

## **An Empirical typology of career thoughts of individuals with disabilities**

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An empirical typology of career thoughts of individuals with disabilities.

Dysfunctional career thoughts can have a negative impact on the career decision-making process and an individual's career and vocational development. Individuals with disabilities may be particularly vulnerable to dysfunctional career thoughts because limited access to the labor market provides limited opportunity to make vocational decisions and to understand the impact of functional limitations on career decisions. The purpose of this study was to identify groups of individuals with disabilities based on their measured levels of dysfunctional career thoughts. This nonexperimental descriptive study investigated the career thoughts of 132 individuals with a diagnosis based on the Diagnostic and Statistical Manual of Mental Disorders--Fourth Edition (American Psychiatric Association, 1994) who received job placement services from a community-based job placement program. Cluster analysis of the Career Thoughts Inventory (Sampson, Peterson, Lenz, Reardon, & Saunders, 1996) identified three groups of participants: (a) those with dysfunctional thoughts, (b) those with external conflict, and (c) those with productive thoughts. The results suggest differences between the clustered groups and two comparison groups.

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Cognitions have been generally recognized as important factors that affect an individual's career decision-making process and overall vocational development (Keller, Briggs, & Gysbers, 1982; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996). Specifically, research has suggested that an individual's career behaviors tend to be influenced by the interaction of vocational cognitions, behaviors, and environments and that changes in an individual's career behaviors tend to be cognitively mediated (Keller et al., 1982). Practitioners and researchers have also noted that some individuals tend to verbalize negative or dysfunctional statements regarding the career decision-making process. These negative verbalizations make the career problem-solving and decision-making process more difficult and often cause the individual to avoid it all together (Sampson et al., 1996). With the potential negative impact of dysfunctional career thoughts on the career decision-making process, researchers have focused efforts on gaining a better understanding of dysfunctional career thoughts and the potential impact on an individual's career and vocational development, specifically the career decision-making process. In particular, individuals with disabilities have significant problems with their career and vocational development and consequently are an important focus for the development of interventions. The purpose of this study was to identify groups of individuals with disabilities based on their measured levels of dysfunctional career thoughts and suggest interventions that could ameliorate dysfunctional career thoughts.

## REVIEW OF CAREER THOUGHTS LITERATURE

Negative and dysfunctional career thoughts and belief have been characterized by career theorists as dysfunctional career beliefs (Krumboltz, 1990), dysfunctional cognitions (Corbishley & Yost, 1989), dysfunctional self-beliefs (Borders & Archadel, 1987), self-defeating assumptions (Dryden, 1999), and faulty self-efficacy beliefs (Brown & Lent, 1996). Dysfunctional career thoughts usually revolve around issues of self-worth, perfectionism, and overgeneralization and have a tendency to decrease the likelihood of overall life satisfaction (Sampson et al., 1996; Sampson, Peterson, Lenz, Reardon, & Saunders, 1998). Dysfunctional career thoughts have also been linked to subjective well-being or a person's self-perception of their current status, job dissatisfaction, poor job performance, unhappy significant others, job failure, job avoidance, depression, and anxiety (Judge & Locke, 1993; Newman, Fuqua, & Seaworth, 1989; Saunders, Peterson, Sampson, & Reardon, 2000; Serling & Betz, 1990). Research has suggested that clients tend to express their dysfunctional career thoughts through their behavior (e.g., incomplete homework), emotions (e.g., depression and anger), and verbal expression (e.g., negative statements; Corbishley & Yost, 1989). Dysfunctional career thoughts have also been related to distorted, misinformed, and biased career beliefs that generally remain unnoticed and lead to self-defeating behaviors and experiences (Kinner & Krumboltz, 1986). Some research has also suggested that women tend to report higher levels of anxiety and lower self-esteem, which can lead to dysfunctional cognitions and perceptions that result in failure to realize individual career potential (Betz & Hackett, 1981; Herr & Cramer, 1996).

Research in the area of career decision making has suggested that dysfunctional career thoughts can affect career behavior in the following four ways:

1. An individual's career behaviors can be viewed as responses to the individual's cognitive conceptualization of specific career environments.
2. The individual's cognitive development and learning experiences can modify the individual's career representations.
3. The individual's contextual supports, behaviors, and cognitions interact to influence vocational behavior.
4. The individual's cognitions mediate and change his or her career behavior (Keller et al., 1982; Lent, Brown, & Hackett, 2000; G. W. Peterson, Sampson, & Reardon, 1991; Sampson et al., 1996).

Individual factors such as poor problem-solving skills (G. W. Peterson et al., 1991); lack of self-knowledge related to career interests, abilities, values (Holland & Holland, 1977); maladaptive career beliefs and assumptions (Krumboltz, 1983; Nevo, 1987); personality disorders, depression, anxiety, and schizophrenia (Fuqua, Blum, & Hartman, 1988; Gibb, 1991); and poor self-esteem (Croizat & Kloss, 1979) have also been implicated in the development of dysfunctional career thoughts.

With cognitive processes and career thoughts playing such a significant role in the career and vocational development process, it is important for individuals to have healthy and appropriate career thoughts and to minimize their dysfunctional thoughts (Young & Chen, 1999). This may be especially true for individuals who have been traditionally underemployed and unemployed, such as persons of low socioeconomic status (SES), women, and individuals with disabilities.

The recent economic and political trends pushing for programs to help disadvantaged individuals who are receiving benefits to find employment (Regenstein, Meyer, & Hicks, 1999) have coincided with a national shortage of workers ("A Special News Report," 2000). In addition to the shortage of qualified workers, the economy has undergone a shift from a manufacturing base to a service base, which has increased the importance of effective cognitive and interpersonal skills for all jobs, including low-paying and entry-level positions (Ryan, 1995; Wilson, 1997). Because there are a large number of individuals who come from disadvantaged backgrounds and lack basic work skills, many poorly educated and poorly trained individuals have difficulty finding employment, even when there is a strong labor market and an abundance of jobs (Twenty-Fifth Institute on Rehabilitation Issues, 1999; Wilson, 1997). Research has shown that individuals with disabilities (a) continue to have problems finding employment (Kosciulek, 1998, 1999; Louis Harris and Associates, 1998) and (b) earn significantly less compared to their nondisabled counterparts, with the earnings gap increasing for individuals with severe disabilities and individuals from minority backgrounds (Kruse, 1998; Stoddard, Jans, Ripple, & Kraus, 1998). Individuals with severe mental illness (e.g., schizophrenia, bipolar disorder) fare even worse, with unemployment rates between 70% and 90% (Ahrens, Frey, & Burke, 1999; LaPlante & Carlson, 1996; Trupin, Sebesta, Yellin, & LaPlante, 1997).

Limited employment experiences can also effect career development. Individuals with disabilities who have had few jobs may be less informed about occupations and consequently have limited opportunities to make vocational decisions and to understand the impact of functional limitations on career decisions (Farley, Schriener, & Roessler, 1988). Lack of opportunity to develop choice-making and problem-solving skills during adolescence can also affect their ability to make effective and productive career decisions as adults (Czerlinsky & Ryan, 1986; N. Peterson & Gonzalez, 2000; Powers, Sowers, & Stevens, 1995). Enright (1996) found that college students with disabilities experience career indecision due to limited opportunities for positive reinforcement of their abilities, which consequently affects their career decision-making self-efficacy. Luzzo, Hitchings, Retish, and Shoemaker (1999) found that college students with disabilities reported lower levels of career decision-making self-efficacy and a more pessimistic career decision-making attributional style than did college students without disabilities.

Cognitive information processing theory (CIP; Reardon, Lenz, Sampson, & Peterson, 2000) has been applied to the career development process and provides a basis for career interventions that address the psychological variables associated with making effective career decisions. Cognitive information processing theory suggests that effective career problem solving and decision making is based on the effective processing of information related to self-knowledge, occupational information, decision-making skills, and executive processing. Self-knowledge is conceptualized as an individual's perceptions of his or her values, interests, and skills (Reardon et al., 2000; Sampson, Peterson, Lenz, & Reardon,

1992). Occupational information consists of an individual's knowledge of individual occupations and the individual's cognitive representation of how the work world is organized. Decision-making skills consist of general information-processing skills that the individual can apply to problems and use to make effective decisions. Executive processing includes metacognitions that control the selection and sequencing of cognitive strategies used to solve a career problem through cognitive interventions such as self-talk, self-awareness, control, and monitoring. According to CIP, when an individual experiences problems in any one of the four domain areas, he or she may experience career indecision and develop dysfunctional career thoughts.

Cognitive information processing theory provided the conceptual framework for the development of the Career Thoughts Inventory (CTI; Sampson, Peterson, Lenz, Reardon, & Saunders, 1996), which is an instrument designed to measure an individual's level of dysfunctional career thoughts using a total score and three subscale scores. The CTI is commonly used in career counseling interventions and research that examines dysfunctional career thoughts. In this study, the CTI was used to identify and categorize patterns of dysfunctional career thoughts in a group of individuals with disabilities. Specifically, the purpose of this study was to identify groups of individuals with disabilities based on their levels of dysfunctional career thoughts, which were measured by the CTI. The following two research questions were addressed:

1. Can individuals with disabilities be meaningfully categorized into discrete groups according to a pattern of dysfunctional career thoughts?
2. Do the discrete groups of individuals with disabilities identified through the cluster analysis differ in their type and level of dysfunctional career thoughts when compared to (a) a group of individuals of low SES who are not currently looking for a job and (b) a group of individuals from low SES backgrounds who are participating in a General Equivalency Diploma (GED) training program and currently looking for employment?

## METHOD

### Participants

Participants in this study were a convenience sample of 132 individuals who were receiving job placement services from a community-based job placement program funded by a state division of rehabilitation and had a diagnosis from the Diagnostic and Statistical Manual of Mental Disorders--Fourth Edition (DSM-IV; American Psychiatric Association, 1994). The DSM-IV diagnoses included Anxiety, Depression, Schizophrenia, and Bipolar Disorder. In addition, two convenience samples of participants who were receiving services from a community-based job placement program were used for comparison purposes. These two comparison groups were chosen because they had also experienced high rates of unemployment and concomitant issues related to career decision making. Thus, the comparison groups provided a frame of reference for understanding the significance of the measured level of dysfunctional career thoughts of the DSM-IV diagnoses group. The first group was composed of

28 individuals of low SES who had no plans to pursue employment in the immediate future, and the second group was composed of 49 individuals pursuing their GED and involved in a job readiness program. Members of the first group were in the process of resolving immediate issues, such as housing and childcare, and planned to become involved in the job search once these issues were stabilized. All participants were provided with informed consent information and were free to withdraw at any time. All participants resided in a major urban area in the southeastern United States.

The 132 participants with a DSM-IV diagnosis ranged in age from 18 to 61 ( $M = 35.9$ ;  $SD = 10.6$ ), with 26% between 18 and 26, 50% between 27 and 43, and 24% older than 43. Women composed 58% ( $n = 77$ ) of the sample. Of the 132 participants, most were African American ( $n = 92$ ; 70%), with 24% ( $n = 32$ ) being Caucasian, 1% ( $n = 1$ ) being Asian American, 1% ( $n = 1$ ) being Hispanic, and 4% ( $n = 6$ ) not reporting their ethnicity. Most had completed at least a high school diploma or GED (45%;  $n = 59$ ), with 56 (42%) having completed less than 12th grade, and 13% not reporting their education ( $n = 17$ ).

The 28 participants of low SES ranged in age from 18 to 45 ( $M = 28.9$ ;  $SD = 6.7$ ), with 26% between 18 and 24, 50% between 25 and 33, and 24% older than 33. The entire sample was female. Of the 28 participants, most were African American ( $n = 26$ ; 93%), and 7% ( $n = 2$ ) were Caucasian. Most had completed at least a high school diploma or GED (54%;  $n = 15$ ), 9 (32%) had completed less than 12th grade and 4 (14%) did not report their level of education. The 49 individuals pursuing their GED ranged in age from 18 to 53 ( $M = 28.8$ ;  $SD = 9.2$ ), with 25% between 18 and 21, 50% between 22 and 32, and 25% older than 32. The entire sample was female. Of the 49 participants, most were African American ( $n = 45$ ; 92%), with 4% ( $n = 2$ ) being Caucasian, 2% ( $n = 1$ ) being Hispanic, and 2% ( $n = 1$ ) being Native American. Most had completed less than a high school diploma (80%;  $n = 39$ ); 14% ( $n = 7$ ) had completed at least a GED or high school diploma, and 6% ( $n = 3$ ) individuals did not report their educational level. Because the criterion for admission to the program was the lack of a GED/high school diploma, it was determined that the 7 individuals reporting completion in this area had misunderstood the question.

## Instruments

Cognitive information process theory provided the foundation for the development of the Career Thoughts Inventory, which is a self-administered instrument that is designed to measure dysfunctional career thoughts in career problem solving and decision making in high school students, college students, and adults (Sampson et al., 1998). In a review of instruments designed to measure career decision making and decision readiness, the CTI is considered to be the most comprehensive instrument because it measures both capability and complexity, two constructs related to making an effective career decision (Sampson, Peterson, Reardon, & Lenz, 2000). The CTI is a relatively new instrument and has not been used before in research involving individuals with disabilities. The CTI is based on the assumption that although "dysfunctional thinking in career problem solving and decision making cannot be directly measured.... [such] ... thinking can be inferred from an individual's endorsement of statements (test items) reflecting a variety of dysfunctional career thoughts" (Sampson et al., 1996, p. 12). The 48-item scale is scored on a 4-point Likert-type scale ranging from 0 (strongly disagree) to 3 (strongly agree; Sampson et al., 1996). The instrument consists of a total score and three subscales. The Decision

Making Confusion subscale measures the extent to which an individual's emotions or lack of decision-making skill knowledge interferes with his or her ability to make a career decision and includes statements such as, "Choosing an occupation is so complicated, I just can't get started" (Sampson et al., 1996, p. 28). The Commitment Anxiety subscale examines the impact anxiety has on a person's ability to commit to a career decision and includes statements such as, "There are several fields of study or occupations that fit me, but I can't decide on the best one" (Sampson et al., 1996, p. 28). The External Conflict subscale examines how well the person uses input from others and self-perception in decision making and includes statements such as, "Whenever

I've become interested in something, important people in my life disapprove" (Sampson et al., 1996, p. 29). The three CTI subscales were used for analysis. Internal consistency coefficients for the CTI subscales are as follows: Decision Making Confusion (.90-.94), Commitment Anxiety (.79-.91), and External Conflict (.74-.81). Test--retest reliability (4 weeks) for the three subscales was .77 for Decision Making Confusion, .75 for Commitment Anxiety, and .63 for External Conflict (Sampson et al., 1996). Sampson et al. (1996) provided evidence of the validity of the CTI. Principal components analyses produced a three-factor solution conforming to the CTI scales. The CTI scales correlated in the expected direction with measures of similar constructs, specifically, My Vocational Situation (Holland, Daiger, & Power, 1980), the Career Decision Scale (Osipow, Carney, Winer, Yanico, & Koschier, 1987), the Career Decision Profile (Jones, 1988), and the Revised NEO Personality Inventory (Costa & McRae, 1992). Finally, the CTI scales showed significant differences between a group of college students seeking career services and those not seeking career services.

## Procedures

Packers containing the research materials were distributed to the participants from the GED and disability groups during their participation in the job readiness program. The participants from the low-SES group were contacted by staff members of agencies through which they received other types of support services. Participants were informed that their participation was voluntary, that no incentives were associated with participation, and that all data collected would be confidential. Upon obtaining informed consent, data were gathered from the three groups. All participants were free to withdraw without penalty at any time. All participants completed the survey packet and returned it to the researchers. Participants read the survey without assistance.

## Data Analysis

Correlations between the subscales of the CTI for the group with DSM-IV diagnoses were computed. In addition, means, standard deviations, and range on the subscales for the DSM-IV group and the comparison groups were calculated. An alpha level of .05 was used for hypothesis testing.

Because random assignment and a priori matching of all groups was not possible, the groups were compared on demographic variables, specifically ethnicity, education, and age, to determine if there were significant differences. The groups were not compared on gender because two of the groups were

100% female and one group was 58% female.

Because the purpose of the investigation was to empirically classify individuals with disabilities into a typology based on their levels on the three subscales of the CTI, cluster analysis was deemed an appropriate statistical technique. Clustering was conducted using Ward's method of minimum-variance clustering and the squared Euclidean distance as the distance metric. According to Romesburg (1990), Ward's method of clustering is the most commonly used clustering method and usually gives a near optimal cluster solution. The Statistical Program for the Social Sciences (Norusis, 1993) for Windows 6.1 produces fusion coefficients at each stage of the cluster procedure and a dendrogram, or tree diagram, that shows the mergers occurring at each stage. Examination of the pattern of changes in the fusion coefficients and visual inspection of the dendrogram aids in determining an optimal partition within the sample of respondents (Aldenderfer & Blashfield, 1984; Baker, 1972; Berven & Hubert, 1977). An optimal partitioning in the hierarchy is defined as one that (a) creates homogeneous groups so that respondents within a group are relatively similar to one another and relatively dissimilar to respondents in other groups and (b) creates greater parsimony, meaning fewer groups are more cognitively manageable (Berven & Hubert, 1977). Romesburg (1990) suggested that evidence of the validity of the cluster analysis can be shown in a number of ways. Two methods used in this study were (a) finding agreement of the classifications produced from the same data processed by different multivariate methods and (b) finding agreement of the classifications based on split samples of the data. The first method involved the use of cluster analysis and discriminant analysis. Cluster analysis produced groups of participants based on scores on the three subscales of the CTI. Then, using the individual's scores on the three subscales as independent variables and group membership determined by the cluster analysis as the dependent variable, a discriminant function was fitted to the data. The fitted discriminant function was used to determine the accuracy of the discriminant function for identifying group membership based on the independent variables. The percentage of correct predictions was used as evidence of the validity of the cluster classification. The second method involved randomly splitting the data set and clustering both halves of the data. Evidence of the validity of the cluster solution is provided when the two cluster solutions agree with the cluster solution of the whole sample in terms of the number of groups and the groups' defining characteristics.

To address Research Question 2, the mean level of dysfunctional career thoughts on the three subscales of the CTI for each group was compared to the mean levels of the three subscales of the CTI for the comparison groups. A multivariate analysis of variance (MANOVA) was performed as an omnibus test of significance. Group membership in the three cluster groups and the comparison groups were entered as independent variables, with the scores on the three subscales of the CTI as dependent variables. Tests for the main effects of group membership were performed, and effect sizes and power estimates were reported. Effect size was measured by Cohen's *d*, which is the magnitude of the difference between the means of two groups in standard deviation units (Kirk, 1982). Effect size is a measure of the practical significance of a difference between means.

## RESULTS

### Correlations

Correlations, means, standard deviations, and ranges for the subscales were computed. For Decision Making Confusion,  $M = 11.5$ ,  $SD = 7.3$ , and the range was 0 to 29. For Commitment Anxiety Confusion,  $M = 12.0$ ,  $SD = 5.5$ , and the range was 0 to 26, for External Conflict,  $M = 4.8$ ,  $SD = 3.2$ , and the range was 0 to 13. Pearson product-moment correlation coefficients were computed between scores on all possible pairs of measures. The three subscales were significantly correlated. Decision Making Confusion correlated with Commitment Anxiety ( $r = .77$ ), and External Conflict ( $r = .68$ ). Also, Commitment Anxiety correlated with External Conflict ( $r = .68$ ). The authors of the CTI found similar correlations among the three subscales (Sampson et al., 1996). For example, Decision Making Confusion correlated with Commitment Anxiety ( $r = .74$ ) and External Conflict ( $r = .65$ ), and Commitment Anxiety correlated with External Conflict ( $r = .58$ ). These correlations suggest that the three subscales, although related, measure relatively distinct constructs.

### Comparison of Groups

Chi-square analyses were conducted for differences among the three groups on the basis of ethnicity and education. In addition,  $t$  tests were conducted to test for differences on the variable of age. There were significant differences in ethnicity,  $\chi^2(10, N = 209) = 19.22, p < .05$ , with African Americans underrepresented in the DSM-IV diagnoses group (72%) compared to the GED group (92%) and low-SES group (93% of group). There were significant differences in educational level,  $\chi^2(16, N = 209) = 102.33, p < .05$ , with the DSM-IV group having a higher level of educational attainment than the GED group. The DSM-IV group and the low-SES group were relatively similar in educational attainment. There were significant differences among the groups on age,  $F(2, 197) = 12.40, p < .05$ . Pairwise comparisons between groups using Fisher LSD tests were used to examine whether the mean age of the groups were different. The DSM-IV group was significantly older ( $M = 35.98, SD = 10.59$ ) than the GED group ( $M = 28.80, SD = 9.16$ ) or the low-SES group ( $M = 28.96, SD = 6.67$ ). The low-SES and GED groups were not significantly different on age. Overall, the DSM-IV group consisted of fewer African Americans than the GED and SES groups, were older than the GED and low-SES groups, and were better educated than the GED group. Although there were significant differences in the demographic variables, these differences were non-systematic and therefore had no effect on the results.

### Cluster Analysis

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. Evidence for the validity of the clusters was provided by a discriminant analysis and clustering of random halves of the data. Using the individual's scores on the three subscales as independent variables and group membership determined by the cluster analysis as the dependent variable, discriminant analysis yielded significant functions for the data. Both functions were significant: Wilks's  $\lambda_{.1} = .189; \chi^2(6, N = 132) = 213.26, p < .001$ ; Wilks's  $\lambda_{.2} = .940; \chi^2(2, N = 132) = 7.94, p < .01$ . The discriminant function separates individuals based on their scores on the subscales of the CTI. Ninety-seven percent of individuals were correctly classified based on their scores on the subscales of the CTI. The second

technique for providing evidence of the validity of the sample involved randomly dividing the sample and using Ward's method to apply cluster analysis to both data sets. The cluster solutions for the random samples were in close agreement with the whole sample in terms of the number of groups and the groups' defining characteristics, thus suggesting a stable cluster solution. Both the discriminant analysis and random splitting of the samples provided evidence of the validity of the three-cluster solution. The clusters were labeled as follows: (a) Cluster 1: Dysfunctional Thoughts ( $n = 45$ ), (b) Cluster 2: External Conflict ( $n = 69$ ), and (c) Cluster 3: Productive Thoughts ( $n = 18$ ).

Table 1 shows the demographic characteristics for each cluster. No significant differences were found among the three clusters on age,  $F(2, 121) = 1.78, p > .05$ ; gender,  $[\chi^2](2, N = 132) = 1.42, p > .05$ ; ethnicity,  $[\chi^2](8, N = 128) = 10.19, p > .05$ , or education,  $[\chi^2](12, N = 1,162) = 12.98, p > .05$ . Table 2 shows the mean scores, standard deviations, and standard scores for each of the three clusters on the three CTI subscales.

### Comparison of Means

The MANOVA produced a significant result,  $F(3,202) = 449.58, p < .001$ . Post hoc Bonferroni  $t$  tests, effect sizes, and power estimates between pairs of means are presented in Table 3. All comparisons between Cluster 1 (Dysfunctional Thoughts) and the GED and SES groups on the three subscales of the CTI revealed significant differences, except for the comparison between Cluster 1 and the GED group on the External Conflict subscale. In addition, all six comparisons exhibited at least a small effect size, with four comparisons demonstrating a large effect size. A significant difference was found between Cluster 2 (External Conflict) and the GED group on the Decision Making Confusion subscale: Five out of the six comparisons demonstrating a small effect size. Finally, all comparisons between Cluster 3 (Productive Thoughts) and the GED and low-SES groups on the three subscales of the CTI revealed significant differences, except the comparison between Cluster 3 and the low-SES group on the External Conflict subscale. In addition, four out of the six comparisons exhibited a large effect size. Cohen (1969) refers to a  $d$  value of 0.2 as a small effect size, a  $d$  value of 0.5 as a medium effect size, and a  $d$  value of 0.8 as a large effect size.

**TABLE 1. Characteristics of the Clusters**

Characteristic	Cluster 1	Cluster 2	Cluster 3
Age: M (SD)	33.8 (10.3)	36.6 (11.2)	39.0 (8.2)
Women	62%	54%	67%
Ethnicity			
African American	60%	73%	83%
Caucasian	31%	23%	11%
Hispanic	2%	0%	0%
Asian American	2%	0%	0%
Education			
< 12th grade	45%	42%	39%
GED/HSD or higher	38%	46%	56%

Note. GED = General Equivalency Diploma; HSD = high school diploma. Cluster 1: Dysfunctional Thoughts,  $n = 45$ ; Cluster 2: External Conflict,  $n = 69$ ; Cluster 3: Productive Thoughts,  $n = 18$ . Percentages may not equal 100 because of participants' not reporting information.

## DISCUSSION

The purpose of this study was to identify groups of individuals with disabilities based on their measured levels of dysfunctional career thoughts. Individuals with a DSM-IV diagnosis who were participating in a job readiness program completed the Career Thoughts Inventory. Based on their responses, participants were classified into three identifiable groups, which were named Dysfunctional Thoughts, External Conflict, and Productive Thoughts. Evidence of the validity of the cluster solution was provided by a discriminant analysis and a cluster analysis performed on both halves of a randomly split sample. In addition, Cluster 1 (Dysfunctional Thoughts) was significantly higher in dysfunctional career thoughts than the GED and low-SES groups, and Cluster 3 (Productive Thoughts) was significantly lower in dysfunctional career thoughts than the GED and low-SES groups. Before discussing the results, several limitations should be noted. First, the sampling procedure was nonprobability and cross-sectional in character; consequently, the interpretation of the results should be limited to the sample examined at the time of the study. Specifically, men and Caucasians were underrepresented in the sample. In addition, the sample was limited to individuals with a DSM-IV diagnosis, specifically individuals with Anxiety, Depression, Schizophrenia, and Bipolar Disorder, and did not include persons with physical disabilities. For example, it is possible that individuals with physical disabilities would be different in terms of their level and pattern of dysfunctional career thoughts. In addition, the sample consisted of individuals currently involved in a community-based job placement program. It is possible that they were particularly cognizant of their thoughts and feelings about career decisions and may have had different thoughts about careers when not involved in the program. Second, in order to increase the likelihood that the cluster solution represents a stable property of this population, additional samples should be studied and analyzed.

### Data Analysis

**Cluster 1: Dysfunctional Thoughts.** Participants in this group ( $n = 45$ ) were more than one standard deviation above the mean in decision-making confusion (93rd percentile), commitment anxiety (97th

percentile), and external conflict (92nd percentile) when compared to a normative group of adults (Sampson et al., 1996). This group was considered to have dysfunctional thoughts in all three areas and was thus labeled Dysfunctional Thoughts. When compared to a group of individuals pursuing their GED also involved in a job readiness program (GED group) and a group of individuals of low SES with no plans to pursue employment in the immediate future (low-SES group), this group was higher (more dysfunctional) in the three subscales of the CTI (see Table 3). Individuals with similar scores may exhibit a very high level of dysfunctional thinking in decision-making confusion, commitment anxiety, and external conflict. Individuals in this group may have great difficulty understanding how to make a career decision and at times may be incapable of coming to a decision related to career matters. Individuals in this group may be worried and anxious about the consequences of making a career decision, resulting in the person being "stuck" in the career decision-making process. Important in the career decision-making process is the ability to balance one's own thoughts about appropriate careers with the opinions of valued others. These individuals may have great difficulty forging an effective integration of their own thoughts about careers with those of others, sometimes relying solely on themselves and at other times giving great importance to others' opinions.

**TABLE 2. Raw Score Means, Standard Deviations, and Adult Sample Percentiles on the Three CTI Subscales for Clusters and Comparison Groups**

CTI subscale	Cluster 1			Cluster 2			Cluster 3			GED group			SES group		
	<i>M</i>	<i>(SD)</i>	%ile	<i>M</i>	<i>(SD)</i>	%ile	<i>M</i>	<i>(SD)</i>	%ile	<i>M</i>	<i>(SD)</i>	%ile	<i>M</i>	<i>(SD)</i>	%ile
DMC	19.2	(3.9)	93	9.3	(4.1)	54	0.9	(1.6)	14	12.9	(6.3)	76	7.9	(6.4)	50
CA	17.4	(3.2)	92	10.7	(3.2)	62	3.6	(2.7)	14	12.9	(4.6)	76	8.6	(5.5)	46
EC	7.1	(3.1)	97	4.6	(1.9)	79	0.2	(0.5)	8	5.4	(3.0)	88	3.7	(3.1)	66

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996); GED = General Equivalency Diploma; SES = socioeconomic status; DMC = Decision Making Confusion subscale; CA = Commitment Anxiety subscale; EC = External Conflict subscale. Cluster 1: Dysfunctional Thoughts, *n* = 45; Cluster 2: External Conflict, *n* = 69; Cluster 3: Productive Thoughts, *n* = 18. Higher number indicates greater dysfunction. Percentile reported is based on a normative group of adults.

Cluster 2: External Conflict. Participants in this group (*n* = 69) were within one standard deviation above the mean in decision-making confusion (54th percentile), commitment anxiety (62nd percentile), and external conflict (79th percentile) when compared to a normative group of adults (Sampson et al., 1996). Although this group was within one standard deviation above the mean on all three subscales, the measured level of external conflict was particularly high, approaching two standard deviations above the mean. Therefore, this group was labeled External Conflict. When compared to the GED and low-SES groups, these individuals were higher (more dysfunctional) than the low-SES group and lower (less dysfunctional) than the GED group on the three subscales of the CTI (see Table 3). Individuals with similar scores may exhibit moderately dysfunctional thinking in (a) the ability to understand how to make a career decision and (b) the ability to commit to a specific career decision. The distinguishing characteristic of these individuals is that they experience problems balancing the input of others with their own beliefs when making a career decision. Sampson et al. (1996) suggested that these individuals may experience difficulty making career decisions when considering the appropriate balance between their own opinions and that of significant others. Although a person is likely to receive information and suggestions about career decisions, it is important to be able to distinguish between meaningful and

insignificant information when making a decision. These individuals may have a difficult time making that distinction.

**TABLE 3. Effect Sizes (*d*), Power Estimates, and *t* Tests Between Pairs of Means on the Three CTI Subscales**

Cluster	CTI subscale					
	DMC		CA		EC	
	Effect size	Power estimate	Effect size	Power estimate	Effect size	Power estimate
1. Dysfunctional Thoughts–GED group	-1.3 <sup>c*</sup>	(.99)	-0.9 <sup>c*</sup>	(.97)	-0.3 <sup>a</sup>	(.17)
1. Dysfunctional Thoughts–SES group	-2.3 <sup>c*</sup>	(.99)	-1.8 <sup>c*</sup>	(.99)	-0.7 <sup>b*</sup>	(.62)
2. External Conflict–GED group	0.8 <sup>c*</sup>	(.92)	0.4 <sup>a</sup>	(.42)	0.2 <sup>a</sup>	(.05)
2. External Conflict–SES group	-0.3 <sup>a</sup>	(.09)	-0.4 <sup>a</sup>	(.22)	-0.2 <sup>a</sup>	(.04)
3. Productive Thoughts–GED group	2.4 <sup>c*</sup>	(.99)	1.8 <sup>c*</sup>	(.99)	1.1 <sup>c*</sup>	(.87)
3. Productive Thoughts–SES group	1.4 <sup>c*</sup>	(.97)	1.0 <sup>c*</sup>	(.75)	0.7 <sup>b</sup>	(.39)

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996); DMC = Decision Making Confusion subscale; CA = Commitment Anxiety subscale; EC = External Conflict subscale; GED = General Equivalency Diploma; SES = socioeconomic status.

<sup>a</sup>small effect size. <sup>b</sup>medium effect size. <sup>c</sup>large effect size.

\**p* < .05.

Cluster 3: Productive Thoughts. Participants in this group (*n* = 18) were more than one standard deviation below the mean in decision-making confusion (14th percentile), commitment anxiety (14th percentile), and external conflict (8th percentile) when compared to a normative group of adults (Sampson et al., 1996). Because these individuals reported very low scores on all three subscales, this group was labeled Productive Thoughts. When compared to the GED and low-SES groups, these individuals were lower (less dysfunctional) than the low-SES and GED groups on the three subscales of the CTI (see Table 3). Individuals with similar scores may exhibit generally productive approaches to making career decisions. These individuals appear to understand how to make a career decision and typically find the process of making a career decision manageable. A key characteristic is their ability to be flexible when necessary. They can stick with a decision once it has been made but can also adapt and modify their choices when warranted. Finally, these individuals are able to integrate others' opinions about their career choices with their own needs.

### Implications for Practice and Research

Because effective career problem solving and decision making is based on a client's ability to develop and use effective information processing skills, it is important for practitioners and researchers to have a conceptual framework for the development and implementation of effective interventions that reduce negative and dysfunctional career thoughts. Interventions need to be comprehensive in nature and address both complexity and capability. The level of dysfunctional thoughts dictates the level of

intervention need. Individuals with a significant level of dysfunctional career thoughts need in-depth intervention such as individual counseling, whereas individuals with low levels of dysfunctional career thoughts need only minimal interventions, such as making available career resources for the individual to use independently. (For a more in-depth discussion of specific intervention strategies, refer to the CTI manual [Sampson et al., 1996] and Sampson et al., 2000.)

The results of this study also provide the basis for future research regarding the career thoughts of individuals with disabilities. First, data should be collected to determine if the groups identified in this study can be replicated. Second, research is also needed to determine what type of interventions are effective in reducing the level of dysfunctional career thoughts for individuals with disabilities. More specifically, researchers need to determine whether the intervention strategies typically used with individuals with career decision-making problems are effective for individuals with anxiety, depression, schizophrenia, and bipolar disorder. Third, it needs to be determined whether there are differences in career decision making between individuals with anxiety, depression, schizophrenia, and bipolar disorder. Fourth, contextual factors should be examined to determine how these factors influence the development of dysfunctional thoughts. Finally, the results of this study provide evidence that individuals with anxiety, depression, schizophrenia, and bipolar disorder are able to complete this survey without assistance. This provides researchers with an instrument that can be used in career development research with this population. However, more research is needed to examine if the instrument produces reliable and valid data on career thoughts for individuals with these conditions.

TABLE 1. Characteristics of the Clusters

Characteristic	Cluster 1	Cluster 2	Cluster 3
Age: M (SD)	33.8 (10.3)	36.6 (11.2)	39.0 (8.2)
Women	62%	54%	67%
Ethnicity			
African American	60%	73%	83%
Caucasian	31%	23 %	11%
Hispanic	2%	0%	0%
Asian American	2%	0%	0%
Education			
< 12th grade	45%	42%	39%
GED/HSD or higher	38%	46%	56%

Note. GED = General Equivalency Diploma; HSD = high school diploma. Cluster 1: Dysfunctional Thoughts, n = 45; Cluster 2: External Conflict, n = 69; Cluster 3: Productive Thoughts, n = 18. Percentages may not equal 100 because of participants' not reporting information.

TABLE 2. Raw Score Means, Standard Deviations, and Adult Sample Percentiles on the Three CTI Subscales for Clusters and Comparison Groups

CTI subscale	Cluster 1			Cluster 2			Cluster 3		
	M	(SD)	%ile	M	(SD)	%ile	M	(SD)	%ile
DMC	19.2	(3.9)	93	9.3	(4.1)	54	0.9	(1.6)	14
CA	17.4	(3.2)	92	10.7	(3.2)	62	3.6	(2.7)	14
EC	7.1	(3.1)	97	4.6	(1.9)	79	0.2	(0.5)	8
CTI subscale	GED group			SES group					
	M	(SD)	%ile	M	(SD)	%ile			
DMC	12.9	(6.3)	76	7.9	(6.4)	50			
CA	12.9	(4.6)	76	8.6	(5.5)	46			
EC	5.4	(3.0)	88	3.7	(3.1)	66			

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996); GED = General Equivalency Diploma; SES = socioeconomic status; DMC = Decision Making Confusion subscale; CA = Commitment Anxiety subscale; EC = External Conflict subscale. Cluster 1: Dysfunctional Thoughts, n = 45; Cluster 2: External Conflict, n = 69; Cluster 3: Productive Thoughts, n = 18. Higher number indicates greater dysfunction. Percentile reported is based on a normative group of adults.

TABLE 3. Effect Sizes (d), Power Estimates, and t Tests Between Pairs of Means on the Three CTI Subscales

Cluster	CTI subscale			
	DMC		CA	
	Effect size	Power estimate	Effect size	Power estimate
1. Dysfunctional Thoughts-GED group	-1.3 (c) *	(.99)	-0.9 (c) *	(.97)
1. Dysfunctional Thoughts-SES group	-2.3 (c) *	(.99)	-.8 (c) *	(.99)
2. External Conflict-GED group	0.8 (c) *	(.92)	0.4 (a)	(.42)
2. External Conflict-SES group	-0.3 (a)	(.09)	-0.4 (a)	(.22)

3. Productive Thoughts- GED group	2.4 (c) *	(.99)	1.8 (c) *	(.99)
3. Productive Thoughts- SES group	1.4 (c) *	(.97)	1.0 (c) *	(.75)

CTI subscale

EC

Cluster	Effect size	Power estimate
1. Dysfunctional Thoughts-GED group	-0.3 (a)	(.17)
1. Dysfunctional Thoughts-SES group	-0.7 (b) *	(.62)
2. External Conflict- GED group	0.2 (a)	(.05)
2. External Conflict- SES group	-0.2 (a)	(.04)
3. Productive Thoughts- GED group	1.1 (c) *	(.87)
3. Productive Thoughts- SES group	0.7 (b)	(.39)

Note. CTI = Career Thoughts Inventory (Sampson et al., 1996);  
DMC = Decision Making Confusion subscale; CA = Commitment Anxiety  
subscale; EC = External Conflict subscale; GED = General Equivalency  
Diploma; SES = socioeconomic status.  
(a) small effect size. (b) medium effect size. (c) large effect size.  
\*  $p < .05$ .

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