R^2$ was .359 and the change in adjusted $R^2$ was .368. Collinearity statistics showed that tolerances for all variables were well above .63 (1 - adjusted $R^2$), indicating there was not a problem with multicollinearity. The beta weights show that four out of 10 variables significantly contributed to predicting the dependent variable. The largest standardized $\beta$ was spiritual well-being = .625, $p < .001$. The second largest

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<th>Table 1</th>
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<tr>
<td><strong>Means, Standard Deviations, and Zero-Order Correlations of Research Variables</strong></td>
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<tr>
<td>Variables</td>
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<td><strong>Thai Buddhists</strong></td>
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*Note. 1 = Self-acceptance of disability, 2 = Age, 3 = Years since diagnosis of disability, 4 = Hope, 5 = Future time orientation, 6 = Spiritual well-being.  
* $p < .05$, ** $p < .01$
standardized $\beta$ was age = -.271, $p < .05$. The third largest standardized $\beta$ was number of years since diagnosis of disability = .166, $p < .05$. The fourth largest standardized $\beta$ was sex = -.151, $p < .05$. According to the regression model, 54.5% (a large effect, Cohen, 1988) of the variances in the Buddhists’ self-acceptance of their disability can be predicted from the research variables.

To examine the Christian sample, a hierarchical multiple regression was performed by entering demographic variables consisted of age, sex, years since diagnosis, education (1 = associate’s degree or less), marital status, and employment status as a block in the first step. The preliminary model was statistically significant, $F(6, 85) = 2.513$, $p < .05$ with an $R^2$ of .151 and an adjusted $R^2$ of .091. The standardized $\beta$ for sex = -.247, $p < .05$. Additional predictor variables including hope, future time orientation, and spiritual well-being were then added to a subsequent model in the second step. The final regression equation was found to be statistically significant, $F(9, 82) = 10.402$, $p < .001$ with an $R^2$ of .533 and an adjusted $R^2$ of .482. The change in $R^2$ was .382 and the change in adjusted $R^2$ was .391. Collinearity statistics showed that tolerances for all variables were well above .52 (1 – adjusted $R^2$), indicating that there was not a problem with multicollinearity. The beta weights show that three out of 10 variables significantly contributed to predicting the dependent variable. The largest standardized $\beta$ was hope = .574, $p < .001$. The second largest standardized $\beta$ was spiritual well-being = .190, $p < .05$. The third largest standardized $\beta$ was number of years since diagnosis of disability = .168, $p < .05$. The standardized $\beta$ for future time orientation was not statistically significant = -.033, $p = .678$. According to the regression model, 48.2% (a large effect, Cohen, 1988) of the variances in the Christians’ self-acceptance of their disability can be explained from the research variables.

Consistent with previous research (Chen & Crewe, 2009), the female participants in both countries were more accepting of their own disabilities than the male participants. It is plausible that gender-role expectations, which exist in most societies, make it difficult for men, with or without disabilities, to seek out instrumental and emotional support when facing personal problems in life (Barbee et al., 1993). Furthermore, because men are traditionally seen as the primary breadwinners for their families, the inability to work due to a debilitating health condition only further compounds the psychological stress and diminishes self-esteem. The role reversal change not only shatters men’s long-held perceived superiority in a family structure, but also emasculates them psychologically.

In the present study, the Christian participants seem to be dealing with their disabilities psychologically better than the Buddhist participants. People often draw strength from their religions in times of dire straits (Crane et al., 2009). Interestingly enough, although the teachings and tenets of major religions interpret the meaning and purposes of life differently, future time orientation was not an influential factor in shaping the forward-looking mindsets of Christians and Buddhists with disabilities when dealing with disability-related challenges and issues in life. Contrary to the findings of a 2004 study conducted by Martz, future time orientation was not a statistically significant predictor of the self-acceptance of one’s disability among both American Christians and Thai Buddhists in the present study. Martz and Livneh (2007) posit an explanation that the level of denial of having had a disability is highly correlated with future time orientation because “thinking about and planning for one’s future may be more indicative of the thought processes that are reflected in the acknowledgment of disability.” Perhaps the here-and-now mode that the participants adopted is more suitable to generating immediate solutions for the barriers and hurdles, which they encounter on a daily basis. It may also arise because their disability does not permit them the luxury of time to reflect on their future. Rehabilitation professionals and healthcare providers play a critical role in facilitating the adaptation of individuals with disabilities to their new condition and environment by addressing feelings, thoughts, and self-perceptions (Martz, 2004).

Of the three educational attainment categories, participants with a college education or with a high school education reported being able to accept of their neuromuscular disorders better than their counterparts who did not have a high school education. Quality of life is positively correlated with the acceptance of disability (Chen & Crewe, 2009). Individuals with more education may know their legal rights and know where to find resources, disability services, and vocational rehabilitation via reading and searching on the Internet. Individuals with disabilities who are more informed understand how they can benefit from using assistive technology to improve their quality of life and to help them become more independent and less reliant on the assistance from caregivers.

Consistent with a study of 46 individuals with spinal cord injuries (Dorsett, 2010), hope was an important coping mech-
anism. The correlation between hope and self-acceptance of one’s disability found in Buddhists and Christians is not surprising. In both religions, God and Buddha are thought to be merciful and forgiving, who provide comfort and care for the suffering multitudes. Hope transforms into a form of motivational force that allows people with disabilities to cope with seemingly difficult situations. Hope represents the ray of light beaming at the distant end of the tunnel. The fact that hope and future time orientation are negatively correlated indicates that people with disabilities are cognizant of the reality that many decisions in their lives have to be made on a here and now basis. Moreover, previous studies by Kozak (2001) also support the present study’s notion that spirituality and views toward disability are interconnected. Such a line of postula-

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<td>Summary of Hierarchical Multiple Regression Analysis Predicting Self-Acceptance of Disability</td>
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<th>R²</th>
<th>ΔR²</th>
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<tr>
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<td>-.215*</td>
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<td>.065</td>
<td>.246*</td>
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<td>1.216</td>
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<tr>
<td>Step 2</td>
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<td></td>
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<td></td>
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<tr>
<td>Age</td>
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<td>.051</td>
<td>-.271**</td>
<td>.587</td>
<td>-3.588</td>
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<tr>
<td>Sex</td>
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<td>1.730</td>
<td>-.151*</td>
<td>.359</td>
<td>-2.054</td>
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<tr>
<td>Years since diagnosis</td>
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<td>.049</td>
<td>.166*</td>
<td></td>
<td>2.241</td>
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<tr>
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<td>2.019</td>
<td>.038</td>
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<td>.499</td>
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<tr>
<td>Marital status</td>
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<td>1.823</td>
<td>.017</td>
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<td>.226</td>
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<tr>
<td>Employment status</td>
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<td>2.080</td>
<td>.070</td>
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<td>.878</td>
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<tr>
<td>Hope</td>
<td>.011</td>
<td>.231</td>
<td>.004</td>
<td></td>
<td>.049</td>
<td></td>
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<tr>
<td>Future time orientation</td>
<td>-.082</td>
<td>.154</td>
<td>-.043</td>
<td></td>
<td>-.533</td>
<td></td>
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<tr>
<td>Spiritual well-being</td>
<td>.635</td>
<td>.085</td>
<td>.625**</td>
<td></td>
<td>7.460</td>
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<tr>
<td>Adjusted R² = .545</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

| American Christians |
| --- | --- | --- | --- | --- | --- | --- |
| Step 1 |  |
| Age | .101 | .140 | .080 | .151 | .719 |
| Sex | -8.792 | 3.672 | -.247* |  | -2.395 |
| Years since diagnosis | .234 | .125 | .193 |  | 1.871 |
| Education | 5.170 | 3.819 | .147 |  | 1.354 |
| Marital status | 6.564 | 3.816 | .187 |  | 1.720 |
| Employment status | 2.126 | 4.039 | .057 |  | .526 |
| Adjusted R² = .091 |
| Step 2 |  |
| Age | .002 | .108 | .002 | .533 | .023 |
| Sex | -4.822 | 2.864 | -.135 | .382 | -1.683 |
| Years since diagnosis | .204 | .095 | .168* |  | 2.138 |
| Education | .871 | 2.946 | .025 |  | .296 |
| Marital status | .715 | 3.026 | .020 |  | .236 |
| Employment status | 2.566 | 3.115 | .069 |  | .824 |
| Hope | 2.765 | .422 | .574** |  | 6.557 |
| Future time orientation | -.124 | .299 | -.033 |  | .416 |
| Spiritual well-being | .200 | .087 | .190* |  | 2.290 |
| Adjusted R² = .482 |

*p < .05, **p < .01
tion is corroborated by the evidence of a positive correlation between the self-acceptance of one’s disability and spiritual well-being reported by the participants of both religions.

A plethora of studies on the different types of disability in the population indicate that the number of years since the diagnosis of a disability is a key determinant of the acceptance of disability (Chen & Crewe, 2009; Krause & Sternberg, 1997; Nicholls et al., 2012). However, the present study can only partially confirm this supposition. While the Thai Buddhists reported a statistically significant relationship, albeit a weak one, between the two variables, the American Christians were unable to produce similar results. When the predictor variable of years since the diagnosis was further entered into the regression models to be performed separately on the Buddhist and Christian samples, the results disaffirmed the findings of the aforementioned studies. Thus, it was concluded that the number of years since the diagnosis was not a statistically significant contributing factor. As Vash and Crewe (2003) poignantly explained, the process of self-acceptance of a disability must be understood as containing multidimensional traits; the individual may resort to the use of rational and logical thinking to manage the reality of living with his or her disability and, at the same time, still mourn and harbor the painful loss of physical or sensory functioning.

Limitations

There are caveats to the generalizability of the research findings. First, the sample size was small given the sparseness of neuromuscular disorders population. Second, the convenience sample of Christian participants in the United States was recruited from post hospitalization support groups, while the Buddhist participants in different stages of recovery were recruited from a rehabilitation hospital in Thailand. There was reservation about suggesting religion to be the sole factor to influence the self-acceptance of one’s disability, because there might be confounding environmental variables unique to the societies in which the participants resided. Third, the generalizability of the findings can only be understood in the realm of one disability population. Perhaps people with sensory impairments and mental health issues may see the acceptance of disability differently than the participants with neuromuscular disorders in the present study. In spite of the aforementioned limitations, this study sheds light on one’s adjustment to a disability in a multicultural context. Future researchers may wish to focus on clarifying disability-related issues that curb the development of spiritual beliefs. Other research ideas worth exploring include conceptualizing the role of spirituality when coping with a disability and examining how individuals experience the process of accepting disability. Replicating the study with individuals of other faiths, as well as those without a religious background would be useful. In conclusion, this international comparative study affirms the importance of incorporating knowledge of multiculturалиsm into counseling and rehabilitation practices in health sciences and human services settings. Although people with the same type of disability may undergo similar stages of adjustment, culturally specific factors also play a vital role in shaping their outlooks on life after the onset of the disability.

Conclusion

The overall findings contribute to a better understanding of self-acceptance in regard to disability among people with neuromuscular disorders who come from different religious backgrounds, particularly Thai Buddhists and American Christians. The clinical implications for rehabilitation professionals and healthcare practitioners include the potential value in considering future time orientation, hope, and spiritual well-being as potential catalysts for greater self-acceptance of disability by clients with religious views who are undergoing rehabilitation. These promising variables warrant further investigation among people of different religions as well as in different disability populations.

References


Martz, E. (2004). Do reactions of adaptation to disability influence the fluctuation of future time orientation among individuals with spinal cord injuries? Re-


In Review

Disability Across the Developmental Life Span: For the Rehabilitation Counselor

Smart, J. (2012), New York: Springer Publishing Company
pp. xiii & 518, (soft-cover) $80

Published in 2012, Disability Across the Developmental Life Span: For the Rehabilitation Counselor is a refreshing look at disability in relation to the major theories of human growth and development. This text can be used in graduate training for rehabilitation counseling and related disciplines. It appears that this is the only available text that provides a comprehensive coverage of human growth and development, a requirement mandated by the Council of Rehabilitation Education (CORE) for a master’s degree in rehabilitation counseling. It would seem that it could also be used for Licensed Professional Counselor training. The text is well organized into three major sections and consists of sixteen chapters. The first section introduces the reader to some of the general aspects of theories of human growth and development. There is also a focus on the demographic shifts. One of the demographic changes not generally discussed is the growth in numbers of people with disabilities.

The middle section of the text provides a brief overview of the so-called grand theories. Chapters 3-8 include a brief, but thorough description of the developmental theories attributed to Freud, Erikson, cognitive learning, behavioral learning, Maslow and Kohlberg. Each chapter provides an outline of the theorist’s biographies, the main points of the theories and some evaluation of the theories. This is followed by some insightful discussion of possible applications to people with disabilities. The last section deals with the experience of disability. The basic life stages are presented. The author included the typical developmental tasks, a discussion of the ways in which demographic and behavioral changes have affected life stages.

Examples of disabilities experiencing specific life stages are presented.

The chapters are presented in a stimulating manner. Information is presented and is followed by suggestions for further learning experiences. Students are presented with terms to learn, videos to view, learning activities and writing activities to explore. These options really make the book interactive. Lesson plans should be easy to develop around this text. There appears to be good use of charts and tables to better explain the material. Summary boxes are given to underline major points. There just seems to be good organization of the material with the needs of the reader in mind. The bottom line is that readers will come away with a sound understanding of the human growth and development theories as they relate to people with and without disabilities.

Dr. Julie Smart is a highly respected expert in disability studies. She has developed an excellent contribution to rehabilitation education. Both graduate students and updating professionals will come away with a clear understanding of the developmental theories against the backdrop of how people with disabilities should be included in the discussion.

Gregory G. Garske, Ph.D., LPCC-S, CRC
Professor, School of Intervention Services
Bowling Green State University
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Greg G. Garske
Bowling Green State University
Email: ggarske@bgnet.bgsu.edu

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