

## Dimensions of Career Indecision

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Recent studies have clarified the factor structure of the Career Decision Scale (CDS; Osipow, 1980), thereby permitting the construction of 4 linearly independent scales to measure dimensions of career indecision. The CDS was administered to 465 junior and senior high school students. The study examined whether the CDS total score and the 4 subscales were related to the students' career decision status, grade level, and gender. Data were collected twice, 6 months apart, to study whether changes in decision status were accompanied by changes in the CDS total score and the 4 subscales and whether these changes differed according to gender or grade level. In addition, a subsample was followed for 3 years to examine long-term change. The results demonstrated the utility of using factor-based subscales to create a typology of career indecision. Many significant differences on the various indecision scales were found to be due to gender and to career decision status but not to grade level.

Vocational guidance counselors, college advisors, and career counselors have long observed that persons may be undecided about their vocational or career choices for a number of reasons. Some may be undecided because they can see themselves in many different occupational roles, whereas others may be undecided because they cannot see themselves in any. Some persons may be undecided because, for practical considerations, they have no hope of implementing their first choice, and others may simply have trouble deciding anything at all. Still others may be undecided because they are not prepared or ready to make career decisions. Although clinical experience may confirm such different types of indecision, there is a distinct lack of consistent scientific evidence in this area. As a consequence, counselors have little choice but to use their clinical intuition and clinical methods to determine the nature of the indecision that plagues their clients and to determine the kind of intervention that may be needed.

Slaney (1988), in a recent review of the literature on career decision making, suggested that career indecision research has shown inconsistent or contradictory findings because researchers have been unable to differentiate between persons who are undecided about their career and those who are generally indecisive. He proposed that the former may be a normal, developmental state that can be remedied by obtaining relevant career information or through standard career interventions. The latter may have more traitlike characteristics and respond only to more intensive, longer lasting treatment (see also Salomone, 1982).

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In addition to the distinction between generally indecisive and career undecided persons, several types of career indecision may exist. As Hartman, Fuqua, and Jenkins (1986) observed,

evidence is accumulating to indicate that career indecision is a complex, multidimensional construct. Unidimensional approaches to the problem are not likely to be independently satisfactory in explaining this construct. Research ought to be aimed at identifying and explaining career indecision types and toward explaining the role of different facets in defining the construct. (p. 147)

Clearly, a means for the identification and measurement of the various pertinent dimensions of career indecision seems to be a most desirable objective. To date, research on the Career Decision Scale (CDS; Osipow, 1980; Osipow, Carney, & Barak, 1976) has shown the greatest promise, and in fact, the CDS was specifically designed to examine different dimensions of career indecision. However, Osipow (1980) recommended general use of the total CDS score to measure career indecision, in part because of the demonstrated reliability and validity of this score, and in part because of the failure of subsequent students to replicate the original factor structure. This failure has discouraged the use of factor-based career indecision subscales, although a recent study by Fuqua, Newman, and Seaworth (1988) is an exception.

In examining several of the factor-analytic studies on the CDS, Shimizu, Vondracek, Schulenberg, and Hostetler (1988) found that the differences among the results were due in part to the diversity of factoring techniques and also to the exclusive reliance on orthogonal rotation of factors (i.e., no correlations among the factors were permitted). Orthogonal rotation impedes the search for an invariant factor structure across groups (Meredith, 1964; see also Jöreskog, 1971; Schaie & Hertzog, 1985), and to illustrate this point, Shimizu et al. (1988) recalculated the solutions of seven previous factor-analytic studies with oblique (Promax) rotation (Hendrickson & White, 1964) of the factors (i.e., factors were permitted to correlate) and found less complexity and more similarity

across the studies. Moreover, in a factor analysis of the CDS based on a large sample of junior high and high school students, Shimizu et al. obtained a four-factor model with factors similar to the (recalculated) factors obtained in the previous studies. In addition, they demonstrated that a simple model of the CDS factor structure could be derived in which each CDS item loaded saliently on only one factor, thus removing a major concern about the CDS with regard to the complexity of some of its items (Slaney, 1988).

In a further attempt to clarify the factor structure of the CDS, Schulenberg, Shimizu, Vondracek, and Hostetler (1988) used confirmatory factor-analysis techniques to test for factorial invariance across groups of adolescents. The hypothesized factor model was based on the factor-loading pattern obtained by Shimizu et al. (1988), and the model was tested on four Gender  $\times$  Grade Level (i.e., junior high vs. high school) subgroups of the total sample used by Shimizu et al. Schulenberg et al. found a high degree of invariance across the four groups (i.e., equivalent factor loadings, factor invariances, and covariances), which indicated that the same factor structure was present in these different groups. Furthermore, this finding remained even when a simple structure model (i.e., each item's loading on only one factor) was tested.

Although further factor-analytic work is needed to verify the structure in other samples, these two studies (Schulenberg et al., 1988; Shimizu et al., 1988) have indicated that the factor structure of the CDS is more stable and less complex during adolescence than was previously thought, thus countering some of Osipow's (1980) reservations about using CDS factor-based scores to examine different dimensions of career indecision. Additional research is now needed to explore the behavior of the four factor-based subscales during adolescence, and in particular, to determine whether the subscales provide useful information beyond the CDS total score.

Our study was undertaken to explore the use of CDS subscales, on the basis of the factors obtained by Shimizu et al. (1988), in the differentiation and measurement of career indecision dimensions during adolescence. In particular, the sensitivity of the four subscales and of the CDS total score to career decision status and changes in such status was examined. In addition, on the basis of previous research that has indicated that there are neither consistent gender nor grade-level differences in total CDS scores during adolescence (Osipow, 1980; Slaney, 1988), we also undertook to examine possible gender and grade-level differences in any of the four subscales and in the CDS total score. In that there has been little longitudinal research on the CDS, we likewise examined short-term (6 months) change in CDS subscale scores and total score, overall and in relation to decision status, gender, and grade level. Finally, long-term changes (1–3 years) are examined in a smaller longitudinal sample.

## Method

This study was conducted as part of a larger, ongoing longitudinal research project on adolescent career development. The data that were used to study short-term changes were collected on two occasions, once in the fall of 1985 and again in the spring of 1986. The data used for the long-term comparisons were collected in the spring

of 1986, 1987, and 1988. The data collected in the fall of 1985 (Time 1 of the 6-months longitudinal study) were not used in the long-term study because there was only 6 months before the spring 1986 data collection; on the other hand, the spring 1986, 1987, and 1988 data collections were separated by almost exactly 1 year in each case.

## Subjects

The subject pool consisted of all students who attended the junior-senior high school in a rural community in western Pennsylvania. The longitudinal sample used for the short-term comparison included all subjects who had completed valid CDS protocols for both occasions of measurement. This sample consisted of 465 students, 266 junior high school students (Grades 7, 8, and 9) and 199 senior high school students (Grades 10, 11, and 12). The sample contained 222 boys and 243 girls. The sample used for the 3-year comparison included all subjects who completed valid CDS protocols in 1986, 1987, and 1988. Because of graduation and attrition due to other causes, the longitudinal sample for the 3-year comparison consisted of only 140 students, 128 junior high school students and 12 senior high school students; of these, 59 were boys, and 81 were girls. Because we also collected data on attitudes and behavior with regard to drug and alcohol use, it was necessary to use a fairly elaborate identification scheme in which the subjects' anonymity was guaranteed. This scheme proved to be somewhat cumbersome, and thus several of the students were not able to be matched over time.

## Measurement

The CDS (Osipow, 1980) consists of 19 items. Items 1 and 2 indicate certainty of career choice, Items 3–18 represent the 16 items that measure career indecision, and Item 19 is open-ended and is not scored. The items are scored on a Likert scale from *not at all like me* (1) to *exactly like me* (4). Because attending college might not be a choice or possibility for many students in the sample, the reference to anticipated college major in three CDS items (2, 12, and 18) was changed from major in to major or specialize in (cf. Hartman & Hartman, 1982). All subjects completed the CDS in their homerooms under the supervision of their homeroom teachers and with the assistance of project staff. Osipow et al. (1976) reported 2-week test-retest reliabilities for the CDS that ranged from .82 to .90. Slaney, Palko-Nonemaker, and Alexander (1981) showed that when subjects were independently divided into decided and undecided groups, statistically significant item, factor, and total-score differences could be demonstrated.

## Analyses and Results

Four factor-based CDS scales were constructed on the basis of previous factor analyses of the Time 1 data of this longitudinal study (Shimizu et al., 1988; Schulenberg et al., 1988). Those studies contained all subjects who completed valid CDS protocols at Time 1; the present 6-months longitudinal comparison consists of a somewhat smaller sample because subjects had to complete valid protocols for both Time 1 and Time 2 of the study. We decided that the most appropriate and straightforward strategy to construct the factor scales was simply to take the mean of those items that were most highly correlated with the given factor in the Shimizu et al. (1988) exploratory factor analysis (cf. Gorsuch, 1983), which resulted in a range of 1–4 for each scale. This strategy was justified by the confirmatory factor analyses (Schulenberg et al., 1988), in

which items considered to be not associated with a given factor had zero loadings on that factor (cf. Kim & Mueller, 1978) and in which the loadings of the salient items on each factor were of similar magnitude. To construct four linearly independent scales (and consistent with the principle of factor trueness; see Cattell & Tsujioka, 1964), scale construction was based on the simple structure model (i.e., each item loads saliently on only one factor), which made it necessary to exclude three CDS items (10, 13, and 14) that did not load saliently on any of the factors (see Schulenberg et al., 1988; Shimizu et al., 1988).

The four factor-based scales are described as follows: (a) Diffusion, which represents feelings of confusion, discouragement, and lack of experience or information about the making of career decisions (Items 7, 8, and 11); (b) Support, which represents uncertainty about how to proceed in making decisions and the need for additional support for initial decisions (Items, 12, 16, and 18); (c) Approach-Approach, which represents a classical approach-approach conflict in which several possible careers are attractive (Items 4, 15, and 17); and (d) External Barriers, which represents both external barriers to career choice and lack of interest in making a decision (Items 3, 5, 6, and 9). Correlations among the factor-based scales ranged from .36 to .58. Factor scale correlations with CDS total score ranged from .65 to .81. The magnitude of these correlations is not surprising because each of the factor scales shares its items with the total CDS scale (minus the three deleted items). Deletion of the three CDS items appears to have had a negligible effect on the CDS total score, as correlations between factor scales and CDS total score, with and without the three deleted items, were nearly identical. Further support for dropping the three items is found in the fact that CDS total score with and without the three items correlated .98 at both times of measurement.

Item 1 of the CDS, which is not scored in either the CDS total score or in the CDS subscales, was used to divide all subjects of the short-term longitudinal study into four groups. The item states: I have decided on a career and feel comfortable with it. I also know how to go about implementing my choice. Those who responded *exactly like me* or *very much like me* were placed in the decided group, and those who

responded *only slightly like me* or *not at all like me* were placed in the undecided group. The other two groups were created by subjects who changed their response to Item 1 at the second time of measurement. Thus, depending on the subjects' response to Item 1 of the CDS at both the first and second time of measurement, they were placed in: Group 1, decided-decided ( $n = 206$ ); Group 2, decided-undecided ( $n = 68$ ); Group 3, undecided-decided ( $n = 87$ ); or Group 4, undecided-undecided ( $n = 104$ ). The subjects of the 3-year longitudinal study were also divided according to Item 1 of the CDS. Four groups were created: Group 1, decided at all three times ( $n = 56$ ); Group 2, decided at Time 2 and undecided at Time 3 or at Time 4 ( $n = 39$ ); Group 3, undecided at Time 2 and decided at Time 3 or Time 4 ( $n = 38$ ); or Group 4, undecided at all three times ( $n = 24$ ). Although this grouping did not exhaust all possible combinations, it was deemed most reasonable in view of the limited sample size for the longitudinal sample.

### Results of the Short-Term Longitudinal Study

A multivariate analysis of variance (MANOVA) with repeated measures was conducted with the four scale scores as dependent variables, and a repeated measures analysis of variance was conducted with the CDS total score as the dependent variable. The overall design called for the examination of the above four groups as well as grade level (junior high vs. senior high) and gender (boys vs. girls), at two times of measurement, which produced essentially a 4 (group)  $\times$  2 (grade)  $\times$  2 (gender)  $\times$  2 (time of measurement) design. Because the number of subjects per cell varied substantially (from 11 to 57), adjustments were made for the lack of orthogonality in the design. Thus, all means reported are means adjusted for the unequal cell sizes. When necessary, post hoc analyses with Bonferroni  $t$  tests were conducted to determine which means significantly differed from one another.

An examination of Table 1, which presents a summary of the MANOVAs of between-subjects effects, shows that there was a significant overall multivariate effect for group membership, with significant univariate effects for the first (Diffusion), third (Approach-Approach), and fourth (External Barriers) sub-

Table 1  
Repeated Measures Multivariate Analysis of Variance for Factor Scale Scores

Source	Overall multivariate effects			Univariate effects between scales											
	df	F	p	Diffusion			Support			Approach-Approach			External Barriers		
				df	F	p	df	F	p	df	F	p	df	F	p
Group (A)	12	9.55	.001	3	25.63	.001	3	2.14	.095	3	12.65	.001	3	7.03	.001
Grade level (B)	4	0.63	.645	1	0.02	.886	1	1.81	.179	1	0.28	.597	1	0.79	.374
Sex (C)	4	3.65	.006	1	2.39	.123	1	4.95	.027	1	0.10	.757	1	10.45	.001
A $\times$ B	12	0.86	.589	3	1.34	.261	3	1.07	.359	3	1.07	.363	3	0.22	.884
A $\times$ C	12	1.02	.425	3	1.44	.231	3	0.43	.733	3	1.34	.259	3	0.67	.573
B $\times$ C	4	0.44	.782	1	0.52	.471	1	0.29	.593	1	0.03	.868	1	0.02	.894
Error SS					368.70			373.24			386.88			252.50	
MS					.821			.831			.862			.562	
df					3, 449			3, 449			3, 449			3, 449	

Table 2  
Repeated Measures Analysis of Variance for Career Decision Scale Total Score

Source	df	F	p
<b>Between-subjects effects</b>			
Group (A)	3	13.62	.001
Grade level (B)	1	1.40	.237
Sex (C)	1	6.88	.001
A × B	3	0.90	.441
A × C	3	0.83	.476
B × C	1	0.37	.545
<b>Within-subjects effects</b>			
Time (D)	1	8.96	.003
D × A	3	3.36	.019
D × B	1	0.33	.563
D × C	1	1.32	.251
D × A × B	3	0.60	.616
D × A × C	3	4.53	.004
D × B × C	1	0.16	.694

Note. N = 465.

scales. Likewise, as shown in Table 2, the group effect was significant for the total CDS scale as well. Because there were also significant Time × Group interactions for Diffusion and Approach–Approach as well as for the total CDS score, we consider the significant between-subjects group effects later when interpreting the within-subjects effects. As shown in Table 1, there was a significant overall multivariate effect for sex, with significant univariate sex effects for Diffusion and External Behaviors. For both factors the means for boys were higher than those for girls, which indicated that boys report greater need for additional support in their initial decisions (Diffusion) and greater external barriers to decision making (External Barriers) than girls. As shown in Table 2, there was a significant gender effect for the total CDS scale, and boys again scored higher than girls.

Table 3 presents the overall summary of the within-subjects effects for the repeated measures MANOVA, and the bottom portion of Table 2 shows the within-subjects effects for the CDS total score. As is evident in Table 3, the overall multivariate effects were significant for time and for the Time × Group × Sex interaction. Likewise, as evident in Table 2,

these same effects were significant for the CDS total score. In addition, for the CDS total score, the Time × Group interaction effect was significant. The corresponding overall multivariate ( $p < .12$ ) in the MANOVA analyses (see Table 3) and thus made the univariate F tests for the interaction unprotected. Nevertheless, we decided to still consider the significant univariate effects for this interaction on the basis of the similarity of these effects to the CDS total score findings. The significant time effects, whose interpretation must be tempered by the significant interaction effects, reflect a marked decline in the Approach–Approach and External Barriers scores and in the total CDS score, which indicated an overall decline in career indecision over the 6 months. These findings are further illustrated in Table 4, which presents factor scale means separately for the four decision groups' CDS total scores and for boys and girls.

The significant univariate Time × Group interaction effects for the Diffusion and Approach–Approach scales and the CDS total score are graphically illustrated in Figure 1. Although the univariate effects for the Time × Group × Sex interaction for Diffusion and Approach–Approach were also significant and thus tempered the interpretation of these Time × Group interaction effects, it is still useful to consider these Time × Group interactions to get a general pattern of the findings before adding the influence of sex. Examination of the top panel of Figure 1 illustrates that only Group 3 (undecided–decided) changed significantly in their Diffusion scores over time. The indecision scores decreased as decision status changed from undecided to decided. Group differences at each time of measurement can also be seen in Figure 1. At Time 1, Group 4 was significantly higher than Groups 1 and 2, and Group 3 was different from Group 1. At Time 2, Group 4 was significantly higher than Groups 1 and 3, and Group 2 was higher than Group 1. All differences mentioned were significant at or beyond the .05 level.

As seen in the middle panel of Figure 1, Groups 3 and 4 both decreased significantly in Approach–Approach over time. Group 1 was significantly lower than Groups 3 and 4 at Time 1 and lower than Groups 2 and 4 at Time 2. The bottom panel of Figure 1 shows that Groups 3 and 4 both

Table 3  
Repeated Measures Multivariate Analysis of Variance for Within-Subjects Effects

Source	Overall multivariate effects			Univariate effects between scales											
	df	F	p	Diffusion			Support			Approach–Approach			External Barriers		
				df	F	p	df	F	p	df	F	p	df	F	p
Time (A)	4	4.54	.001	1	0.02	.893	1	3.05	.081	1	6.42	.012	1	10.90	.001
A × Group (B)	12	1.49	.119	3	3.09	.027	3	0.24	.868	3	2.81	.039	3	1.13	.336
A × Grade Level (C)	4	0.95	.434	1	0.07	.790	1	0.89	.347	1	1.05	.305	1	1.15	.285
A × Sex (D)	4	0.47	.759	1	0.44	.508	1	1.08	.299	1	0.00	.996	1	1.03	.311
A × B × C	12	0.96	.489	3	0.32	.809	3	2.42	.066	3	0.14	.937	3	0.62	.602
A × B × D	12	2.00	.021	3	4.68	.003	3	1.55	.202	3	3.17	.024	3	1.13	.338
A × C × D	1	0.96	.429	1	0.00	.955	1	2.75	.098	1	0.28	.600	1	1.10	.294
Error SS					149.87			169.62			186.20			130.64	
MS					.334			.378			.415			.291	
df					3, 449			3, 449			3, 449			3, 449	

Table 4  
*Career Decision Scale Total and Factor Scale Means by Group and by Gender*

Group	Total Score		Diffusion		Support		Approach-Approach		External Barriers	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Group 1	24.35	23.39	1.65	1.59	2.15	2.02	2.13	2.08	1.68	1.59
Group 2	26.81	27.67	1.90	2.13	2.19	2.16	2.38	2.43	1.91	1.88
Group 3	28.40	25.42	2.05	1.87	2.27	2.20	2.57	2.22	1.89	1.66
Group 4	28.99	27.51	2.30	2.27	2.05	1.96	2.64	2.50	1.98	1.80
Boys	28.19	26.62	2.04	2.00	2.26	2.14	2.44	2.32	1.97	1.80
Girls	26.08	25.38	1.91	1.93	2.07	2.03	2.42	2.30	1.75	1.66

Note. Possible range of total score = 16-64; and possible range of factor scale scores = 1-4. Group 1 = decided-decided; Group 2 = decided-undecided; Group 3 = undecided-decided; and Group 4 = undecided-undecided.

decreased significantly in total score over the 6-month period. Group 1 was significantly lower than all the other groups at Time 1 and lower than Groups 2 and 4 at Time 2.

Finally, the significant Time  $\times$  Group  $\times$  Sex interaction effects for Diffusion and Approach-Approach and for the CDS total score are illustrated in Figure 2. The boys did not change significantly in their Diffusion scores over time in any of the groups (see top right panel of Figure 1). Two of the groups of girls changed significantly in the expected direction: Group 2 (decided-undecided) significantly increased and Group 3 (undecided-decided) over time. At both times of measurement for boys, the only significant group difference on Diffusion was between Groups 1 and 4. For girls at Time 1, Group 4 scored significantly higher than Groups 1 and 2, and Group 3 higher than Group 1. At Time 2, Group 4 was significantly higher than Groups 1 and 3, and Group 2 was significantly higher than Groups 1 and 3.

The top left panel of Figure 2 illustrates that boys did not change significantly over time on Approach-Approach. For girls, however, Group 2 increased and Group 3 decreased significantly over the 6 months. There were no significant group differences on Approach-Approach for boys. For girls at Time 1, Groups 3 and 4 were higher than Groups 1 and 2, and at Time 2, Groups 2 and 4 were significantly higher than Group 1.

As can be seen in the bottom panel of Figure 2, two groups of boys, Groups 2 and 4, significantly decreased in total indecision over time. For girls Group 2 significantly increased and Groups 1 and 3 decreased from Time 1 to Time 2. Groups 2 and 4 were significantly higher than Group 1 for boys at Time 1, but there are no group differences for boys at Time 2. For girls at Time 1, Groups 3 and 4 were higher than Group 1, and at Time 2 Groups 2 and 4 were significantly higher than Groups 1 and 3.

### Results of the 3-Year Longitudinal Study

As was the case in the short-term longitudinal analyses, the four scale scores were used as the dependent variables in a three-wave repeated measures MANOVA. Because of the relatively small sample size and the resulting very small and uneven cell sizes, it was not feasible to meaningfully examine gender and grade differences in these analyses. Instead, the analyses focused on examining the effects of phase (time) and decision-status group membership. Moreover, these variables

were examined in such a manner as to examine their overall as well as linear (i.e., increase or decrease over time) and quadratic (i.e., nonlinear change over time) effects in the longitudinal sequence.

Results of the three-wave repeated measures MANOVA are presented in Table 5, the repeated measures analysis of variance for the CDS total score in Table 6, and the means in Table 7. As can be seen in Table 5, there was a significant overall multivariate effect for group, and the overall multivariate effect for the Time  $\times$  Group interaction and the time (linear) effect approached significance. At the univariate level the group effect was significant for Diffusion, Approach-Approach, and CDS total scores, and the direction of group differences was similar to those noted earlier for the short-term longitudinal analyses. At Time 2, Group 1 (decided-decided) showed significantly lower indecision than Group 4 (undecided-undecided) on Diffusion, Approach-Approach, and the CDS Total Score, and Group 1 also scored lower than Group 3 (undecided-decided) on Diffusion. At Time 3, Group 1 scored significantly lower than Group 4 on Diffusion only. At Time 4, Group 1 was again lower than Group 4 on Diffusion and Support, and Group 1 was significantly lower than Groups 2 (decided-undecided) and 3 on Approach-Approach. All differences were significant at or beyond the .05 level. The Group  $\times$  Time effect was significant only for Diffusion scores: The scores for Group 1 and Group 4 did not change over time, the scores for Group 2 increased between Time 2 and Time 3, and the scores for Group 3 decreased between Time 2 and Time 3. None of the effects that involved the quadratic term were significant, which indicated that change, when it did occur, was of similar magnitude between Time 2 and Time 3 and between Time 3 and Time 4.

Thus, the results from the 3-year analyses reflect a similar pattern noted for the 6-month analyses, in which effects that involved time were significant for Diffusion and Approach-Approach and most of the change (i.e., decrease) involved Group 3. Of course, because of sample size restrictions, we were unable to test for gender and grade level effects in these change patterns.

### Discussion

The development of psychometrically sound subscales of the CDS is an important step toward the goal of identifying

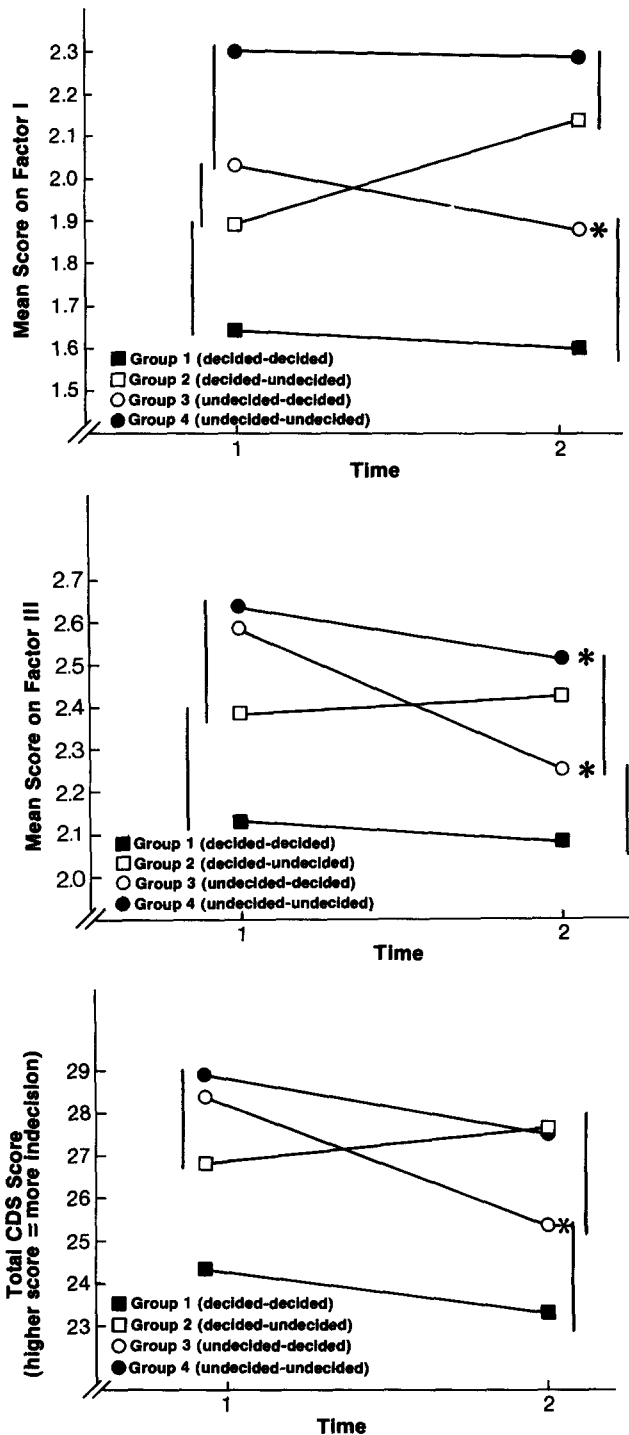


Figure 1. Time  $\times$  Decision Status Group interactions for Diffusion (Factor I) scale, Approach-Approach (Factor III) scale, and total score means. (Asterisks indicate significant change over time,  $p < .05$ ; vertical lines indicate that included scores are not significantly different from one another.)

and measuring different dimensions of career indecision. Obviously, further work needs to be completed in this area, especially work designed to examine the generalizability of our findings to new and different samples. In the meantime,

however, it may be useful to examine the implications of these findings for the counselor.

Intuitively, counselors have certainly been aware of the fact that persons may be undecided for different reasons. Diagnostic or measurement efforts, however, have focused primarily on the identification of career decided versus career undecided students. Because these efforts did not reliably differentiate various types of decided or undecided students, it is not surprising that they did not yield a readily recognizable body of coherent findings (Slaney, 1988). Goodstein (1972) was one of the first investigators who attempted to distinguish between two types of career indecision. The first type corresponded to the literal conception of being undecided about a career, a condition that presumably could be alleviated through the provision of relevant information that would then lead to a satisfactory decision. Goodstein's second type of indecision represented a more intractable state of indecisiveness, presumably due to anxiety. Indecisive persons presumably have a more difficult time making a decision not only about their career but about most things in their lives. This differentiation is intuitively appealing but problematic from a measurement perspective (cf. McGowan, 1977), although a recent study by Fuqua et al. (1988) represented a meaningful effort to demonstrate anxiety correlates of various types of indecision.

The factor-based subscales proposed by this study offer a more objective means of differentiating between different types of undecided clients as well as between undecided and decided clients. This is of particular importance if intervention is contemplated to resolve the state of undecidedness. Clearly, a counselor will proceed differently with students who are undecided because they are confused and lack information about occupations (high score on Diffusion) than with those who are undecided because several occupations have great appeal for them (high score on Approach-Approach). Similarly, students who need support and reassurance for a tentative decision (high score on Support) will be counseled differently than those who cannot reach a decision because they perceive either internal or external barriers to decision making (high score on External Barriers).

Of particular interest to the counselor may be the finding that the subjects' decision status, as well as change in that status, was not only reflected in the total CDS indecision score but in a more differentiated way on the Diffusion and Approach-Approach scales as well. In essence, the subjects who indicated that they had decided on a career scored lowest, the subjects who had not decided on a career scored highest, the subjects who changed from being decided to undecided increased their scores, whereas subjects who changed from being undecided to decided decreased their scores. Significantly, indecision scores for girls were much more change-sensitive than the corresponding scores of boys (i.e., girls who changed decision status reflected this change in their CDS scores, whereas boys did not). Does this mean that girls have greater conviction about their decision status, or does it mean that boys have a more delayed reaction to a change in decision status? In the absence of more definitive information about the causes of these sex differences, these are questions that counselors may well address when dealing with students who have recently had a change in decision status.

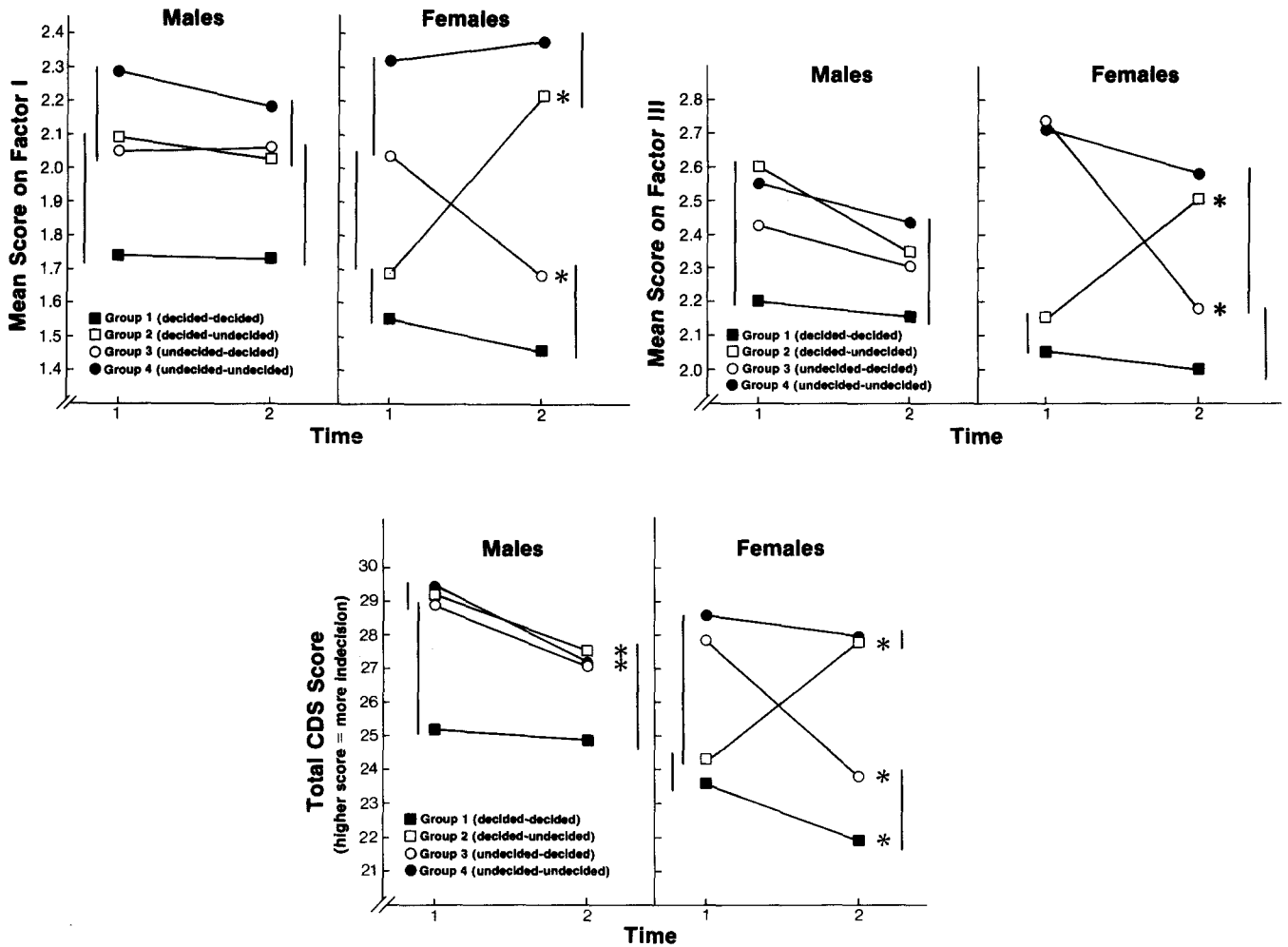


Figure 2. Time x Sex x Decision-Status Group interactions for Diffusion (Factor I) scale, Approach-Approach (Factor III) scale, and total score means. (Asterisks indicate significant change over time,  $p < .05$ ; vertical lines indicate that included scores are not significantly different from one another.)

One question that may be illuminated by our findings is the relation between indecisiveness and indecision. In following the findings of Hartman, Fuqua, Blum, and Hartman (1985), it appears that Diffusion may be useful in differen-

tiating indecisiveness and indecision. Specifically, in our findings, those who remained undecided across all times of measurement (i.e., undecided-undecided groups in both analyses) consistently scored highest on Diffusion in comparison with

Table 5  
Repeated Measures Multivariate Analysis of Variance for 3-Year Longitudinal Study

Source	Overall multivariate effects			Univariate effects between scales											
	df	F	p	Diffusion			Support			Approach-Approach			External Barriers		
				df	F	p	df	F	p	df	F	p	df	F	p
Time (A)	8	1.17	.322	2	0.21	.811	2	0.98	.377	2	1.56	.211	2	0.20	.823
Group (B)	12	4.47	.000	3	7.48	.001	3	2.17	.093	3	3.98	.009	3	1.49	.219
A x B	24	1.44	.082	6	2.09	.054	6	0.87	.519	6	1.62	.142	6	0.57	.755
A Linear	4	2.30	.061	1	0.07	.794	1	0.96	.329	1	3.19	.076	1	0.08	.784
A Quadratic	4	0.33	.859	1	0.37	.544	1	1.00	.319	1	0.00	.969	1	0.31	.577
A Linear x B	12	1.21	.275	3	1.97	.121	3	0.05	.985	3	2.84	.039	3	0.83	.481
A Quadratic x B	12	1.53	.110	3	2.23	.087	3	1.63	.185	3	0.44	.724	3	0.32	.813

Note. N = 140.

Table 6  
*Repeated Measures Analysis of Variance for the Career Decision Scale Total Score for the 3-Year Longitudinal Study*

Source	df	F	p
Time (A)	2	0.17	.845
Group (B)	3	3.16	.026
A × B	6	1.25	.281
A Linear	1	0.22	.641
A Quadratic	1	0.12	.732
A Linear × B	3	2.23	.087
A Quadratic × B	3	0.23	.873

Note.  $N = 140$ .

other groups. (This was not the case for the other scale scores.) In addition, changes in scores on Diffusion were consistently related to change in decision status, and especially for those who went from undecided to decided in both longitudinal analyses. (Again, this was not the case for the other scale scores.) Finally, in additional analyses of these data, it was found that those with the highest scores on Diffusion showed more total indecision than any other group of persons (Vondracek, Hostetler, & Schulenberg, 1989). The pattern suggested here is that those who consistently remain undecided are the same ones with consistently high scores on Diffusion, which indicates that not only does the indecision persist, but it may be more severe as well. This may be the group of persons who have been associated with low self-esteem, an unclear sense of identity, and high anxiety (i.e., Goodstein, 1972), and they may need more assistance than those who score high on other factors. Note that relations have been reported between a large number of personality variables and career indecision in general (cf. Sepich, 1987), but specific relations with the dimensions of career indecision identified in the present study are as yet unclear.

Another important implication of our findings for counselors is the importance of evaluating persons at multiple times. However, because the focus of this study was on

demonstrating the utility of a differentiated measurement of career indecision and its relation to change in decision status, a relatively short-term longitudinal design, during which a significant number of subjects could be expected to experience a decision change, was expected to be adequate. Hence, the major emphasis in this study was placed on the examination of short-term (6 months) change in dimensions of career indecision.

The 3-year longitudinal analysis was somewhat problematic because persons who fall into the age period of the subjects examined in this study may be expected to change their decision status several times during a 3-year period and, hence, to have substantial fluctuations in their scores on various dimensions of career indecision. Focusing on yearly intervals may not capture this dynamic aspect (cf. Schulenberg, Vondracek, & Hostetler, 1989). In addition, the inability to follow graduated subjects may have biased the findings of this study because career indecision may dramatically decrease once persons find themselves in the labor market. Nevertheless, we are encouraged that the same patterns of change isolated over 6-months were also identified in the 3-year analyses.

Researchers and counselors alike must keep in mind the limitations of the CDS. The measure seems to differentiate four different types of career indecision, but how many types are there? Further research is needed to discover and define other types of indecision, so that treatment can be even more individualistic and more individuals can be helped to make good career decisions. One promising approach in this direction was recently described by Larson, Heppner, Ham, and Dugan (1988). Focusing on undecided students, they used several instruments, including the CDS, designed to measure vocationally relevant dimensions and submitted the results to cluster analysis. Their findings suggested four types of undecided students, as do our findings, although the degree of correspondence between the two sets of types is unclear. Another possible avenue for future exploration may involve an examination of the relations between Marcia's (1966, 1980) identity statuses and the factor-based scales of career

Table 7  
*Means for Three-Year Longitudinal Study*

Time and group	Total score	Diffusion	Support	Approach-Approach	External Barriers
Time 2					
Group 1	28.23	1.54	2.20	2.19	1.57
Group 2	26.46	1.81	2.07	2.25	1.51
Group 3	34.36	2.15	1.88	2.44	1.82
Group 4	33.41	2.20	1.90	2.71	1.76
Time 3					
Group 1	30.15	1.68	2.15	2.17	1.63
Group 2	35.82	1.99	2.07	2.32	1.67
Group 3	30.13	1.75	2.14	2.30	1.74
Group 4	33.12	2.17	2.07	2.51	1.77
Time 4					
Group 1	28.62	1.68	2.26	1.99	1.64
Group 2	30.63	1.94	2.14	2.44	1.63
Group 3	30.25	1.88	1.90	2.04	1.72
Group 4	37.26	2.28	2.01	2.58	1.74

Note. Possible range of total score = 16-64; and possible range of factor scale scores = 1-4. Group 1 = decided-decided; Group 2 = decided-undecided; Group 3 = undecided-decided; and Group 4 = undecided-undecided.

indecision presented in this article (for relevant discussions see Downing & Dowd, 1988; Vondracek, Lerner, & Schulenberg, 1986).

Obviously, a great deal of further research is needed to examine how effectively types of persons (at least as far as career indecision is concerned) can be identified by means of the proposed factor-based scales. Because the scales are substantially correlated with one another, it may be difficult to group all persons into clearly demarcated indecision types. Although this may leave some problems of career indecision unresolved for some persons, the differential diagnosis and treatment of career indecision suggested by our research appears to hold promise for most.

### References

- Cattell, R. B., & Tsujioka, B. (1964). The importance of factor trueness and validity, versus homogeneity and orthogonality, in test scales. *Educational and Psychological Measurement*, 24, 3-30.
- Downing, K. R., & Dowd, E. T. (1988). Career indecision: A summary of the research and implications for counselling. *British Journal of Guidance and Counselling*, 16, 145-156.
- Fuqua, D. R., Newman, J. L., & Seaworth, T. B. (1988). Relation of state and trait anxiety to different components of career indecision. *Journal of Counseling Psychology*, 35, 154-158.
- Goodstein, L. D. (1972). Behavior theoretical views of counseling. In B. Stefflre & W. H. Grant (Eds.), *Theories of counseling* (2nd ed., pp. 243-303). New York: McGraw Hill.
- Gorsuch, R. L. (1983). *Factor analysis* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Hartman, B. W., Fuqua, D. R., Blum, C. R., & Hartman, P. T. (1985). A study of the predictive validity of the Career Decision Scale in identifying longitudinal patterns of career indecision. *Journal of Vocational Behavior*, 27, 202-209.
- Hartman, B. W., Fuqua, D. R., & Jenkins, S. J. (1986). The reliability/generalizability of the construct of career indecision. *Journal of Vocational Behavior*, 28, 142-148.
- Hartman, B. W., & Hartman, P. T. (1982). The concurrent and predictive validity of the Career Decision Scale administered to high school students. *Psychological Reports*, 52, 95-100.
- Hendrickson, A. E., & White, P. O. (1964). Promax: A quick method for rotation to oblique simple structure. *British Journal of Statistical Psychology*, 17, 65-70.
- Jöreskog, K. G. (1971). Simultaneous factor analysis in several populations. *Psychometrika*, 36, 409-426.
- Kim, J., & Mueller, C. W. (1978). *Factor analysis: Statistical methods and practical issues*. Beverly Hills, CA: Sage.
- Larson, L. M., Heppner, P. P., Ham, T., & Dugan, K. (1988). Investigating multiple subtypes of career indecision through cluster analysis. *Journal of Counseling Psychology*, 35, 439-446.
- Marcia, J. E. (1966). Development and validation of ego identity status. *Journal of Personality and Social Psychology*, 3, 551-558.
- Marcia, J. E. (1980). Identity in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology* (pp. 159-187). New York: Wiley.
- McGowan, A. S. (1977). Vocational maturity and anxiety among vocationally undecided and indecisive students. *Journal of Vocational Behavior*, 10, 196-204.
- Meredith, W. (1964). Notes on factorial invariance. *Psychometrika*, 29, 177-185.
- Osipow, S. H. (1980). *Manual for the Career Decision Scale* (Rev. ed.). Columbus, OH: Marathon Consulting and Press.
- Osipow, S. H., Carney, C. G., & Barak, A. (1976). A scale of educational-vocational undecidedness: A typological approach. *Journal of Vocational Behavior*, 9, 233-243.
- Salomone, P. R. (1982). Difficult cases in career counseling: II. The indecisive client. *The Personnel and Guidance Journal*, 60, 496-500.
- Schaie, K. W., & Hertzog, C. (1985). Measurement in a psychology of adulthood and aging. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (2nd ed., pp. 61-92). New York: Van Nostrand-Reinhold.
- Schulenberg, J. E., Shimizu, K., Vondracek, F. W., & Hostetler, M. (1988). Factorial invariance of career indecision dimensions across junior high and high school males and females. *Journal of Vocational Behavior*, 33, 63-81.
- Schulenberg, J. E., Vondracek, F. W., & Hostetler, M. (1989, March). *Short-term changes in adolescents' work values: Effects of career indecision, grade level, and gender*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- Sepich, R. T. (1987). A review of the correlates and measurement of career indecision. *Journal of Career Development*, 14, 8-23.
- Shimizu, K., Vondracek, F. W., Schulenberg, J. E., & Hostetler, M. (1988). The factor structure of the Career Decision Scale: Similarities across selected studies. *Journal of Vocational Behavior*, 32, 213-225.
- Slaney, R. B. (1988). The assessment of career decision making. In W. B. Walsh & S. H. Osipow (Eds.), *Career decision making* (pp. 33-76). Hillsdale, NJ: Erlbaum.
- Slaney, R. B., Palko-Nonemaker, D., & Alexander, R. (1981). An investigation of two measures of career indecision. *Journal of Vocational Behavior*, 18, 92-103.
- Vondracek, F. W., Hostetler, M., & Schulenberg, J. E. (1989, March). *A typology of vocational indecision and implications for counseling*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco.
- Vondracek, F. W., Lerner, R. M., & Schulenberg, J. E. (1986). *Career development: A life-span developmental approach*. Hillsdale, NJ: Erlbaum.

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