

Career Choice Readiness Moderates the Effects of Interest Inventory Interpretation

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Career development theory postulates that a client's career choice readiness influences the experience of an interest inventory. This study examined career choice readiness as it related to satisfaction with, retention of, and use of a videotaped interpretation of the Strong Interest Inventory (SII; Hansen & Campbell, 1985). Students ($N = 186$) from two urban midwestern universities participated in this study. Results indicated that two attitudinal factors of career choice readiness, namely attitudes toward career planning and attitudes toward career exploration, predicted how much and how well clients used their interest inventories. Career choice readiness did not predict immediate satisfaction with the inventory interpretation nor cognitive retention of the inventory results. The discussion of these findings emphasizes differential use of interest inventory results based on the client's degree of career choice readiness.

One of the major implications of career development theory for the practice of counseling involves client readiness for career interventions. Since the inception of career development theory at midcentury, a seminal proposition has been that individuals vary in their readiness to make educational and vocational choices (Super, 1955). Career choice readiness means that an individual has sufficiently developed the career development attitudes, coping behaviors, and cognitions needed to crystallize a stable vocational identity and to specify a realistic occupational choice.

Developmental status translates into different schemas for apprehending the world. An individual with more career choice readiness is likely to hear an interest inventory interpretation as a reassurance of a particular career choice. Starting at the lowest developmental level, the interpretation is heard as a schema or guide to exploration. One of the benefits of administration of the SII at a beginning developmental stage is offering the

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Holland hexagon as a structure for career choice. At middle levels, individuals gain self-knowledge about how they compare to other people in the world. At higher levels, individuals are crystallizing choices, then specifying choices, and finally, tentatively implementing them and seeking reassurance. The construct of career choice readiness was designed to indicate the readiness, not only for career choice, but for differential interventions.

Individuals who possess a readiness for career choice, as evident in their career development attitudes and competence for making occupational choices, are better able to cope with the developmental tasks of crystallization and specification. Individuals with greater career choice readiness also seem more likely to appreciate and benefit from interventions that concentrate on career choice content such as their occupational interests, vocational talents, and work values. In contrast, individuals with lower levels of career choice readiness benefit more from career interventions that concentrate on career choice process variables such as future orientation, independence, role salience, decision-making, and self-esteem.

Because of the intuitive appeal of the readiness construct, along with empirical evidence that shows a strong inverse correlation between career maturity and indecision, many career counselors assess client development to determine readiness for career choice content versus career choice process interventions (Crites, 1974). Several models have been converted into psychometric measures (Super, 1974), which makes this assessment of career choice readiness more practical. One of the most widely used measures, the *Career Development Inventory* (CDI; Super, Thompson, Lindeman, Jordaan, & Myers, 1981), operationally defines the four major variables in Super's structural model of career readiness: planning attitudes, exploration attitudes, information about the world of work, and decision-making competence. Deficits in any of these critical attitudes or competencies lead to corresponding delays in vocational development and to predictable problems in career choice. Planlessness causes disorientation when individuals encounter the need to make a career choice, whereas lack of curiosity makes them naive in making a choice. Lack of decisional competence can cause indecision or even indecisiveness, whereas an inadequate fund of information about the world of work can result in unrealistic choices.

Because clients vary in degree of vocational development, and they experience diverse decisional difficulties, the assessment of career choice readiness has become an essential component in models for comprehensive career counseling (Crites, 1981). Consider, for example, Super's model for career development assessment and counseling (Super, 1983; Super, Osborne, Walsh, Brown, & Niles, 1992). The C-DAC model directs counselors to assess whether the client "is mature enough for his or her interest and value scores to have real meaning" before administering or interpreting an interest inventory (Super, 1983, p. 557).

An immature client who is naive and uninformed can certainly respond to interest inventory items, but the resulting profile of scale scores often reveals problems in differentiation, coherence, and consistency. Individuals

who are not ready for an interest inventory should instead receive choice process interventions that foster involvement in preparing for the future, encourage exploratory behavior, develop decision-making skills, or increase information about the self and the world of work. Those individuals who have adequately developed the requisite attitudes, beliefs, and competencies are better prepared to respond meaningfully to interest inventory items, to understand their results at a cognitive level, to accept the results on an emotional level, and to apply the results to subsequent occupational exploration and eventual career decision-making. With more mature individuals, results of career choice readiness assessments can be used to determine the depth of the interest inventory interpretation (e.g., to prompt exploration in depth or in breadth) and how to communicate this interpretation to the client most effectively.

Although this prescription concerning the developmentally appropriate use of interest inventories occupies a central place in career development theory and has excellent support in the clinical wisdom of practitioners, the interaction between career choice readiness and interest inventory effects remains largely unexamined by empirical research. Accordingly, the present study examined the association between degree of career choice readiness and the outcomes of an interest inventory interpretation. Having knowledge of a client's chronological age is valuable, but it may not be as relevant to the choice process as functional age or career choice readiness. Clients at any chronological age can recycle to previous developmental stages at points of career indecision. It is also valuable to know that a client has sufficient intellect to understand a career interest inventory. One would hope that students who have graduated from high school and have been accepted at universities would meet this minimal criteria. For the purposes of this study, we collected information on participants' chronological ages and grade point averages (GPA). However, because of our focus on career choice readiness of only university students at any chronological age, ages and GPAs are reported as demographics. When GPA was included in our analyses, outcomes were unchanged.

We focused on three outcomes: satisfaction, retention, and use. We expected that higher levels of career choice readiness would correlate with greater satisfaction with an interest inventory interpretation and better retention of the results. With regard to use of the results, we focused on subsequent vocational exploratory behaviors in the belief that use of interest inventory results is dependent on developmental status.

Zener and Schnuelle (1976); Cooper (1976); Prediger and Noeth (1979); Hoffman, Spokane, and Magoon (1981); Phillips (1982); Greenhaus, Hawkins, and Brenner (1983); Blustein and Phillips (1988); Blustein (1989); and Randahl, Hansen, and Haverkamp (1993) have all reported exploratory behaviors as an outcome effect. From their varied results, it can be concluded that career interventions (including interest inventory interpretations) have led to expanded career alternatives, greater satisfaction with career choices, and requests for more occupational information as well as increased participation in career testing, counseling, seminars, and career consultations with family and friends. However, no study has directly tested

the theoretically hypothesized association of career choice readiness with an interest inventory interpretation. In short, we expected that clients possessing career choice readiness would have more satisfaction with an interest inventory interpretation, have greater recall of the results, and use the interpretation to increase and focus their subsequent exploratory behaviors. The null hypothesis, that career choice readiness does not relate to the effects of an interest inventory interpretation, was tested and further clarified by testing three subhypotheses, that career choice readiness does not relate to (a) satisfaction with an interest inventory, (b) use of interest inventory information, and (c) retention of interest inventory information.

Methods

Measures

For the purposes of this study, career choice readiness was operationally defined by scores on the CDI. The vocational interest inventory selected for interpretation to clients was the SII. Client satisfaction with the SII was operationally defined by the Career Interest Inventory Reaction Questionnaire (CIIRQ; O'Neil & Price, 1976), and retention of the SII information was measured with the Strong Interest Inventory Retention Test (SIIRT; Miller & Cochran, 1979). Client use of that information was operationally defined by the Career Exploration Survey (CES; Stumpf & Colarelli, 1980).

Career Development Inventory

The CDI has been described as the most comprehensive measure of career choice readiness for adolescents and young adults (Savickas, 1984). Section 1 of the CDI consists of four 20-item scales: Career Planning, Career Exploration, Career Decision-Making, and World-of-Work Information. A total score for Section 1 is called the career orientation total. Section 2, which does not contribute to the total score, consists of the 40-item Knowledge of Preferred Occupational Group scale. Participants indicate their occupational preferences and then answer 40 questions about that choice. The CDI technical manual (Thompson & Lindeman, 1984) reports scale test-retest reliabilities for Career Planning at .79, Career Exploration at .73, Career Decision-Making at .70, World-of-Work Information at .67, and Knowledge of Preferred Occupational Group at .61. The coefficient alpha for the career orientation total for this administration of the CDI was .77. A complete review of the extensive reliability and validity data for the CDI appears in Savickas and Hartung (1996).

Strong Interest Inventory

The SII was selected for this study because it "dominates the field as the most frequently used and recommended vocational assessment procedure" (Watkins, 1993, p. 109). The SII is scored for three sets of scales. The General Occupational Themes provide scores for Holland's (1973) six RIASEC types. The Basic Interest Scales (BIS) consist of homogeneous items that measure interests in 23 basic fields. The 207 Occupational scales, representing 106 different occupations, are empirically derived measures of

interest in specific occupations. For this study, an interpretation of the SII served only as a typical career procedure. This was a clinical intervention, not an experimental intervention. Therefore, the SII scores were not included as part of the analyses.

Career Interest Inventory Reaction Questionnaire

The CIIRQ measures an individual's immediate reaction to an interest inventory interpretation. Fifteen 5-point Likert-style items fall into four factors: Career Stimulation, Response to Testing, Clarity of Directions, and Certainty About Career Planning. O'Neil, Price, and Tracey (1979) reported high reliability coefficients ranging from .93 to .97. The coefficient alphas for this study ranged from .66 to .79.

Strong Interest Inventory Retention Test

The Strong-Campbell Interest Inventory Retention Test (SCIIRT; Miller & Cochran, 1979) measures the recall of factual information about the SCII with 25 criterion-referenced, multiple choice items. The original test title, The Strong-Campbell Interest Inventory Retention Test, was modified to read the Strong Interest Inventory Retention Test to correspond to the 1985 edition of the SII used in this study. Other modifications made to fit the 1985 SII included changing the item-21 question from "Academic Orientation Scale" to "Academic Comfort Scale" and changing item 14 from "You answered the inventory in a way similar to men who are doctors" to "You answered the inventory in a way similar to men or women who are doctors." All 25 items of the original SCIIRT were included in this study. The total score indicates degree of retention. Miller and Cochran reported a KR 20 reliability coefficient of .68. The coefficient alpha in this administration of the SIIRT, however, was only .39.

Career Exploration Survey

The CES measures "career-search behaviors, reactions to exploration, and beliefs about exploration" (Stumpf, Colarelli, & Hartman, 1983, p. 192). The CES was chosen as the exploration measure, because it includes separate scales to measure information-seeking behaviors and beliefs about the instrumentality of exploration in attaining career goals. The CES has been used in several studies of career development and exploration (Blustein, 1988b; Blustein, 1989; Blustein, Devenis, & Kidney, 1989; and Mako, 1990). Participants responded to the complete CES, with modifications recommended by Blustein (1988b) for use with a college population. These modifications consisted of adding 4 items to the original Self-Exploration scale, which describe the exploratory behaviors of college students, and adding a new 4-item Career Decision-Making Instrumentality scale. Thus, participants responded to 69 CES items that constitute 16 scales.

Analyses were conducted on the five scales that are relevant to the present study and sensitive to short-term change. To increase their relevance, we adapted the directions for these scales for the present study by replacing the phrase "over the last 3 months" with the phrase "since you took the Strong Interest Inventory." Two of the five CES scales used in the study focus on recent exploratory behaviors. The five items in the Environmental

Exploration scale (EE) address vocational information-seeking behaviors, whereas the nine items in the Self-Exploration scale (SE) address reflection that clarifies vocational self-concept and increases self-understanding. The three other scales used in this study deal with instrumentality, or beliefs about the usefulness of certain types of behaviors.

The four-item Internal Search Instrumentality scale (ISI) measures beliefs about the usefulness of self-exploration, whereas the three-item External Search Instrumentality scale (ESI) measures beliefs about the usefulness of occupational exploration in obtaining career goals. The four-item Career Decision-Making Instrumentality scale (CDMI) measures beliefs about the usefulness of behaviors that enhance career decision-making. Reliability and validity data for the entire CES are reported by Stumpf et al. (1983). For the five dimensions used in this study, Blustein (1988b) reported internal consistencies ranging from .64 to .86 and stability coefficients ranging from .67 to .85. In this study, coefficient alphas ranged from .68 to .88, as reported in Table 1.

In addition to the items on these five scales, we also analyzed results for two additional CES items. The first item asked participants to indicate how many times per week, since their SII interpretation, they had specifically sought occupational information (1-2, 3-5, 6-9, 10-13, or 14+). The second item asked participants to indicate the number of occupational areas they were investigating. Table 3 lists all the CES items used in this study.

Participants

Clients who requested career assistance at the counseling centers of two midwestern urban universities were offered participation in this project as an alternative, or prelude, to individual or group career counseling. All testing and interpretation sessions were held in the universities' counseling centers. The 156 participants (88 female, 68 male) who completed all parts of the research project ranged in age from 18 to 61 years, with a mean age of 27.1 years. Their self-reported GPAs ranged from 1.6 to 4.0 on a 4.0 scale, with a mean of 2.85. Participants represented six categories of class status, with 29 freshmen (18.6%), 46 sophomores (29.5%), 40 juniors (25.6%), 20 seniors (12.8%), 17 graduate students (10.9%), and 4 participants who were not students (2.6%). Of the 156 participants, 113 identified themselves as Caucasian (72.4%), 28 as Black (17.9%), 8 as Asian (5.1%), 2 as Hispanic (1.3%), and 5 (3.2%) did not indicate race.

Data Collection Procedures

The participants attended three sessions. In the first session, lasting about 75 minutes, they completed university human subjects forms, demographic questions, the CDI, and the SII. The second session was scheduled for 2 weeks later, to allow time for computer scoring of the SIIs. During the second session, the participants viewed a videotape that presented an SII interpretation. The script for the videotape was a publisher-approved modification of *Using the Strong in Organizations* (Hirsh & McEvoy, 1986), a group interpretation package published by Consulting Psychologists Press. The videotape was designed to imitate an individual test

Table 1
Means, Standard Deviations, Coefficient Alphas, and Intercorrelations for All Variables

Variable	M	SD	α	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1.																		
2.				.26*														
3.	89.0	19.0		-.09	.20*													
4.	99.0	20.0		.10	.03	.56***												
5.	100.0	16.0		.05	.20*	-.12	-.09											
6.	100.0	19.0		.10	.33***	.06	-.02	.29***										
7.	100.0	20.0		-.22*	.09	.07	-.02	.22*	.21*									
8.	94.0	18.0	.77	.07	.33***	.68***	.67***	.40***	.56***	.19*								
9.	3.4	0.4	.83	-.01	-.05	.02	.05	-.14	.07	.05	.01							
10.				-.07	.11	.06	-.14	.10	.23*	.13	.10	-.03						
11.	3.2	0.5	.94	-.12	.11	.47***	.42***	-.29***	-.05	.01	.28***	.10	.12					
12.	13.5	5.8	.88	-.12	.14	.47***	.49***	-.20*	-.04	.00	.35***	.11	-.01	.74***				
13.	27.3	7.9	.87	.07	.18*	.31***	.46***	-.07	.12	.08	.38***	.06	.00	.68***	.53***			
14.	14.8	3.5	.85	.00	.00	.15	.28***	-.01	.17	.01	.27*	.05	.03	.53***	.22*	.56***		
15.	9.7	2.5	.68	-.24*	.02	.34***	.38***	-.15	-.06	.08	.25*	.08	-.04	.55***	.33***	.27***	.39***	
16.	13.5	3.4	.69	-.13	-.02	.12	.30***	-.21*	-.05	-.01	.10*	.16	.01	.60***	.37***	.46***	.51***	.60***

Note. 1 = age; 2 = grade point average (GPA); 3 = Career Development Inventory, Career Planning scale (CDICP); 4 = Career Development Inventory, Career Exploration scale (CDICE); 5 = Career Development Inventory, Decision-Making scale (CDIDM); 6 = Career Development Inventory, World-of-Work Information scale (CDIWW); 7 = Career Development Inventory, Knowledge of Preferred Occupational Group scale (CDIPO); 8 = Career Development Inventory, career orientation total score (CDICOT); 9 = Career Interest Inventory Reaction Questionnaire (CIIRQ); 10 = Strong Interest Inventory Retention Test (SIIRT); 11 = Career Exploration Survey total score (CESTDT); 12 = Career Exploration Survey, Self-Exploration scale (CESSE); 13 = Career Exploration Survey, Environmental Exploration scale (CESSE); 14 = Career Exploration Survey, Internal Search Instrumentality scale (CESIS); 15 = Career Exploration Survey, External Search Instrumentality scale (CESDMI); 16 = Career Exploration Survey, Career Decision-Making Instrumentality scale (CESCDMI).

* $p < .05$. *** $p < .001$.

interpretation session. Test takers were encouraged to learn more about themselves and their career paths and to use occupational information for further exploration. The videotape also provided information on the history of the SII, comparisons for men-in-general and women-in-general norms, Holland typology, and the meaning of the various scale scores.

A videotaped interpretation format was selected to guarantee that all participants received the same content in the same style in their test interpretations. The SII was not used as an experimental intervention, but rather as a clinical procedure to help verify the relationship between career choice readiness and outcome effects. If one counselor, or several counselors, had provided all 156 interest inventory interpretations, it would have been impossible to determine bias. A videotaped interpretation was necessary to eliminate the possibility of a counselor's emphasis on some concepts or scales with some clients and not others. A comparison of participants' satisfaction with the SII, as interpreted from videotape, and that of individual interpretations (O'Neil et al., 1979) revealed little difference in mean scores on the CIIRQ. After watching the 41-minute videotape, participants completed the satisfaction measure, the CIIRQ. Seven participants who attended the first session did not return for the second session.

The third session was then scheduled for 2 weeks later. A time lapse was necessary to allow the participants to engage in exploratory behaviors. The actual time lapse ranged from 9 to 44 days, dependent only on the participants' availability for follow-up testing. One limitation of this study could be our inability to guarantee that all participants completed the follow-up tests during the same time interval. Because participants were actual career clients who were dealing with academic schedules and college counseling center schedules, the time interval between the second and third sessions accurately reflects the reality of career counseling. Further, the interest inventory interpretation was a clinical procedure, not an experimental intervention, so the time interval differences should not compromise the measurement of relationship between two variables.

Attrition occurred at this point in the study, probably because the students had already received the inventory interpretation they wanted. To encourage completion of the project, participants were offered individual counseling sessions after all research measures were completed. Even these efforts failed to bring 16 participants back for the third session. During the 30 to 45 minutes of the third session, participants completed the measures of retention and use, the SIIRT, and the CES. Eight participants requested and were given individual career counseling following the third session.

Results

Table 1 reports the mean scores, standard deviations, alpha coefficients, and intercorrelations for each measure. In general, the results for the participants in this study resembled those obtained in previous studies. When the results varied, the participants in the present study earned slightly lower scores. There was one exception to this observation. It was apparent from the participants' answers to the SIIRT that they retained only

a moderate amount of the factual information presented in the SII interpretation session. The percentage of correct responses ranged from 13% to 95% correct, with half the responses in the range of 70% correct. Participants had the highest percentage of correct responses on those items that asked about RIASEC types and the lowest on questions about the special scales and the BIS. These disappointing results coincide with results of a recent study by Hansen, Kozberg, and Goranson (1994), who concluded that students recalled their SII results at a low rate and that "administration of the SII along with brief presentation of the profile results does not sufficiently promote self-knowledge of interests over the long term" (p. 240).

The correlation matrix presented in Table 1 shows no significant correlations between gender and any other variable. Therefore, the data from female and male participants were combined to test the hypotheses. Of particular interest to this research are the correlations between the CDI scale scores and the measures of satisfaction, retention, and use. The CDI total score correlated .01 with the CIIRQ, .10 with the SIIRT, and .28 ($p < .001$) with the CES. Thus, career choice readiness was associated with the amount of career exploration subsequent to the interest inventory interpretation but did not relate systematically to satisfaction or retention.

Given the correlation between the CDI and CES total scores, a canonical analysis was used to examine the relationship between the five scale scores from the CDI and the five scale scores from the CES. Because the matrix in Table 1 indicated significant correlations between GPA and three of the five CDI scales (Career Planning, Career Decision-Making, and World-of-Work Information) and one CES scale (Self-Exploration), a second canonical correlation was computed, which included GPA.

Weiss (1972) described the technique as follows:

A canonical correlation analysis is a multivariate statistical technique designed to assist the researcher in studying complex interactions of data on two sets of variables. ...The distinction between predictors and criteria disappears in canonical analysis; there are simply two sets of variables, and the method formalizes the relationships between the two sets. (p. 241)

The relationship under determination in this study was between the variable set of five CDI scale scores (measuring career choice readiness) and the three outcome measure scores of retention, use, and satisfaction. The SII interpretation was merely a necessary clinical procedure, not an experimental intervention. Therefore, the SII scores are not included in the canonical analyses.

The results of these two canonical correlation analyses appear in Table 2. The canonical analysis for the five CDI scales versus the five CES scales produced one significant canon ($R_c = .66$, $F = 4.07$, $df = 25/429$, $p < .0001$). As can be seen in Table 2, the strength of the relationship was between the two CDI attitudinal scales (planning and exploration) and five CES scales, particularly those dealing with exploration activities. The canonical analysis

for the same variables with the addition of GPA produced two significant canons. The first R_c was .65 ($F = 3.78$, $df = 30/390$, $p < .0001$), and the second R_c was .54 ($F = 2.46$, $df = 20/326$, $p < .0006$). The loadings for each canon appear in Table 2. The first canon again showed the strong relationship between CDI attitudes and CES exploration behaviors. The second canon showed a strong relationship between the two CDI cognitive scales (decision-making and information) with GPA. This second canonical analysis again shows the clear difference between CDI scales that measure career choice attitudes and those that measure career choice competencies.

Table 3 reports the mean scores and standard deviations for all the CES items used in the present study, along with each item's correlation with the CDI scales that measure attitudes toward career planning and toward career exploration. This information is helpful in understanding the results of the study, because the item means for the Environmental Exploration and

Table 2
Loadings for Significant Canonical Correlations
Between Career Development Inventory (CDI)
and Career Exploration Scale (CES) Variates

Variable	Canonical loadings	
CDI - Career Planning scale	.84	
CDI - Career Exploration scale	.91	
CDI - Career Decision-Making scale	-.20	
CDI - World-of-Work Information scale	-.09	
CDI - Knowledge of Preferred Occupational Group scale	.11	
CES - Environmental Exploration scale	.84	
CES - External Search Instrumentality scale	.66	
CES - Internal Search Instrumentality scale	.35	
CES - Self-Exploration scale	.70	
CES - Career Decision-Making Instrumentality scale	.44	
Analysis With GPA:	1	2
CDI - Career Planning scale	.88	.06
CDI - Career Exploration scale	.78	-.42
CDI - Career Decision-Making scale	.15	.54
CDI - World-of-Work Information scale	.21	.69
CDI - Knowledge of Preferred Occupational Group scale	.29	.02
CES - Environmental Exploration scale	.77	-.24
CES - External Search Instrumentality scale	.51	-.23
CES - Internal Search Instrumentality scale	.34	.02
CES - Self-Exploration scale	.72	-.25
CES - Career Decision-Making Instrumentality scale	.18	-.50
GPA	.36	.72

Self-Exploration scales indicate the actual number of times that exploratory behaviors occurred subsequent to the SII interpretation. The correlations reflect whether planning attitudes, exploration attitudes, or both related to exploration behavior and instrumentality beliefs.

Attitudes toward planning and exploration both appear to relate, to about the same degree, to environmental exploration activities, especially gathering occupational information about specific career opportunities. In contrast, self-exploration seems to relate more to attitudes toward exploration. Individuals with more positive attitudes toward exploration appeared more likely to consider the SII results with regard to expectations of family members and in light of their educational backgrounds. Stronger belief in the value of self-exploration after the SII interpretation related to exploration attitudes but not planning attitudes, whereas stronger belief in environmental exploration related to both planning and exploration attitudes.

Discussion

This study investigated the relationship of career choice readiness to satisfaction with, retention of, and use of an interest inventory interpretation. The participants reported moderate satisfaction with the SII interpretation. Of course, we wondered if the satisfaction scores could have been increased had participants experienced a personalized interpretation in an individual or small group setting, rather than through watching a videotape. We had expected that clients possessing more career choice readiness would report a more positive response to the experience. This was not the case, as career choice readiness was unrelated ($r = .01$) to satisfaction with the SII interpretation. Clients at all levels of career choice readiness scored at all levels of satisfaction, with no discernible pattern.

Career choice readiness was also unrelated to retention of information from the SII interpretation. This finding, again unexpected, may be attributed to the fact that the participants were not aware they would be tested on the retention of their SII results. The 25 items on the measure of retention dealt with the SII in general, not the participants' recall of their own scores. Therefore, the amount of factual information the participants did retain seemed quite significant. In retrospect, the SIIRT appeared to be a measure of academic achievement; that is, how much information a participant learned and retained about the SII from watching the videotape. Given this interpretation, we thought that retention might relate to GPA, but, as shown in Table 1, it did not. The only significant relationship obtained between retention and the other variables occurred with World-of-Work Information ($r = .23, p < .05$). Apparently, participants who knew more about the world of work before taking the SII learned and retained more facts from the videotaped interpretation, possibly because they had more highly developed cognitive schemas about occupations in which to embed the new information.

How the participants used the information from the SII interpretation did relate systematically to their degree of career choice readiness. Participants with more highly developed attitudes toward, and competencies for, career

Table 3
Career Exploration Survey (CES) Item Means, Standard Deviations, and Correlation to Career Development Inventory (CDI) Scores for Planning Attitudes and Exploration Attitudes

Item	<i>M</i>	<i>SD</i>	CDI- Plan	CDI- Explore
Environmental Exploration				
Went to career orientation programs	1.55	1.06	.20*	.35**
Obtained information on specific jobs	2.27	1.24	.39**	.28**
Initiated conversations with individuals in my career area	2.72	1.35	.45**	.42**
Obtained information on opportunities in my career area	2.26	1.28	.48**	.51**
Sought information on career interests	2.37	1.18	.32**	.38**
Self-Exploration				
Reflected on how my past integrates with future	3.20	1.26	.27**	.36**
Thought about me as a person	3.58	1.18	.14	.34**
Contemplated my past	3.20	1.27	.15	.21*
Thought about my educational background and career options	3.46	1.20	.25**	.41**
Understood new relevance of past behavior for future plans	3.08	1.23	.22*	.29**
Reflected on career options in relation to expectations of my family	2.50	1.41	.34**	.44**
Reflected on career options in relation to expectations of friends and peers	2.02	1.20	.25**	.30**
Thought of myself as autonomous	3.26	1.27	.08	.24**
Thought of myself in various career roles	3.30	1.24	.16	.25**
Internal Search Instrumentality				
Assessing myself relative to career needs	3.79	1.01	.15	.24**
Learning more about myself	3.91	1.03	.09	.23**
Understanding new relevance of past behavior for future career	3.48	1.10	.12	.25**
Focusing thoughts on me as a person	3.68	1.03	.13	.23**
External Search Instrumentality				
Obtaining labor market information about my career area	3.75	0.92	.28**	.29**
Initiating career conversations with friends and relatives	3.04	1.13	.25**	.31**
Initiating career conversations with other students	2.98	1.17	.24**	.30**

(continued)

Table 3 (continued)
 Career Exploration Survey (CES) Item Means, Standard Deviations, and Correlation to
 Career Development Inventory (CDI) Scores for Planning Attitudes and Exploration Attitudes

Item	<i>M</i>	<i>SD</i>	CDI- Plan	CDI- Explore
Career Decision-Making Instrumentality				
Talking with workers in my career area	3.72	.99	.28**	.34**
Learning the career that college majors lead to	3.02	1.11	.08	.26**
Meeting with career counselors	3.39	1.02	-.20*	-.02
Exploring occupational information	3.38	1.08	.15	.26**
Additional Items				
How many occupational areas are you investigating?	2.80	1.45	-.11	-.06
Since you took the SII, how many times per week specifically sought career information?	1.50	.75	.23**	.28**
Response				
1 = 1-2 times				
2 = 3-5 times				

* $p < .05$. ** $p < .01$.

decision-making engaged in more exploratory activities following the SII interpretation. They more often sought information about preferred occupations and initiated more conversations with individuals already employed in these occupations. Moreover, they engaged in more self-exploration, including thinking about what type of person they are and how this fits with occupational options and family expectations. In addition to actual information-seeking behaviors and self-reflection, participants with greater career choice readiness reported stronger beliefs about the instrumentality of exploring themselves and the world of work as a means of making suitable and viable career choices.

It is pertinent to note that only the attitudinal factors of career choice readiness related to increased exploratory activity. More positive attitudes toward career planning and exploration before the SII interpretation related to more exploratory activity and reflection following the interpretation. It is surprising that knowledge of decision-making principles and practices inversely related to exploratory activity and beliefs, in that the CDI-DM scale correlated $-.29$ ($p < .01$) with the CES total score. Perhaps participants with greater decisional competence were more primed to make a choice. These participants may have used the results to clarify options or increase certainty about and commitment to a choice, rather than to generate options to explore.

These conclusions about career choice attitudes and the effects of an SII interpretation coincide with Blustein's (1988a) conclusion about the relationship between degree of career choice crystallization and career maturity. He reported that career choice crystallization associates with the attitudinal dimension, but not the cognitive dimension, of career maturity. Blustein (1988a) also concluded the following:

If career choice crystallization were enhanced as a result of treatment, there would not necessarily be a corollary improvement in exploratory behaviors, decision-making skills, and general occupational information. Likewise, an intervention designed to develop the vocational maturity of young adults may not lead to career choice crystallization. (p. 296)

The data from the present study suggest, however, that the effects of a clinical intervention consisting of an interest inventory interpretation are greater for clients with higher degrees of career choice readiness.

This relationship of career exploration and planning to the use of an interest inventory has implications for career counseling. The findings lend further support to the contention that comprehensive career assessment should attend to both the process dimensions (e.g., career choice readiness) and the content (e.g., interests) of vocational development as recommended in the C-DAC model (Super et al., 1992). Clients who exhibit delays in career maturation might be better served by counseling interventions aimed at increasing career choice readiness, rather than by an interest inventory. If clients do take an interest inventory, counselors can use the assessment of developmental status to structure an interpretation of interest inventory

results that prompts subsequent environmental exploration and self-exploration, rather than encouraging an immediate choice.

Relative to the assessment of career development, the present results again indicate that the career choice process dimension includes both an attitudinal and a cognitive factor. Moreover, the results reinforce the interpretation that career choice attitudes are a more fundamental factor in career readiness than are career choice competencies (Savickas & Hartung, 1996).

The usual limitations of correlational research apply to the generalizability of conclusions in this study. Particular limitations of the results include the low reliability and academic orientation of the retention measure as well as the impersonal interpretation of the SII results. The fact that the participants were students at urban universities means that the results may not generalize to other types of college students or to high school students. Further research with these populations is recommended. A strength of the study resides in the assessment of individuals who sought career assistance. Participants were actual clients who chose to participate in this study instead of, or as a prelude to, individual career counseling.

Further research is needed to investigate the relationship between career choice readiness and the effects of other career interventions. Such studies could identify those treatments that directly influence either the attitudinal or cognitive dimensions of career choice readiness, thus making it possible to apply a more prescriptive approach to career counseling. This could lead to "truly developmental counseling" (Super, 1983, p. 555).

In conclusion, the results from this study provide empirical support for a relationship between career choice attitudes and greater exploratory activity following an interest inventory interpretation. Counselors are encouraged to assess career choice readiness before, or in tandem with, administering interest inventories. The outcomes of career choice readiness assessments can inform the decision of whether or not to administer an interest inventory. If an inventory has already been administered, career choice readiness information can be used to suggest strategies for a personalized, developmentally appropriate interest inventory interpretation.

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