Examining Career Readiness and Positive Affect in a Group of College Students with Disabilities: A Pilot Study

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Abstract

Data were collected from 47 college students with disabilities at a large Midwestern university using the Career Thoughts Inventory ([CTI]; Sampson, Peterson, Lenz, Reardon, Saunders, 1996) and the Positive and Negative Affect Scale ([PANAS]; Watson, Clark, & Tellegen, 1988). Initial results revealed no significant differences for CTI total, Decision-Making Confusion (DMC), and Commitment Anxiety (CA) subscales when compared to the normative samples of the CTI. However, significant differences were found for the External Conflict (EC) subscale. Results further indicated that individuals who were identified as having the highest level of dysfunctional career thoughts were also found to have significantly higher levels of negative affect and lower levels of positive affect. Overall, the results of this pilot study provide support for the need to address career thoughts in college students with disabilities and the impact of affect on their career decision-making process.

Keywords: College students, disabilities, career readiness, affect

The enrollment growth of students with disabilities in higher education nationally has generated both an interest and an identified need to further explore the implications associated with and faced by college students with disabilities. Research has further suggested that a college degree serves an important role for persons with disabilities (Madaus, 2006a). According to Planty et al. (2008), the percentage of students with disabilities graduating with a high school diploma was 57% in 2005-2006, an increase from 47% from the 1996-1997 academic year, an indication of the positive impacts of the ADA on students in the primary and secondary education systems. However, the U.S. Department of Education's National Center for Education Statistics ([NCES]; 2011) reports that up to 11% of all undergraduates report having a disability impacting their academics, but the actual percentage of college students who register for and utilize disability services is typically substantially lower. According to Raue and Lewis (2011), all public 2-year and 4-year institutions (99%), and medium and large institutions (100%) report enrolling students with disabilities.

Despite these promising enrollment trends, the national employment rate is only 20.1% (for both full-time and part-time employment) for individuals with disabilities, whereas those without disabilities have an employment rate of approximately 69.5% (Office of Disability Employment Policy, 2011). Although a higher education degree can increase the number of opportunities available for meaningful employment, it is

apparent that the employment outcomes for individuals with disabilities on average remain substantially lower when compared to those without disabilities.

It is evidenced that college students with disabilities encounter obstacles unique to their disability experience. The overall preparedness of college students with disabilities for transitioning from higher education to employment has been shown to be substantially less when compared to their peers without disabilities, as students with disabilities typically have limited experiences with career development activities and little or no meaningful prior work experience (Hitchings & Retish, 2000). Research has suggested that making career and employment decisions is often a difficult, stressful, and time consuming process and can be negatively impacted by the presence of disability (Peterson, Sampson, Reardon, & Lenz, 1996). Hitchings, Luzzo, Ristow, and Horvath (2001) found that college students with learning disabilities had difficulties in describing their disability and its impact on their career transition needs, and these students' participation in career development activities were extremely limited. Stodden, Dowrick, Anderson, Heyer, and Acosta (2005) further reports that, while there is a general sense that college students with disabilities believe that postsecondary education increased their self-confidence and marketability, higher education did not prepare them as well for transition from college to employment.

Programmatic support addressing higher education-to-employment transition specifically for college students with disabilities is limited or non-existent on many campuses, and therefore can create perceived barriers for college students with disabilities. College students with disabilities may believe, for example, that career services professionals do not understand the implications associated with their needs or are not proportionately informed of these services as other students. As a consequence, the career transition needs of college students with disabilities are frequently unmet and may contribute to the low participation rates in career development programs and services that result in poor transition and employment outcomes (Hitchings et al., 2001).

Research in the area of career development and transition has found that how people think about and make decisions related to career information and employment is a robust factor that contributes to the career transition process. For instance, the perceptions of employment self-efficacy and use of self-regulatory strategies and accommodations for university graduates with learning disabilities were found to be a significant predictor to employment satisfaction (Madaus, Ruban, & Foley, 2003; Madaus, 2008). People who have positive thoughts related to making career decisions and have the necessary knowledge about how to process and make career decisions, feel better about, and are more engaged in the career transition process (Kleiman, et al., 2004). Therefore, along with addressing systemic and programmatic issues that impact college student with disabilities' transition, it would also be important to understand from an individual level how college students with disabilities think about making career decisions and the career transition process. This information could provide the theoretical foundation for the both systematic and programmatic interventions that can be designed to enhance the career transition process for college students with disabilities.

Theoretical Framework

Cognitive Information Processing ([CIP]; Peterson et al., 1996) provides a theoretical framework for examining and understanding the role of vocational cognitions in career development and employment and has been applied to research in both of these areas (Keim & Strauser, 2002). The aim of the CIP approach is to help individuals make appropriate career and employment choices while acquiring the cognitive, affective, and behavioral skills needed to engage in effective career and employment problem solving and decision making when faced with future career and vocational choices. The CIP approach is based on the following assumptions: (1) career and employment problem solving and decision making involve emotion and cognitionl; (2) effective career and employment problem solving and decision making involve both knowledge and process; (3) knowledge regarding oneself and the world of work is dynamic; and (4) career and employment problem solving and decision making are skills that can be acquired and improved through appropriate career interventions (Sampson, Rearson, Peterson, & Lenz, 2004; Saunders, Peterson, Sampson, & Reardon, 2000).

Within the framework of CIP, career readiness is defined as the *capability* of an individual to make appropriate career and employment choices while taking into account the *complexity* of the contextual factors (family, SES, gender) that influence an individual's career development and employment. *Capability* refers to the cognitive and affective capacity of the individual to engage in effective career and employment problem solving and decision making. Individuals who have higher states of readiness possess the necessary cognitive capacity and positive affective states to effectively engage in career and employment problem solving and decision making. Individuals who are less ready for effective career problem solving and decision making may be inhibited by dysfunctional

career thoughts and negative emotions. *Complexity* refers to the contextual factors originating in family, society, employing organizations, or the economy that make it more difficult to process the information necessary to solve career and employment problems and make decisions. Individuals who are in a higher state of readiness have fewer family, social, economic, and organizational factors that impact their career and employment problem solving and decision making. Individuals who are less ready for effective career and employment problem solving and decision making may be coping with one or more debilitating factors that negatively impact the career and employment problem solving or decision making process. These factors can generate emotional states such as anxiety, depression, and anger that subsequently make it even more difficult to process information necessary for effective decision-making and problem solving.

Given the theoretical foundations and research supporting CIP, and the purported interaction and impact of cognitive and affective variables on the career development transition process, it would appear to be important to examine the impact of career readiness and positive and negative affect on the career development process in a group of college students with disabilities. However, to date existing studies addressing the career transition of persons with disabilities typically have focused on policy such as the impact of school-to-work transition initiatives (Carter, Trainor, Ditchman, Sweeden, & Owens, 2009; Haber, Karpur, Deschênes, & Clark, 2008; Muthumbi, 2008; Shandra & Hogan, 2008), proposed models for effective service provision (Hart, Zimbrich, & Ghiloni, 2001; Johnson, Mellard, & Lancaster, 2007; Richard & Patricia, 2000), and predictors related to positive employment outcomes (Kirchner & Smith, 2005; McDonnall, 2010; White & Weiner, 2004). In addition, research in this area has typically included a broad group of individuals with disabilities and has not focused exclusively on college students with disabilities.

Due to the paucity of research addressing the transition and career readiness of college students with disabilities, there is a significant need to conduct further research in these areas. This current pilot study places an emphasis on investigating both the self-reported cognitive and affective perceptions of current college students with disabilities as it relates to career readiness and development. To mitigate the negative factors associated with career indecision for college students with disabilities, further understanding of the reported perceptions of students is an important initial step. The following two research questions guided this pilot study:

1. Do college students with disabilities have a higher or lower levels of career readiness when compared to a normative group of college students without disabilities?

2. Does positive and negative affect differ in a group of college students with disabilities based on level of dysfunctional career thoughts?

Method

Participants

Participants in this pilot study were undergraduate and graduate students registered for campus disability services at a large Midwestern university. All participants completed the registration process with the institution's disability services, the office responsible for determining eligibility for services and reasonable accommodations of currently enrolled students under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Participants were recruited during the intake process that all newly registered students who qualified for disability services must complete. Participants include incoming freshman, transfer, and graduate students.

The sample consisted of 47 college students with various types of disabilities. This sample included 55.3% males and 44.7% females, with ages ranging from 17 to 30 years old (M=19.81 years; SD=2.60). A total of 70.2% were Caucasian, 4.3% African American, 8.5% Hispanic, 10.6% Asian American/ Pacific Islanders, 2.1% Native American and 4.3% did not report ethnicity information. The sample was composed of freshmen (51.1%), sophomores (12.8%), junior (17.0%), senior (14.9%), and graduate students (4.3%). These students had been reported to have the following primary disabilities: Mobility (36.3%), Systemic/Medical (8.5%), Learning Disability (19.1%), Attention Deficit Hyperactivity Disorder (23.4%), Psychological (6.4%), Deaf/Hard-of-Hearing (4.3%), and Blind/Low Vision (2.1%) (see Table 1).

Procedures

The campus disability services office was responsible for assisting in the recruitment of the research participants for this pilot study. This research study was reviewed and approved by the institutional review board of the investigators' university. The researchers provided a package of information containing two measures along with the demographic sheet to each of the interested participants who qualified for the supports provided by the disability services office.

Table 1

Demographic characteristics of participants (N=47)

Gender	
Male	55.3%
Female	44.7%
Ethnicity	
Caucasian	70.2%
African American	4.3%
Hispanic	8.5%
Asian/ Pacific Islander	10.6%
Native American	2.1%
Non-specified	4.3%
Education	
Freshman	51.1%
Sophomores	12.8%
Junior	17.0%
Senior	14.9%
Graduate students	4.3%
Primary Disabilities	
Mobility/ Physical	36.2%
Systemic/ Medical	8.5%
Learning Disability	19.1%
Attention Deficit Hyperactivity Disorder	23.4%
Psychological	6.4%
Deaf/ Hearing Impairment	4.3%
Blind/ Low vision	2.1%
Age (years)	19.81 (SD = 2.60) (range = 17 to 30)

The reasons and procedures for this pilot study were explained to all participants and consent was obtained from all participants. All participants were informed that they were free to withdraw or not participate in the study with no negative impact on the services they receive or their academic standing at the University. The majority of participants was informed of the pilot study during the initial intake process for disability services and, from there, completed the two measures. Other participants were recruited when expressing a desire to further explore their own career development; therefore, they agreed to complete the two measures to gain an increased understanding of this area.

Instruments

Both the *Career Thoughts Inventory* ([CTI]; Sampson, Peterson, Sampson, & Reardon, 1996) and the Positive and Negative Affect Scale ([PANAS]; Watson et al., 1988) were utilized for this study. Despite their age, both the CTI and PANAS are widely used today in career counseling, mental health, and medical centers for persons with and without disabilities. Further, both instruments are deemed the gold standard in measuring constructs in research (Mpofu & Oakland, 2010; Strauser, 2014).

Career Thoughts Inventory ([CTI]; Sampson, et al., 1996) is a 48-item self-reported measure designed to

assess career thoughts. The CTI's content is based on the cognitive information processing (CIP) approach of career decision-making (Peterson, Sampson, & Reardon, 1991). For the purposes of the instrument, career thoughts are defined as outcomes of one's thinking about assumptions, attitudes, behaviors, beliefs, feelings, plans, and strategies related to career problem-solving and decision-making (Sampson et al., 1996, 1998). Respondents are asked to indicate their responses on each CTI item on a 4-point Likert scale ranging from 0 (*strongly disagree*) to 3 (*strongly agree*). This measure yields one total and three construct scores. The total score, consisting of all 48 items, is considered to be the single global indicator of dysfunctional career thinking and career readiness. Higher scores indicate higher dysfunctional career thinking (i.e., lower career readiness). The Decision Making Confusion (DMC) subscale, consisting of 14 items, assesses the inability to initiate or sustain the decision-making process as a result of an individual's disabling emotions and/or lack of understanding about the decision-making process. The Commitment Anxiety (CA) subscale, consisting of 10 items, assesses the impact that anxiety has on an individual's ability to commit on a career decision. External conflict (EC), consisting of 5 items, assesses an individual's inability to balance input from significant others with one's own preference, resulting in a reluctance to assume responsibility for career decision-making. The evidence supporting the content, construct, discriminant, and criterion validity of the CTI was provided by Sampson et al. (1996, 1998). The internal consistency reliability coefficient of the CTI total score for undergraduate college students was reported by Sampson et al. (1996) as .96 with construct scales ranging from .77 to .94.

Positive and Negative Affect Scale ([PANAS]; Watson et al., 1988) is a 20-item self-reported measure designed to assess the affective states. Respondents are asked to indicate the extent to which they experienced each of 20 emotions, with 10 of the emotions reflecting positive affect (PA) and the other 10 reflecting negative affect (NA) within a specified time period, with reference to a 5-point scale. The scale points are: 1 (*very slightly or not at all*), 2 (*a little*), 3 (*moderately)*, 4 (*quite a bit*), and 5 (*extremely*). Watson et al. (1988) developed the PANAS based on both empirical and theoretical perspectives. From the empirical perspective, they derived items according to Zevon and Tellegen's (1982) nine mood content categories, including attentive, excited, proud, strong, distressed, guilty, angry, jittery, and fearful. From the theoretical perspective, they conceptualized PA and NA as the dispositional activation of positively and negatively balanced affects (i.e. the lower ends of each affect are typified by its absence), with PA reflecting the extent to which an individual experiences pleasurable engagement with one's environment and NA reflecting the extent to which an individual experiences subjective distress and un-pleasurable engagement (Watson et al., 1988). The scales were shown to be highly internal consistent reliabilities, with the coefficient alpha ranging from .86 to .89 on PA and from .84 to .87 on NA across a number of different time frames (Watson et al., 1988). Recent results from a study using confirmatory factor analysis also revealed that an orthogonal two-factor model provided the best fit of the data, which further supported that individuals can be both pleasurably engaged and subjectively distressed simultaneously and therefore can score highly on both PA and NA (Tuccitto, Giacobbi, & Leite, 2010).

Data Analysis

To examine differences between college students with disabilities and a normative group of college students without disabilities, a series of *t*-tests was conducted. To examine differences in positive and negative affect by levels of dysfunctional career thoughts, three statistical analyses were conducted. First, cluster and discriminant analysis was used to group college students with disabilities by their respective levels of career readiness. Second, a univariate ANOVA and Chi-square analysis were conducted to determine if there were any significant differences between the identified groups on key demographic factors. Third, a multivariate analysis of variance (MANOVA) was computed as an omnibus test of significance by entering the PA and NA scores as dependent variables and group membership in the three cluster groups as independent variable. Univariate F-statistics and post hoc multiple comparisons, with Bonferroni adjustment were used to examine difference in the PA and NA scores across the three cluster memberships. In addition to examining significance, the primary locus of evaluation will be on the magnitude of the effect due to the small sample size. This is the preferred, methodological and statistical framework for small sample sizes (Rosenthal & Rosnow, 1991; Rosenthal, Rosnow, & Rubin, 2000).

Results

For Research Question 1, the raw CTI scores of college students with disabilities were first transformed into the standardized T-scores based on a normative group of college students for the Career Thoughts Inventory (Sampson et al., 1996). Results for Research

Table 2

T-Tests Comparing College Students with Disabilities and Colleges Students in General on the Career Thoughts Inventory (N=47)

CTI T-Scores	M	SD	df	t	p	d
Total	50.15	12.64	46	.081	.936	.024
DMC	48.83	11.21	46	-.716	.478	-.211
CA	49.96	12.73	46	-.023	.982	-.007
EC	55.38	14.57	46	2.533*	.015	.747 [b/c]

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996); Total = Total CTI score; DMC = Decision Making Confusion subscale; CA = Commitment Anxiety subscale; EC = External Conflict subscale. p< .05. d=Cohen's effect size: [a] small effect (d= .20); [b] medium effect (d =.50); [c] large effect (d =.80).

Question 1 indicated no significant differences for the CTI Total, Decision-Making Confusion (DMC), and Commitment Anxiety (CA) scores when comparing the CTI normative sample and the sample of college students with disabilities obtained in this study. However, the External Conflict (EC) subscale was significantly different from the normative college student sample ($t(46)=2.533$, $p=.015$) (Table 2).

For Research Question 2, a cluster analysis was conducted using the Ward's (1963) method of minimum-variance clustering and the squared Euclidean distance as the distance metric to group college students with disabilities based on their CTI total score. Ward's clustering procedure was chosen in this study as it is the most commonly used clustering method and usually gives a near optimal cluster solution (Romesburg, 1990). Romesburg (1990) further suggested that evidence of validity of the cluster analysis can be verified by finding agreement of the classifications produced from the same data set processed by different multivariate methods. Based on the interpretability of the clusters, examination of the dendrogram, and inspection of the fusion coefficients for "significant" jumps, a three-cluster solution was chosen in our study. Discriminant analysis was then followed using the individual's scores on the three subscales as independent variables and group membership determined by the cluster analysis as the dependent variable. This analysis yielded significant functions for the data: Wilks' Lambda1 = .102; χ^2 (6) = 98.223, $p < .001$; Wilks' Lambda2 = .833; χ^2 (2) = 7.877, $p = .019$.

Examination of the Kappa statistic indicated that the classifications produced from these two methods were significant (Kappa=.872, $p < .001$), in which 91.5% of our sample were correctly classified. The final clusters were labeled as follows: (a) Cluster 1: High level of dysfunctional career thought (i.e. low level of career readiness) (n =16), (b) Cluster 2: Moderate level of dysfunctional career thought (i.e., moderate level of career readiness)(n=15), and (c) Cluster 3: Low level of dysfunctional career thought (i.e., high level of career readiness/productive thoughts) (n =16). Table 3 shows the demographic characteristics for each cluster and Table 4 shows the mean scores, standard deviations for each of the three clusters on the total score and three CTI subscale scores. No significant differences were found among the three clusters on age, $F(2,44)= 1.550$, $p=.224$; gender, χ^2 (2) = .035, p = .983; ethnicity, χ^2 (8) = 11.487, p = .0176, or education, χ^2 (8) = 11.544, p = .173).

Results of the MANOVA indicated that the overall model is significant (Wilks' Lambda: $F(4,86) = 4.655$, p =.002, η^2 =.178). Follow-up univariate ANOVAs (Table 5) indicated that both PA and NA scores, when examined alone, were significantly different across the cluster memberships ($F(2,44) = 4.353$, p =.019, η^2 =.165 and $F(2,44) = 5.957$, p =.005, η^2 =.213 respectively). Post-hoc comparisons further revealed that Cluster 1 scored significantly lower on the PA score compared to Cluster 3 (p=.022). Additionally, Cluster 1 scored significantly higher on the NA score compared to both Cluster 2 (p=.026) and Cluster 3 (p=.008). No other significant differences were found on other pairs of means comparisons.

Table 3

Characteristics of the Clusters (N=47)

Characteristics	Cluster 1 (*n*=16)	Cluster 2 (*n*=15)	Cluster 3 (*n*=16)
Age: M (SD)	19.13 (1.41)	19.60 (1.99)	20.69 (3.70)
Women	43.8%	46.7%	43.8%
Ethnicity			
African American	0%	6.7%	6.3%
Caucasian	81.3%	46.7%	81.3%
Hispanic	0%	20.0%	6.3%
Asian/ Pacific Islander	12.5%	20.0%	0%
Native American	0%	0%	6.3%
Education			
Freshmen	62.5%	40.0%	50.0%
Sophomore	12.5%	20.0%	6.3%
Junior	0%	33.3%	18.8%
Senior	25.0%	0%	18.8%
Graduate students	0%	6.7%	6.3%

Note. Cluster 1: High level of dysfunctional career thought (i.e. low level of career readiness), *n*=16; Cluster 2: Moderate level of dysfunctional career thought (i.e. moderate level of career readiness), *n*=15; Cluster 3: Low level of dysfunctional career thought (i.e. high level of career readiness/ productive thoughts), *n*=16. Percentage may not equal 100 because of participants' not reporting information.

Discussion

The purpose of this pilot study was to investigate whether differences in perceived career readiness exists when comparing a sample of college students with disabilities to a normative college sample. Additionally, this pilot study examined differences in positive and negative affect based on a level of dysfunctional career thoughts for college students with disabilities. Initial results revealed no significant differences for Career Thoughts Inventory (CTI) total, Decision-Making Confusion (DMC), and Commitment Anxiety (CA). However, significant differences were found for the External Conflict (EC) subscale. This result is consistent with prior research that found that individuals with disabilities had increased levels of dysfunctional career thoughts, especially in the area of EC when compared to their counterparts without disabilities (Dipeolu et al., 2002). Results of Research Question 2 found that three groups could be identified based on their level of dysfunctional career thoughts and that group one, the group with the lowest level of career thoughts, also had low levels of positive affect and increased levels of negative affect. In contrast, the other two groups that had low to moderate levels of dysfunctional career thoughts did not differ from each in terms of positive or negative affect. This finding provides continued support for the importance of both cognition and affect on the career decision-making process. Overall, the results of this pilot study provide support for the need to address career thoughts in college students with disabilities and the impact of affect on the career decision-making process for college students with disabilities.

Specific findings related to Research Question 1 indicate that the sample of college students with disabilities have significantly higher levels of EC when compared to a normative group of college students without disabilities. This finding is consistent with prior research related to career readiness and individuals with disabilities, which has consistently found el-

Table 4

Means and Standard Deviations on the Total and Three CTI Subscale T-Scores for the Three Clusters (N=47)

	Cluster 1 (*n*=16)		Cluster 2 (*n*=15)		Cluster 3 (*n*=16)	
CTI T-Scores	*M*	*(SD)*	*M*	*(SD)*	*M*	*(SD)*
Total	63.38	(4.56)	52.40	(2.85)	34.81	(4.34)
DMC	60.31	(7.67)	49.53	(5.03)	36.69	(2.09)
CA	60.75	(5.77)	54.80	(5.03)	34.63	(6.45)
EC	63.88	(13.33)	60.60	(10.85)	42.00	(8.25)

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996); Total = Total CTI score; DMC = Decision Making Confusion subscale; CA = Commitment Anxiety subscale; EC = External Conflict subscale. Cluster 1: High level of dysfunctional career thought (i.e. low level of career readiness), *n*=16; Cluster 2: Moderate level of dysfunctional career thought (i.e. moderate level of career readiness), *n*=15; Cluster 3: Low level of dysfunctional career thought (i.e. high level of career readiness/ productive thoughts), *n*=16.

Table 5

Univariate Analysis and Post-hoc Comparisons on the Positive and Negative Affect Schedule. (N=47)

PANAS	Cluster 1 (*n*=16) *M (SD)*	Cluster 2 (*n*=15) *M (SD)*	Cluster 3 (*n*=16) *M (SD)*	*F* (2,44)	*p*	η^2	*Post-Hoc*
PA	29.38 (7.30)	35.87 (9.17)	37.63 (8.42)	4.353*	.019	.165[c]	1>3*
NA	24.88 (7.14)	18.33 (4.79)	17.44 (7.53)	5.957**	.005	.213[c]	1>2*, 1>3**

Note. PANAS = Positive and Negative Affect Schedule (Watson al.,1998); PA: Positive Affect; NA= Negative Affect. Cluster 1: High level of dysfunctional career thought (i.e. low level of career readiness), *n*=16; Cluster 2: Moderate level of dysfunctional career thought (i.e. moderate level of career readiness), *n*=15; Cluster 3: Low level of dysfunctional career thought (i.e. high level of career readiness/ productive thoughts), *n*=16. * $p < .05$. ** $p < .01$. η^2 = partial eta2 statistics: a small effect ($\eta^2 = .01$); b medium effect ($\eta^2 = .06$); c large effect ($\eta^2 = .14$). Only significant post-hoc comparisons are reported.

evated subscale scores for individuals with disabilities in the area of external conflict (Dipeolu et al., 2002). Elevated scores in the area of external conflict would suggest that college students with disabilities may experience more difficulty managing environmental and context factors related to the career developmental process and may lack the resources to effectively manage and address issues related to this area.

The inability to adequately cope with and manage issues related to external conflict can contribute to emotional states such as anxiety, depression, and anger that further debilitate the career development process (Lustig, Zanskas, & Strauser, 2012) and potentially put students at risk for becoming disengaged with the higher education process. Therefore, the results of this pilot study suggest that career interventions and supports that specifically target issues related to contextual, familial, and societal factors and how they impact the career development process would appear to be important. A study of recent graduates with learning disabilities support such interventions as they report that internship placement, mentorship, and courses/trainings related to the world of work and rights under the ADA were suggestions for how students can be supported for the transition from higher education to employment (Madaus, 2006b). However, interventions and supports addressing contextual, familial, and environmental factors related to career development process are not typically included as part of most disability student service programs.

Results related to Research Question 2 indicate that individuals can be grouped according to their respective levels of dysfunctional career thoughts. This finding is consistent with prior research that found similar groupings and is consistent with the central tenets of Cognitive Information Processing Theory (Peterson et al., 1996). This finding is important because, according to CIP theory, being able to group individuals according to the type and intensity of dysfunctional career thoughts is critical in guiding the level of career intervention (i.e., individualized, psycho-education, self-exploration). Of particular interest related to Research Question 2 is the finding that individuals who were identified as having the highest level of dysfunctional career thoughts were also found to have significantly higher levels of negative affect and lower levels of positive affect. In contrast, the groups with low to moderate levels of dysfunctional thoughts did not differ in terms of levels of positive and negative affect. This finding is important because it is theoretically consistent with CIP and provides continued support for the significant role that affect has on career readiness and ultimately the career development process. Clinically, findings related to Research Question 2 point to the importance of addressing emotional and affective issues as part of any career and educational interventions.

Overall, the results of this particular pilot study indicate that college students with disabilities are at increased risk for experiencing difficulty managing contextual and environmental factors related to the career development process when compared to their counterparts without disabilities. In addition, findings point to the significant role that positive and negative affect have on career readiness and the career development process. The results of this pilot study point to the importance of developing and implementing interventions that help manage issues of complexity and affect as it relates to the career development process. It is important to note that students with disabilities often fall between the cracks when it comes to career guidance on postsecondary campuses. Additional research examining career development and the continued inequity in career and employment outcomes between college students with disabilities and their peers without disabilities is clearly needed.

Limitations

There are several issues that limit the generalizability of this pilot study's findings. First, we were limited by a small sample from a large Midwestern University. The sample participants were limited to students who volunteered to participate during the initial intake process to disability services. The majority of participants had physical disabilities and/or were freshman students. Freshmen represent one of the highest percentages of new incoming students to disability services. At the time, this was deemed the most effective way for recruiting students for our study as students are not required to utilize services even if they qualify for them, nor are they required to meet with their assigned disability services advisor on a regular basis. Therefore, the likelihood of students coming back to the disability services office solely to complete career assessments was highly unlikely. It should be further acknowledged that students who are traditional-aged freshman can impact the overall career readiness of any student regardless of disability status due to their age and life experience. Therefore, to generalize or assume that similar outcomes would result with a larger and more regionally diverse sample is premature at this point. Secondly, our sample is rather homogeneous, as 70.9% of students were white/Non-Hispanic. In addition, the majority of our sample was male and not completely representative of student composition at the lead author's institution. Third,

the measures utilized in our study are self-reported measures; therefore the response to the assessments may be impacted and include a degree of social desirability. Finally, the data in this study are cross-sectional in nature; therefore, we are not able to determine any degree of causation.

Implications for Practice

Based on our findings, the implications for practice are two-fold. First, continual career counseling sessions between advisor/counselor and students with disabilities that address career readiness levels and the dynamics of workplace environments is needed. Secondly, additional collaborative efforts at the organizational level in higher education are needed to create a more seamless approach to service provision for career counseling of college students with disabilities. It appears that college students with disabilities are in potential need of ongoing support to further understand the *complexity* or contextual factors related to perceived career readiness. Comprehensive career and individual counseling services to inform and increase the management of the environmental factors that may be negatively impacting the career developmental process is needed. For instance, assisting students in career exploration process to have an increased understanding of the work-related requirements for any occupation(s) of interest is needed. This would in turn assist the student in identifying appropriate accommodations in relation to the fundamental job responsibilities of any given occupation(s) of interest. Another important area to address is further educating college students with disabilities and their employment rights under the ADA (Madaus, 2006b). Research has suggested that the disclosure rates of college graduates with disabilities in the employment setting are low (Madaus, 2008). As the impact of globalization and technology in the workforce continues, the degree of *complexity* that characterizes the workplace will continue to diversify and expand. This will require that employees with disabilities need to be prepared to continually learn, adapt and adjust to increasingly diverse work environments.

Finally, in reference to more collaborative efforts at the organizational level, the initiation and sustainment of working relationships between disability and career services offices are needed to counsel the needs of college students with disabilities in a more holistic rather than a compartmentalized approach. Research suggests that college students with disabilities underutilize career services at the higher education level (Enright, Conyers, & Szymanski, 1996; Friehe & Aune, 1996). Collaboration between career services and disability services can encourage college students with disabilities to be further cognizant of what career services supports provide and to utilize the supports available to them as enrolled students.

Suggestions for Future Research

The authors are committed to further their data collection efforts to increase this study's existing sample size and to have a more representative sample across disability types for a more generalizable sample. The researchers hope that further data collection will serve as the initial phases of a longitudinal study, especially since there were a greater number of freshman student participants who participated in this pilot study. Additionally, utilizing the same instruments and sampling college students without disabilities would provide a comparison sample in order to investigate the similarities and/or distinctions of a sample of college students with and without disabilities. Finally, the possibility of contributing to updating the norms of the study's data collection instruments is another direction of future research.

Conclusion

The overall results of this pilot study found that college students with disabilities reported more difficulty in managing the contextual issues related to career readiness and development. In contrast, there were no differences related to their perceived ability to understand and explore the personal aspects related to making an effective decision. Results indicate the need to provide supportive career and vocational counseling for college students with disabilities. This may be particularly important given prior research that has indicated that college students with disabilities are in need of career services but are unlikely to seek out those services from the traditional career centers on college campuses. Continued research in this area would appear to be important in identifying effective intervention approaches for increasing career readiness levels of college students with disabilities.

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