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Peeling Back the Onion: Personality, Problem Solving, and Career Decision-Making Style Correlates of Career Indecision

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A model to predict affective and informational antecedents of career indecision was proposed. The model attempted to explicate paths between personality dispositions, appraisal of problem-solving skills, career decision-making styles, and antecedents of career indecision. Both personality and coping constructs were posited to examine the relative contribution of dispositional and perceived skill variables. Using a college student sample, results from a path analysis indicated that the disposition of neuroticism was a powerful predictor of perceived problem-solving skills, a dependent decision-making style, and both affective and informational antecedents of career indecision. The predicted effects of the coping constructs were of a much smaller magnitude. Directions for future research are discussed and several suggestions for career counseling assessment and intervention selection are made.

Career decision making, including the topic of career indecision, has been studied extensively over the past 20 years (Borgen, 1991). One outcome of research efforts is the development of classification schemes for different decision-making styles and different types of career indecision. For example, a number of taxonomies of career decision-making styles were proposed (see Phillips & Pazienza, 1988), with Harren's (1979) three-category scheme (rational, intuitive, and dependent) being the most widely adopted. Similarly, numerous researchers have explored different aspects of career indecision, which has led to a progressively refined distinction between career indecision and career indecisiveness (e.g., Fuqua & Hartman, 1983; Holland & Holland, 1977; Salomone, 1982). The former stems primarily from a need for additional information, whereas the latter is associated with more pervasive emotional problems. One criticism of this research area, in general, is the failure to incorporate theory. With the exception of Harren's (1979) work, the aforementioned distinctions have been primarily descriptive, offering little insight into why certain decision-making styles are adopted or certain decision-making difficulties arise. Though the classifications are useful for applied purposes, it is important to postulate mechanisms that explain the development of different career decision-making styles and different types

of career indecision. Research on personality and problem-solving or coping processes are two areas that offer explanatory constructs for theory development.

Trait-based theories of personality, which emanate from a differential tradition, clearly propose that traits can be used to predict and explain human behavior. The key assumption in the trait perspective is that personality dispositions are stable and consistent (Levy, 1983). Traits represent the probability of an individual's engaging in certain behaviors under certain circumstances; and, in this sense, they are explanatory constructs. Heritability and family influences both contribute to explaining the variance in personality traits (Digman, 1990).

A five-factor model of personality has emerged as a premiere personality formulation (Digman, 1990). This model has been successfully operationalized in the form of the NEO Personality Inventory, which measures the dimensions of neuroticism, extraversion, openness, agreeableness, and conscientiousness (Costa & McCrae, 1985). These five domains are proposed as fundamental dimensions that account for the major aspects of individual differences in personality. Though the feasibility of a complete five-factor model of personality has been questioned (Waller & Ben-Porath, 1987), these dimensions are stable, comprehensive, and predictive of important behavioral and psychological outcomes (Costa & McCrae, 1985).

Research on personal problem solving is a second body of literature that can be profitably used to extend understanding of career decision-making. Heppner and Krauskopf's (1987) information-processing model of problem-solving describes the cognitive activities of appraising problem situations, processing information, and generating solutions. The authors' proposed that self-perceived coping skills, such as problem-solving confidence, active anticipation of problem situations, and personal control over emotional reactions, result in more adaptive solutions to personal problems. Research supports this contention. Self-appraised problem-solving is indeed related to a number of adaptive behaviors, including social skills, positive use of campus resources, good study habits, and grade point average (Elliott, Godshall, Shrout, & Witty, 1990; Heppner, Hibel, Neal, Weinstein, & Rabinowitz, 1982; Neal & Heppner, 1986). Self-appraised problem-solving skills have been meaningfully related to rational thinking and greater confidence in career decision-making (Heppner, Reeder, & Larson, 1983; Larson & Heppner, 1985; Larson, Heppner, Ham, & Dugan, 1988; Phillips, Pazienza, & Ferrin, 1984). Effective self-appraised problem-solving is also characterized by positive, proactive coping strategies (Larson, Piersel, Imao, & Allen, 1990; MacNair & Elliott, 1992).

Recent research has begun to integrate models of personality and problem-solving or coping. For example, personality dispositions are predictive of different problem-solving or coping styles (Bolger, 1990; Elliott, Herrick, MacNair, Harkins, Elliott, & Shrout, 1992). Coping styles appear to mediate the relation between personality dispositions and psychological distress, such as anxiety. Bolger (1990) studied personality dispositions, coping strategies, and psychological distress in a sample of applicants who were preparing for the medical school entrance exam. He found that several coping strategies

were predictive of anxiety, beyond the predictive contribution made by neuroticism, and also that the coping strategies of wishful thinking and self-blame mediated the neuroticism-anxiety relation. The latter results suggested that neuroticism influenced the type of coping strategies people selected and that use of these strategies further contributed to anxiety.

Although Bolger's (1990) study suggested that neuroticism created a predisposition to experience anxiety and was associated with the inhibited use of effective coping strategies, the mediational relation could be ameliorative. Similarly, other basic dimensions of personality, such as conscientiousness, are positively associated with effective problem-solving strategies (Elliott et al., 1992); and this influence may provide a buffer against psychological distress.

Career decision-making styles are problem-solving strategies, albeit more circumscribed in that they involve strategies for approaching career decisions (Larson, 1987). Consistent with a Parsonian perspective, a rational style—which encompasses active and planful decision-making activities—has been postulated as an ideal strategy. However, research only partially supports this proposition. Several studies that examined the relationship between a rational style and progress in career-related tasks reported either small positive or negligible results (Harren, Kass, Tinsley, & Moreland, 1978; Lunneborg, 1978; Phillips, Pazienza, & Walsh, 1984). What is clear is that a dependent style, in which decision-making responsibility is pushed onto external sources, has a debilitating influence on career development tasks. The impact of using an intuitive approach, in which decision-making is based primarily on self-awareness rather than planfully gathered information, is less well understood (Blustein, 1987).

In combination, personality dispositions and problem-solving skills may be predictive of different career decisional styles and different career decision-making difficulties. For example, being highly conscientious may facilitate the development of problem-solving skills; and in turn, both may lead to a preference for a rational decision-making style.

The aforementioned sequence may culminate in a desire for information rather than emotional arousal when faced with a career decision. This example reflects the basic distinction between career indecision, which is based primarily on informational needs, and career indecisiveness, which stems from personal problems or excessive anxiety (Goodstein, 1965; Tyler, 1961). The importance of recognizing and treating career clients differently based on this distinction has been repeatedly acknowledged (e.g., Holland & Holland, 1977; Salomone, 1982).

The purpose of this study is to clarify relations between personality dispositions, problem-solving skills, career decision-making styles, and informational and affective antecedents of career indecision. Trait theory is used as the organizing framework. Neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness are posited as fundamental domains of personality that can be used to predict problem-solving strategies, career decision-making styles, and antecedents of career indecision. Specific predictions about the relations between these variables are presented in Figure 1.

Personality dispositions, especially neuroticism, are viewed as primary predictors of problem-solving and career indecision variables. These dimensions can affect self-perceptions, particularly social-cognitive constructs like problem-solving appraisal (Elliott et al., 1992). The three self-appraised problem-solving skills (problem-solving confidence, approach-avoidance, and personal control) are expected to mediate the relation between neuroticism and antecedents of career indecision. Each of the problem-solving skills will also differentially predict the three career decision-making strategies as well as the two indecision variables.

Emotional and informational antecedents of career indecision represent different barriers that can impede career decision-making. We propose that career decision-making styles are differentially related to informational and affective dimensions of career indecision. Specifically, a rational style will be related to perceived informational needs. A dependent style, and to a lesser extent, an intuitive style will be related to affective antecedents of indecision.

Method

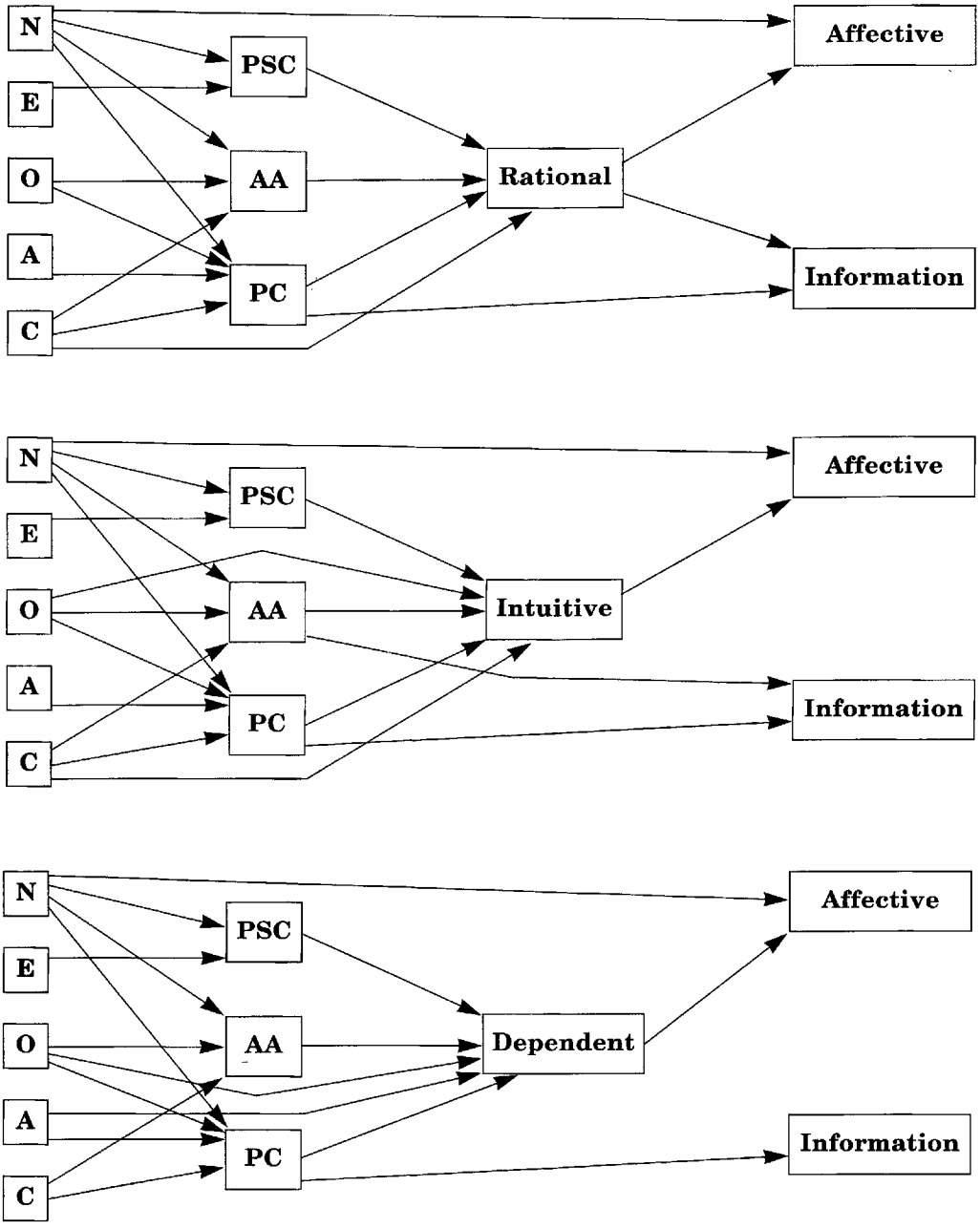
Participants and Procedures

The sample consisted of 249 (80 male and 169 female) undergraduates drawn from several psychology classes at a large urban southeastern university. The mean age of participants was 20.2 (SD = 4.0); and the educational distribution by year in school was 51% freshmen, 23% sophomores, 18% juniors, 4% seniors, with 4% not reported. Participation in the study was voluntary, and all subjects received class credit for participating.

Participants received packets containing an informed consent form and study measures during the first week of classes in the Fall of 1991. Participants were asked to complete the informed consent form and carefully read the directions prior to completing each instrument. The order of each instrument was randomized to control for possible order effects. Participants were asked to fill out the instruments at home and return them to class the following class period.

Instruments

Personality Dispositions. The NEO Personality Inventory (NEO-PI; Costa & McCrae, 1985), a 181-item questionnaire developed through factor analysis, was used to assess five dimensions of personality. The five domain scales measure Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C). Items on the NEO-PI are answered on a five-point Likert-type scale from strongly disagree to strongly agree. Internal consistency coefficients range from .85 to .93 for the N, E, O scales and .76 and .89 for the A and C scales, respectively. Test-retest reliability coefficients acquired from an adult sample at 3- and 6-year intervals were quite stable, ranging from .63 to .83. Correlations of the NEO-PI with other personality inventories that measure theoretically similar and dissimilar constructs provide evidence for convergent and discriminant validity (Costa & McCrae, 1985).



Note. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness, PSC = problem-solving confidence, AA = approach-avoidance, PC = personal control.

Figure 1. Proposed models of personality, problem-solving, and career decision-making style correlates of career indecision antecedents.

Problem-Solving Appraisal. The Problem Solving Inventory (Heppner, 1988; PSI; Heppner & Petersen, 1982) provides an estimate of people's perception of their problem-solving behavior and attitudes. This instrument does not measure the actual problem-solving capabilities of individuals, but rather their perceptions of their problem-solving capabilities. The instrument consists of 32 six-point Likert-type items. Earlier factor analyses revealed three factors: problem-solving confidence (11 items), approach-avoidance style (16 items), and personal control (5 items; Heppner, 1988). High scores on the PSI indicate ineffective problem-solving attitudes and behaviors; lower scores suggest more effective self-appraised problem-solving. Reliability estimates reveal that these constructs are internally consistent (alpha coefficients ranging from .72 to .90) and stable over a 2-week period (r = .83 to .89; Heppner, 1988). Validity estimates indicate that the PSI subscales are significantly related in predicted directions to a variety of self-report and observational measures (Heppner, 1988).

Career Decision-Making Style. Only the Career Decision Making Styles (CDMS) section of the Assessment of Career Decision Making (Harren & Biscardi, 1980) was used in this investigation. The CDMS contains 30 items and measures individual styles of decision-making (rational, intuitive, and dependent). Test-retest reliability estimates for the three scales range from .76 to .85 (Buck & Daniels, 1985). Internal consistency estimates include .73 for rational, .60 for intuitive, and .76 for dependent style subscales (Phillips, Friedlander, Pazienza, & Kost, 1985).

Antecedents of Career Indecision. The Career Factors Inventory (CFI; Chartrand, Robbins, Morrill, & Boggs, 1990) is a 21-item instrument designed to facilitate differential diagnosis of career indecision by measuring both personal-emotional and informational content areas. The inventory consists of four factors: Career Choice Anxiety (6 items), Generalized Indecisiveness (5 items), Need for Career Information (6 items), and Need for Self-Knowledge (4 items). The Career Choice Anxiety and the Generalized Indecisiveness scales were combined to create Affective dimension, and the Need for Career Information and Need for Self Knowledge scales were combined to create an Informational dimension. Internal consistency estimates for the CFI subscales range from .73 to .86, and 2-week test-retest reliability estimates range from .79 to .84. Correlations between the CFI and other instruments provided support for convergent and discriminant validity (Chartrand et al., 1990; Chartrand & Robbins, 1990).

Data Analysis

Path analysis was used to estimate relations between the variables presented in Figure 1. In path analysis, the model is considered as a system of equations, and the structural coefficients (paths) are directly estimated. The advantage of path analysis is that both direct effects from a predictor to a criterion and indirect effects, through the predictor's influence on other model variables, can be estimated. Significant indirect effects suggest that model variables are mediating the predictor-criterion relation.

A maximum likelihood estimation procedure in the Linear Structured Relations program (LISREL 7; Joreskog & Sorbom, 1989) was used to

analyze the data. The program was unable to provide estimates for a comprehensive model, so separate models (see Figure 1), one for each career decision-making style (rational, intuitive, and dependent), were analyzed. Model adequacy was tested by examining the goodness-of-fit between the model and the data. The significance of path relations was determined by computing the ratio of the path estimate to its standard error.

Results

The range, mean, and standard deviations of all scales used in this investigation are contained in Table 1. The mean scores on the NEO-PI, PSI, CDMS, and CFI subscales were similar to normative or college samples (Buck & Daniels, 1985; Chartrand et al., 1990; Costa & McCrae, 1985; Elliott et al., 1992; Heppner, 1988). Variable correlations used to estimate path relations are presented in Table 2.

The feasibility of the posited path relations was examined via goodness-of-fit indices for the overall model as well as for individual parameters. Results indicated that the three models provided a reasonable fit with the data: rational model, $\chi^2(16) = 15.20$, $p = .51$; intuitive model, $\chi^2(17) = 16.97$, $p = .46$; and dependent model, $\chi^2\ (16) = 15.95$, $p = .46$. Of greater interest was the fact that there were no significant modification indices, which indicates that all significant paths were specified in each model.

The overall strength of relations in each model was evaluated by the coefficient of determination, which represents the joint contribution of the predictor variables in explaining the variance of the outcome variables. As expected, given the similarity of the three models, the coefficients of determination were similar and relatively robust, ranging from .69 to .72.

More specific information about the strength of path relations was provided by the squared multiple correlations of each structural relation. Specified personality traits and problem-solving skills accounted for equal amounts of variance in the rational ($R^2 = .30$) and dependent ($R^2 = .31$) variables, but were less effective in predicting intuitive style ($R^2 = .18$). Collectively, personality, problem solving, and career decision-making styles were more effective in predicting affective ($R^2 = .29$-$.34$) than informational ($R^2 = .08$-$.10$) antecedents of career indecision.

Personality Dispositions as Predictors

Estimates of significant individual path coefficients are presented in Figure 2. This study hypothesized differential relations between personality dispositions and problem-solving skills. As predicted, neuroticism was significantly related to perceived lack of problem-solving confidence (ß = .42), personal control of emotional responding (ß = .44), and to a lesser extent, skills in approaching problems (ß = .18). Consistent with other research (Elliott et al., 1992), neuroticism was associated with problem-solving deficits, particularly those that require confidence and management of emotions.

Table 1
Range, Mean and Standard Deviations for Variable Scales

Scales	Possible range	Actual range	*M*	*SD*
Personality				
Neuroticism	0-192	18-164	94.58	21.71
Extraversion	0-192	60-163	113.84	19.51
Openness	0-192	74-167	116.21	19.62
Agreeableness	0- 72	29- 58	43.35	7.23
Conscientiousness	0- 72	12- 70	44.74	9.95
Problem solving				
Problem-solving confidence	11- 66	11- 45	25.73	7.70
Approach avoidance	16- 96	29- 78	48.01	10.22
Personal control	5- 30	5- 30	18.37	4.79
Career decision-making style				
Rational	0- 10	0- 10	7.15	2.65
Intuitive	0- 10	0- 10	5.08	2.26
Dependent	0- 10	0- 10	3.77	2.66
Antecedents of career indecision				
Affective	11- 55	12- 52	30.80	8.11
Informational	10- 50	10- 50	32.58	9.67

Note. Personality, career decision-making style, and antecedents of career indecision scales are scored in a positive direction. Problem-solving skills scales are scored in a negative direction with higher scores represented lower perceived skill level.

Conversely, extraversion was related to problem-solving confidence (ß = –.28), openness was related to problem approach skills (ß = –.18), and conscientiousness was related to both approach skills (ß = –.16) and personal control (ß = –.17). So, contrary to the effects of neuroticism, extraversion, openness, and conscientious were all positively associated with self-reported coping skills. All other paths between the personality and problem-solving variables were nonsignificant (T value < 1.96, ns), thus refuting several predicted path relations. Agreeableness was not significantly related to any coping variables.

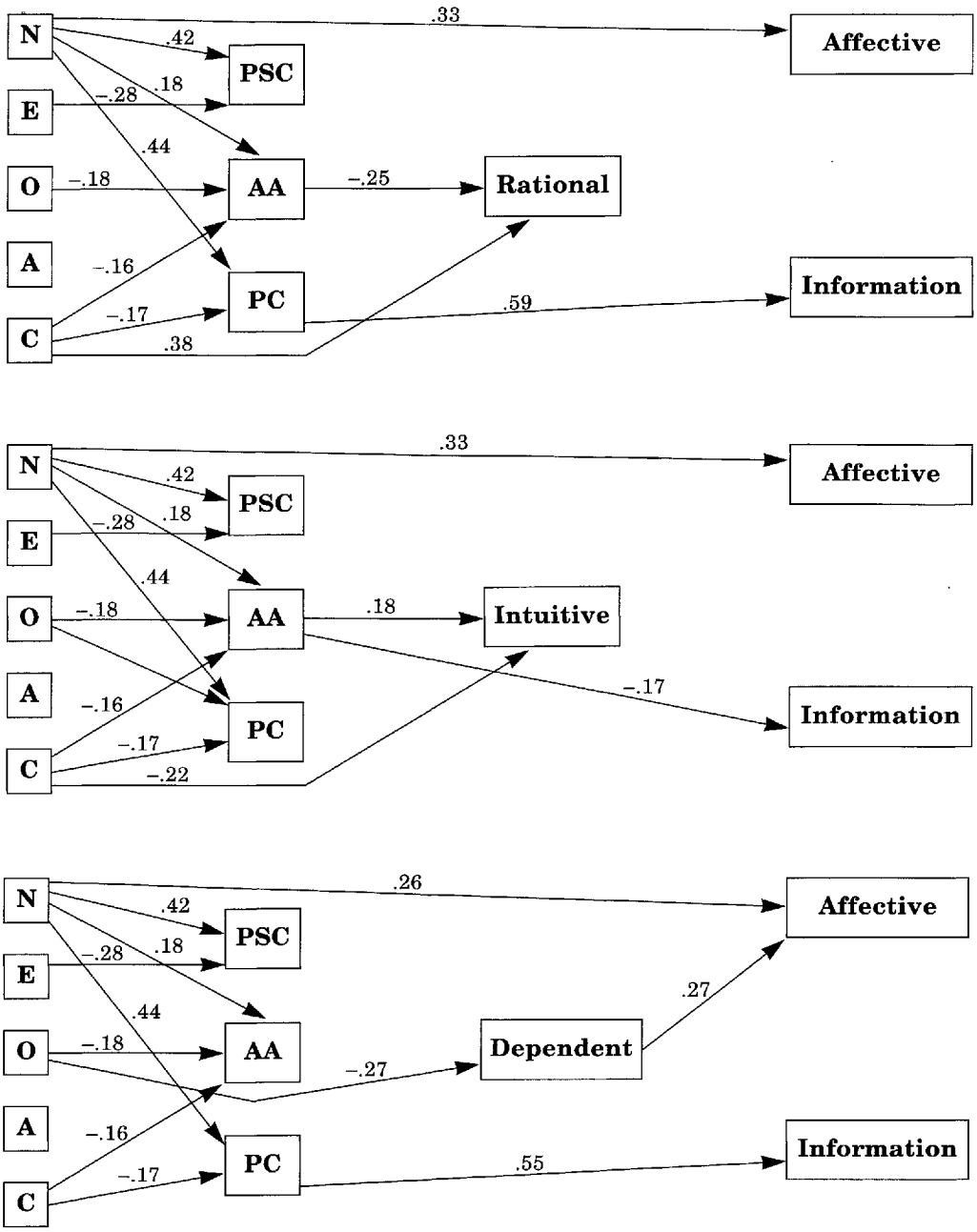
Only three of the posited direct paths between personality variables and career decision-making styles were significant. Conscientiousness was positively related to a rational style (ß = .38) and negatively related to an intuitive style (ß = –.22). Openness was negatively related to a dependent style (ß = –.27).

The hypothesis that neuroticism would have a direct effect on affective antecedents of career indecision was supported. In each model, neuroticism had a significant direct effect on the affective indecision construct (ß = .26-33). No other direct effects between personality dispositions and antecedents of career indecision were posited.

Table 2
Correlation Matrix of Model Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13
Neurotic	(1)	1.00												
Extraver	(2)	–0.30**	1.00											
Open	(3)	–0.00	0.38**	1.00										
Consci	(4)	–0.30**	0.37**	0.10	1.00									
Agree	(5)	–0.30**	0.32**	0.35**	0.38**	1.00								
PSC	(6)	0.50**	–0.42**	–0.20**	–0.30**	–0.22**	1.00							
AAS	(7)	0.23**	–0.27**	–0.22**	–0.26**	–0.17**	0.43**	1.00						
PC	(8)	0.47**	–0.20**	–0.02	–0.29**	–0.13**	0.51**	0.42**	1.00					
RS	(9)	–0.28**	0.17**	0.00	0.47**	0.15**	–0.24**	–0.35**	–0.26**	1.00				
IS	(10)	0.13**	–0.01	0.07	–0.28**	–0.11*	0.10	0.25**	0.21**	–0.48**	1.00			
DS	(11)	0.43**	–0.22**	–0.19**	–0.24**	–0.13**	0.35**	0.14*	0.29**	–0.14*	0.11*	1.00		
Affect	(12)	0.48**	–0.23**	–0.04	–0.23**	–0.11*	0.37**	0.17**	0.41**	–0.21**	–0.01	0.47**	1.00	
Inform	(13)	0.18**	–0.05	0.05	–0.09	–0.04	0.15*	0.03	0.20**	–0.01	0.09	0.17**	0.40**	1.00

Note. Neurotic = neuroticism, Extraver = extraversion, Open = openness to experience, Consci = conscientiousness, Agree = agreeableness, PSC = problem-solving confidence, AAS = approach-avoidance, PC = personal control, RS = rational style, IS = intuitive style, DS = dependent style, Affect = Affective indecision, Inform = informational indecision.
*$p < .05$. **$p < .01$.



Note. N = neuroticism, E = extraversion, O = openness, A = agreeableness, C = conscientiousness, PSC = problem-solving confidence, AA = approach-avoidance, PC = personal control.

Figure 2. Significant path relations for the three proposed path models.

Coping Variables as Predictors

Self-appraised problem-solving skills were posited as significant predictors of career decision-making style. With one exception, these predictions were not supported. Approach skills had a positive direct effect on rational decision-making (ß = –.25). All other relations between problem-solving skills and career decision-making styles were not significant (T value < 1.96, ns), although the path between perceived approach skills and intuitive style approached significance (ß = .18, T value = 1.94). These results suggest that perceived problem-solving skills did not have a major influence on career decision-making style independent of personality characteristics.

Only one perceived problem-solving variable was significantly related to antecedents of career indecision. Personal control (ß = .55) in the dependent model and in the rational model (ß = .55) had direct effects on perceived informational needs. The relation between approach skills and informational antecedents of career indecision approached significance (ß = .17, T value = 1.90).

Surprisingly, the choice of a rational (ß = .08), intuitive (ß = .03), or dependent (ß = .05) style had little relation to reported need for information. Only the dependent career decision-making style had a significant effect (ß = .27) on affective indecision, suggesting that a dependent style contributed to affective antecedents of career indecision beyond the influence of neuroticism.

Mediational Effects

The indirect and total effects of personality, problem solving, and career decision-making style variables on affective and informational antecedents of career indecision are presented in Table 3. Total effects represent the overall predictive influence of a variable, whereas indirect effects represent the predictive influence of a variable on a criterion through other model variables. It was hypothesized that the coping constructs would mediate the personality-affective indecision relation. This hypothesis was supported for neuroticism. Neuroticism had significant indirect effects on affective antecedents of career indecision in the rational (ß = .15), intuitive (ß = .15), and dependent (ß = .24) models. Thus, neuroticism was predictive of affective antecedents of career indecision directly, as well as indirectly through career decision-making styles, particularly the dependent style.

Similarly, it was hypothesized that the coping strategies would mediate the relation between personality variables and informational needs. Again, this hypothesis was supported for neuroticism. Neuroticism had a significant indirect effect on the informational indecision construct in each of the three models (ß = .17-.20). There were no significant indirect effects for any other personality variable.

There were no significant indirect effects for any of the problem-solving variables either. However, approach avoidance (ß = –.19) and personal control (ß = .59) had significant total effects on informational antecedents of career indecision in the dependent model. A similar pattern was found in the rational model. Thus, approach skills and lower reported personal control were associated with informational antecedents of career indecision.

The mediating effect of career decision-making style on the problem-solving-indecision relation was nonsignificant.

Conclusions

This investigation attempted to explicate paths between personality dispositions, problem-solving skills, career decision-making styles, and antecedents of career indecision. The goal was to articulate dispositional and coping constructs that differentially predicted affective versus informational antecedents of career indecision. Using trait theory, it was assumed that basic personality traits influenced cognitive appraisal of problem-solving skills, the selection of career decision-making strategies, and career indecision. It was hypothesized that coping strategies further contributed to explaining career indecision outcomes and would serve a mediating function. The proposed models diagramed possible sequences that would explain the likelihood of adopting different coping strategies and experiencing different dimensions of indecision.

As expected, neuroticism proved to be a powerful predictor of problem-solving skills, a dependent decision-making style, and both affective and informational antecedents of career indecision. Its predictive influence, both directly and indirectly through other model variables, far exceeded that of any other variable; and individual differences in this disposition are likely to have a significant impact on career decision-making factors. On the other hand, the predicted effects of coping strategies, which in this investigation were problem-solving appraisal and decision-making style, were negligible. Information processing skills and styles, were not major factors in explaining the variance in either the affective or informational career indecision constructs.

Affective antecedents of career indecision were predicted more effectively than informational antecedents. The primary paths to affective antecedents of indecision were neuroticism, including its influence through inhibited problem-solving skills, and a dependent decision-making style. Consistent with previous research, individuals prone to emotional instability and a dependent style are likely to report emotional barriers to making a career decision.

Informational antecedents were predicted by neuroticism, lower perceived personal control of emotions, and higher approach skills. Considered collectively, these variables suggest that individuals who are prone to worry and lack control over their emotional reactions, but who approach problems, are likely to report a need for information when faced with making career decisions.

The appraised ability to approach problems appears to be a key factor that differentiates the informational from the affective path sequence. This component of problem-solving appraisal appears to encompass actual cognitive-behavioral skills more so than the other two components (Nezu & Perri, 1989). Self-appraised skills in approaching and defining problems have been correlated with rational career decision-making styles (Phillips, Pazienza, & Ferrin, 1984) and the use of problem-focused coping strategies (MacNair & Elliott, 1992).

Table 3
Indirect and Total Effects of Personality, Problem Solving, and Career Decision-Making Style Variables on Affective and Informational Antecedents of Career Indecision

Predictor variable	Dependent model				Intuitive model				Rational model			
	Affective		Information		Affective		Information		Affective		Information	
	Indirect	Total	Indirect	Total	Indirect	Total	Indirect	Total	Indirect	Total	Indirect	Total
Neuroticism	.24*	.50*	.20*	.20*	.15*	.48*	.17*	.17*	.15*	.47*	.19*	.19*
Extraversion	.00	.00	.02	.02	−.07	−.07	.01	.01	−.06	−.06	.02	.02
Openness	−.05	−.05	.02	.02	.00	.00	.03	.03	.01	.01	.02	.02
Agreeableness	.05	.05	.04	.04	.01	.01	.02	.02	.04	.04	.03	.03
Consciousness	−.06	−.06	−.07	−.07	.01	.01	−.05	−.05	−.04	−.04	−.03	−.03
Problem-solving confidence	−.02	.01	.00	−.06	.04	.24	−.01	−.04	.01	.22	.01	−.07
Approach-avoidance	−.08	−.12	−.01	−.19*	−.02	−.06	.01	−.16	.02	.05	−.02	−.18
Personal control	.22	.48	.04	.59*	−.05	.14	.02	.49	.01	.12	−.01	.58*
Dependent	—	.27*	—	.05	—	—	—	—	—	—	—	—
Intuitive	—	—	—	—		−.11		.03	—	—	—	—
Rational	—	—	—	—	—	—	—	—		−.06	—	.08

*$p < .05$.

In contrast to the personal control and confidence subscales, the approach-avoidance factor of the PSI seems more robust to the mediational effects of neuroticism (Elliott et al., 1992). It should be noted that although most of the effects were not significant, the sign of the path coefficients for personal control typically were opposite of those for approach-avoidance and problem-solving confidence. Our findings highlight the predictive quality of the approach-avoidance factor to active career decision making and the differential utility of the separate PSI dimensions, which may be obviated when the PSI total score is used.

Examining specific path relations between personality dispositions and problem-solving strategies and style helps elucidate personality characteristics that may impact how individuals appraise their abilities and select strategies to solve problems. With respect to problem appraisal, neuroticism has a negative impact. However, openness and conscientious were both related to approaching rather than avoiding problems, and conscientiousness was related to a sense of personal control.

A thumbnail sketch of individuals who prefer certain career decision-making styles can be constructed. A dependent style is likely to be chosen by people who are anxious and have difficulty tolerating or exploring the unfamiliar. A rational style is likely to be chosen by those who approach problems and are goal-directed and not emotionally labile. Interestingly, an intuitive style is likely to be chosen by those who report that they avoid problems and are not particularly organized or persistent. These three characterizations are quite different, and they support intervention research which found that it is helpful to match career interventions with career decision-making style (Rubinton, 1980).

In this investigation, the model sequences were developed on the basis of theoretical assumptions rather than longitudinal design. A stronger test of these models would involve collecting and analyzing the data over time. Similarly, a stronger test of theoretical relations would have been possible with measures that contained less error. For example, several path coefficients for the personal control variable and the career decision-making style variables were quite large, but were not significant because the corresponding standard errors used to calculate significance were also quite large. Measurement error is rather problematic because the PSI and the CDMS are perhaps the best available measures of these constructs.

The nonsignificant goodness-of-fit indexes for each model do not imply that these models provide the best possible fit. The results merely indicated that these models were feasible, and the lack of significant modification indices provided additional support for this conclusion. However, replication is necessary to increase confidence in the stability of these results. Finally, college students represent an important but narrow population for exploring career decision-making sequences.

The results do provide several concrete suggestions for career assessment and intervention selection. Affective antecedents of career indecision are associated with neuroticism and poor problem-solving skills and strategies. This suggests that these individuals are not good candidates for career-oriented informational interventions. Rather, interventions that focus on

managing negative affectivity and developing self-control and confidence are likely to be more beneficial for increasing receptivity to learning more active, problem-focused coping strategies (e.g., Kivlighan, Johnsen, & Fretz, 1987).

Overall, personality, and problem-solving appraisal were not major predictors of informational antecedents of career indecision. Other considerations, notably self and career knowledge, may be more relevant (Peterson, Sampson, & Reardon, 1991). Neuroticism did play a predictive role, as did a perceived lack of personal control, though the influence was much less than for affective antecedents. Thus, emotionality and the perceived ability to manage emotions is involved, but they are not overriding factors. Appraisals of ability to approach problems also contributed to perceived informational needs. Individuals may approach their career problems and seek information but feel flustered if their efforts are frustrated. Interventions that focus on decision-making, including ways of dealing with potential barriers, may be particularly effective.

Several avenues for future research are apparent. The paths to affective and informational antecedents of career indecision are clearly different and are suggestive of the conceptual distinction between career indecision and career indecisiveness. A longitudinal test of this model would provide needed empirical support for these diagnostic categories (Slaney, 1988). Similarly, the utility of different problem-solving skills in facilitating progress in career decision-making needs to be examined.

This investigation attempted to sketch paths that lead to different antecedent dimensions of career indecision using a trait-based model. The goal was to predict factors that may prevent clients from beginning the career decision-making process. Ascertaining clients' perceptions of their career decision-making difficulties is critical for counseling assessment and intervention selection. Identifying factors that lead to these perceptions enhances both theory development and practical applications.

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