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Psychological Separation, Attachment Security, Vocational Self-Concept Crystallization, and Career Indecision: A Structural Equation Analysis

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Structural equation modeling was used to test theoretically based models in which psychological separation and attachment security variables were related to career indecision and those relations were mediated through vocational self-concept crystallization. In contrast to previous studies, which have found either weak or no support for a relation between separation or attachment security variables and career indecision, results based on a sample of 350 college students indicated that some components of separation and attachment security did relate to career indecision in a theoretically supportable direction. Results also revealed that regardless of whether global or component career indecision measures were used, separation and attachment security effects on indecision were at least partially mediated through vocational self-concept crystallization. The strongest mediated relations were observed for the effects of attachment anxiety and maternal separation.

The nature and quality of relationships with significant others (e.g., parents) have been posited as explanatory factors in various domains of human development and adjustment, including career development (see Blustein, Prezioso, & Schultheiss, 1995). For example, early family influences on the development of vocational preferences and interests have been posited in several major career choice theories, including those of Bordin, Nachmann, and Segal (1963) and Roe (1956). Super's theory (Super, 1957; Super, Starishevsky, Matlin, & Jordaan, 1963) also suggests that important relationships, such as those with family and peers, can influence career development by facilitating the development and implementation of one's self-concept. More recently, there has been renewed interest in the role of the family, including increasing speculation that family dynamics and other attachment relationships make an important contribution to various aspects of career development (e.g., Blustein, 1994; Blustein et al., 1995; Lopez & Andrews, 1987).

The primary focus of the current research is the role of two relationship-related variables, psychological separation–individuation and attachment security, in students' experience of career indecision. Career indecision, which may be defined broadly as the inability to select and commit to a career choice, is a common problem among college students, with some estimates as high as 50% (see Gianakos, 1999; Sepich, 1987). A large body of research has suggested that career-undecided individuals may experience a number of associated problems, including greater anxiety, lower self-esteem, less career decision-making self-efficacy, and less effective self-appraised problem solving, to a greater extent than their less undecided counterparts (Betz & Serling, 1993; Chartrand, Robbins, Morrill, & Boggs, 1990; Chartrand, Rose, Elliott, Marmarosh, & Caldwell, 1993; Taylor & Betz, 1983). Given the prevalence and seriousness of career indecision, additional research is needed to understand more completely the psychological factors that may contribute to difficulties with career decision making.

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The Role of Separation and Attachment in Career Indecision

Theoretical Perspectives

Lopez and Andrews (1987) articulated a family systems perspective of career indecision consistent with traditional psychodynamic theories of adolescent development (e.g., Blos, 1979; Erikson, 1968). Specifically, they posited that ego identity formation, psychological separation–individuation from parents, and career decision making are interrelated processes. That is, if an adolescent is prevented from constructing an identity separate from her or his parents, later in life that individual may manifest career indecision as a way to maintain the close attachment relationship. Conversely, sufficient psychological separation–individuation from parents, through the development of a functional, autonomous ego identity, is believed to promote effective career decision making.

Taking a somewhat different perspective, Blustein et al. (1995) proposed that the experience of felt security should promote aspects of career development, including effective career decision making. Felt security was theorized to derive from secure attachment relationships (e.g., with parents) and/or internal working models (i.e., schemas) of such attachment relationships (see Ainsworth, 1989; Bowlby, 1982). Blustein et al. (1995) based their propositions on a central assumption of attachment theory—namely, that attachment security facilitates adaptive ego identity

development, which in turn has been linked both theoretically (e.g., Blustein, 1994; Bordin, 1990; Erikson, 1968; Super et al., 1963) and empirically (e.g., Blustein, Devenis, & Kidney, 1989; M. Lucas, 1997) to career development.

Although Lopez and Andrews (1987) and Blustein et el. (1995) differ somewhat in their propositions regarding the primary determinants of career decision-making effectiveness (i.e., successful separation–individuation and the experience of attachment security, respectively), there is considerable conceptual overlap. Both theories propose that (a) some optimal level of psychological connectedness to significant others promotes self-exploration and healthy ego identity development; (b) career decision making is a major developmental task associated with ego identity development; and, more specifically, (c) the formation of a coherent, secure ego identity is an important precursor to effective career decision making. Additional theoretical support comes more generally from numerous contemporary writers who have recognized that healthy identity development (including self-knowledge in the career realm) involves both attachment security (usually in the form of secure attachment relationships with parents) and appropriate separation–individuation from parents (see Blustein, 1994; Blustein et al., 1995; Blustein, Walbridge, Friedlander, & Palladino, 1991; Josselson, 1987; M. E. Kenny & Rice, 1995; O'Brien, 1996).

Yet despite speculation about and calls for investigation of the joint influence of healthy psychological separation and the experience of secure attachments on young adults' career development (e.g., see Blustein, 1994; Blustein et al., 1991), no published research to date has examined the combined influence of these variables on career indecision. In addition, we found only one published study relating career indecision to *any* attachment-related variable (i.e., family cohesion; Eigen, Hartman, & Hartman, 1987). Therefore, a key purpose of this study was to further our current understanding of the combined and relative contributions of psychological separation and attachment security to career indecision. Thus, the literature just reviewed leads to our central hypothesis:

> *Hypothesis 1:* Greater separation–individuation and experience of attachment security will be related to less career indecision. Furthermore, this relationship is expected to be strongest for career indecision measures that include more chronic components of indecision.

Empirical Evidence

Indeed, researchers have demonstrated significant associations of psychological separation–individuation, perceptions of attachment security, or both with a variety of other indicators of effective career development, including vocational identity (Lopez, 1989), commitment to career choice (Blustein et al., 1991), career environment exploration (Ketterson & Blustein, 1997), career search self-efficacy (Ryan, Solberg, & Brown, 1996), and career self-efficacy (O'Brien, 1996; O'Brien, Friedman, Tipton, & Linn, 2000). But curiously, empirical research focusing specifically on career indecision as an outcome has not been very supportive of similar hypothesized linkages (e.g., Lopez & Andrews, 1987), in spite of strong theoretical arguments. For example, Eigen et al. (1987) found that career indecision status did not relate significantly to family emotional cohesion or to flexibility in altering family rules. Similarly, Blustein et al. (1991) found no support for the hypothesized relation between psychological separation and career indecision. J. L. Lucas and Wanberg (1995) reported that indecision subtypes, categorized on the basis of career decidedness and comfort with career decision status, did not differ on dimensions of psychological separation. Although not the primary focus of her research, M. Lucas (1997) reported near-zero correlations involving psychological separation dimensions and career development variables, including career decidedness and comfort with career decision status. And most recently, Santos and Coimbra's (2000) canonical analysis of data from female and male Portuguese adolescents revealed nonsignificant relations between conflictual and emotional independence from parents and dimensions of career indecision. However, a study by Kinnier, Brigman, and Noble (1990) *did* support a link between greater individuation from parents and less career indecision. But the effect found in this study was not strong: Individuation accounted for only 3% of the variance in indecision.

Potential Conceptual and Methodological Issues

A challenge in the current article, then, is to explain why previous studies have found, at best, weak empirical support for relationships of separation and attachment security to career indecision, even though there are plausible theoretical arguments for the relationships, as well as empirical evidence that separation and attachment relate to other aspects of career development. We argue that conceptual and methodological limitations related to the operationalization of the key theoretical constructs (separation, attachment security, and career indecision) may have interfered with detecting the relationships between them. Specific considerations related to each of these three general constructs are discussed in the following paragraphs.

Consider first a set of issues related to the separation and attachment variables. In several previous studies (e.g., Blustein et al., 1991; J. L. Lucas & Wanberg, 1995; M. Lucas, 1997), measures of separation–individuation from the mother and father were combined, which may have obscured substantive parent-specific relations to career indecision. At least in early explorations of the separation–indecision relationship, it may be preferable to consider separation from each parent independently. By doing this, one can potentially address questions such as the following: (a) Is separation with respect to one parent more important to career indecision than separation from the other parent? and (b) Regardless of whether it is the mother or father, is separation from one or both parents crucial for career indecision? Another issue related to the operationalization of separation is the distinction between conflictual independence and other aspects of separation. As we address further in the Method section, conflictual independence tends to show a different pattern of relationships with other variables than do other aspects of separation.

The operationalization of attachment also raises several issues. The bulk of previous research relating attachment security to career development variables has investigated participants' perceptions of parental relationships. However, in the current study we focused on adult attachment styles, which reflect enduring cognitive models of close relationships as well as characteristic patterns of interpersonal behavior (Bowlby, 1982). Securely at-

tached adults have internal working models that allow them to get close to and depend on others and not fear being abandoned. Avoidant adults are somewhat uncomfortable about and have difficulty being close to and trusting others. Anxious–ambivalent adults want more closeness than others, worry that others do not love or want to be with them, and sometimes scare others away with their intense need for closeness (see Hazan & Shaver, 1987).

We investigated adult attachment styles for several reasons. First, although most research on late adolescent and young adult attachment has focused on perceptions of parental relationships, a small number of studies have indicated that romantic and peer relationships are also important (Bartholomew & Thompson, 1995), suggesting a need to use measures of adult attachment styles, which assess attachment more broadly than do measures of parental attachment. Second, using measures of adult attachment styles may help eliminate unwanted empirical overlap with the separation measure used in the study. Several studies (e.g., O'Brien, 1996; O'Brien et al., 2000) have shown substantial construct redundancy between commonly used measures of parental attachment (e.g., mother and father subscales of the Inventory of Parent and Peer Attachment [IPPA]; Armsden & Greenberg, 1987) and measures of psychological separation–individuation (e.g., Psychological Separation Inventory; Hoffman, 1984). Relatedly, Heiss, Berman, and Sperling (1996) concluded that measures such as the IPPA do not assess attachment but rather the general affective quality of parental relationships.

Finally, adult attachment styles, which have been conceptualized as behavior patterns influenced by inner working models of self and others, are posited by Bowlby (1982) to be central components of personality. Research has shown substantive correlations between adult attachment styles and personality, especially neuroticism (e.g., Shaver & Brennan, 1992), a personality dimension that has been linked consistently to career indecision (see Tokar, Fischer, & Subich, 1998). Thus, using measures of adult attachment may broaden the interpretation of results by tying the observed relationships to a more general personality framework.

Moving to the criterion side, an important construct consideration is the dimensionality of career indecision. Several previous studies (e.g., Blustein et al., 1991; Kinnier et al., 1990) conceptualized and measured career indecision globally and unidimensionally. Research amassed over the past decade, however, distinguishes *developmental indecision*, which stems from a lack of self- and career information, and more *chronic indecisiveness*, which stems from personal–emotional issues, primarily anxiety (see Chartrand & Nutter, 1996; Santos & Coimbra, 2000). Thus, studies relying on global assessments of career indecision may have obscured substantive relations between separation–individuation and more specific indecision dimensions. For example, it seems likely that when individuals experience insecure attachment or separation issues, it will have a greater effect on measures of chronic indecisiveness than on informational indecision.

Proposed Mediating Role of Vocational Self-Concept Crystallization

An additional purpose of this research was to explore whether vocational self-concept crystallization might mediate the relationship of separation and attachment security with career indecision. A variable acts as a mediator when it reflects an intervening psychological mechanism or process that accounts for the relationship between two other variables (see Baron & Kenny, 1986; Judd & Kenny, 1981). In line with theoretical works (e.g., Super, 1988; Super et al., 1963), we argue that persons who have a diffuse sense of self will have difficulty deciding on a career, likely because it makes the self-appraisal task more difficult. In the next section we develop this theoretical argument with respect to vocational self-concept specifically. A more generic presentation of mediator relationships in general, with related empirical considerations in testing for them, is presented in the Method and Results sections.

Conceptual Arguments for the Mediating Role of Vocational Self-Concept Crystallization

Vocational self-concept crystallization is defined as the "degree of clarity and certainty of self-perception with respect to vocationally relevant attitudes, values, interests, needs and abilities" (Barrett & Tinsley, 1977b, p. 302). More specifically, these writers suggested that vocational self-concept crystallization reflects

> the degree to which the constellation of self-attributes which the individual considers to be vocationally relevant is well formulated. "Well formulated" here refers to the degree to which the separate vocationally relevant self-concepts possess clarity and certainty for the individual, and the constellation of self-concepts as a whole possesses internal differentiation or structure. (Barrett & Tinsley, 1977a, pp. 307–308)

We propose that vocational self-concept crystallization mediates the relations of both psychological separation and attachment security with career indecision. Although not explicitly labeled as such, this mediational relationship is consistent with the theorizing of both Lopez and Andrews (1987) and Blustein et al. (1995). These authors' works suggested that psychological separation–individuation from parents (Lopez & Andrews, 1987) and attachment security (Blustein et al., 1995) influence career decision making *through* their facilitation of ego identity, or self-concept,[1] development. (Also, see Blustein, 1994, for a review of literature tying self-concept development to vocational issues.)

These theories underscore the fundamental importance of some optimal level of human connectedness to significant others as an antecedent to healthy ego identity development, which in turn is a necessary precursor to effective career decision making. More specifically, Lopez and Andrews (1987) speculated that career indecision in part results from inadequate separation–individuation. They further suggested that separation–individuation, ego identity formation, and indecision are interrelated processes; that adequate identity formation requires appropriate separation–individuation; and that "commitment to an occupational role is an important index of adult identity formation" (Lopez & Andrews, 1987, p. 305).

[1] We recognize that identity and self-concept, although conceptually similar constructs used to describe self-knowledge, may have some important distinctions. Nevertheless, we tend to agree with Blustein (1994), who made the following comment regarding various constructs from major career theories used to address issues of self-knowledge: "In general, each of these constructs attempts to describe individuals' characteristic ways of constructing their identities and related personality attributes" (p. 140).

Blustein et al.'s (1995) theory also supports the notion that career development and identity formation are parallel and inseparable processes and that, because of this, the experience of attachment security may foster the career decision-making process in much the same way that it fosters ego identity development. Collectively, these theoretical propositions suggest the possibility that vocational self-concept formation mediates the relations of both psychological separation and attachment security with career indecision. Moreover, because vocational self-concept crystallization represents the extent to which an individual has formed a coherent and well-formulated vocational self-concept system (Barrett & Tinsley, 1977a), it is an appropriate index of one's degree of vocational self-concept development.

Additional theoretical and empirical literature further supports the hypothesized mediational role of vocational self-concept crystallization. For example, Super (1957) and Super et al. (1963) conceptualized career choice as the implementation of one's vocational self-concept and suggested that important relationships with family and peers influence this process. Savickas (1994), restating a central assumption of Super's theory, noted that "until one has mastered the tasks of crystallizing a vocational self-concept . . . an individual is not ready to specify a career choice" (p. 244). From this perspective, indecision may be conceptualized as difficulty making manifest one's (presumably poorly crystallized) vocational self-concept. Research relating vocational self-concept crystallization in expected ways to vocational decision-making self-esteem (Barrett & Tinsley, 1977b; Tinsley, Bowman, & York, 1989) and commitment to career choice (e.g., Barrett & Tinsley, 1977a) supports Super's theory, as well as the portion of our hypothesized mediator model specifying the relation between vocational self-concept crystallization and career indecision.

Other components of the proposed mediator model—specifically the relations of separation–individuation and attachment security to vocational self-concept crystallization—also are supported by extant theoretical and empirical literature. Recall that numerous theorists have recognized that functional self-concept and/or ego identity development (including self-knowledge about vocational issues) involve appropriate psychological separation–individuation (e.g., Blos, 1979; Erikson, 1968), the experience of attachment security (e.g., Bowlby, 1982; Guidano, 1987), or both (e.g., Blustein, 1994; Josselson, 1987). Further, research has demonstrated expected relations between vocational identity (conceptually and empirically similar to vocational self-concept crystallization; see Tinsley et al., 1989) and psychological separation dimensions (Lopez, 1989). Other research has shown that adult attachment security is associated with more highly integrated and differentiated self-structures (Mikulincer, 1995). Indeed, internal differentiation or structure of vocationally relevant self-concepts is part of the definition of vocational self-concept crystallization (see Barrett & Tinsley, 1977a).

Considered collectively, these theoretical and empirical works support the possibility that vocational self-concept crystallization mediates the relations of psychological separation–individuation and attachment security to career indecision. If vocational self-concept crystallization is indeed driving these relations, there are important potential implications. For example, career counselors working with undecided clients may need to shift their focus from clients' potential struggles with issues of psychological independence from parents and needs for felt security to issues regarding self-clarity and self-certainty in more career-specific domains (e.g., interests and abilities). Thus, we investigated three additional hypotheses:

Hypothesis 2: Psychological separation–individuation and attachment security will be related positively to vocational self-concept crystallization.

Hypothesis 3: Vocational self-concept crystallization will be related inversely to career indecision (especially indecision measures reflecting chronic components).

Hypothesis 4: Vocational self-concept crystallization will mediate the combined relations of psychological separation and attachment security to career indecision.

Recap

Our hypotheses comprise a theoretically based model in which psychological separation and attachment security are negatively related to career indecision. Although previous attempts to empirically demonstrate these relationships have had little success, in the current study we address several methodological issues that may have obscured the relationships in earlier studies, including looking at separation from each parent individually, focusing on adult attachment styles, and using both global and multidimensional measures of career indecision. Furthermore, we proposed that vocational self-concept crystallization plays an important mediating role in the relationship of separation and attachment security with career indecision. The complete structural model implied by our hypotheses is depicted in Figure 1. The key paths relating to Hypotheses 1–4 are shown with solid lines; additional paths typically investigated in this general type of model (to determine whether mediation is full or partial) are shown with dotted lines.

Method

Participants and Procedure

Participants were 200 female and 150 male undergraduate students enrolled in psychology courses at a large, public Midwestern university. The sample was predominantly White (86%), with 10% African American, 3% Asian American, and 1% multiracial. Participants ranged in age from 18 to 52 years ($M = 22.7$, $SD = 6.0$). (We wished to generalize to the population of students and therefore did not eliminate any participants on the basis of age. See later tests of equivalence for an empirical justification for this decision.) Thirty-seven percent of the participants were in their 1st year of study, with 27% in their 2nd, 19% in their 3rd, 10% in their 4th, and 6% in their 5th year or beyond. All participants read and signed informed consent forms, completed questionnaire packets (containing the instruments described below) in classroom settings, and received written educational debriefings. All participants received extra course credit for participation.

Latent Variables and Measures

Parental separation and conflictual independence. The Psychological Separation Inventory (PSI; Hoffman, 1984) was used to measure aspects of maternal and paternal separation. The PSI is a 138-item Likert-type (1 = *not at all true of me* to 5 = *very much true of me*) self-report questionnaire. Half of the items refer to the respondent's mother, and the other half refer to the respondent's father; the two sets of items are otherwise identical in

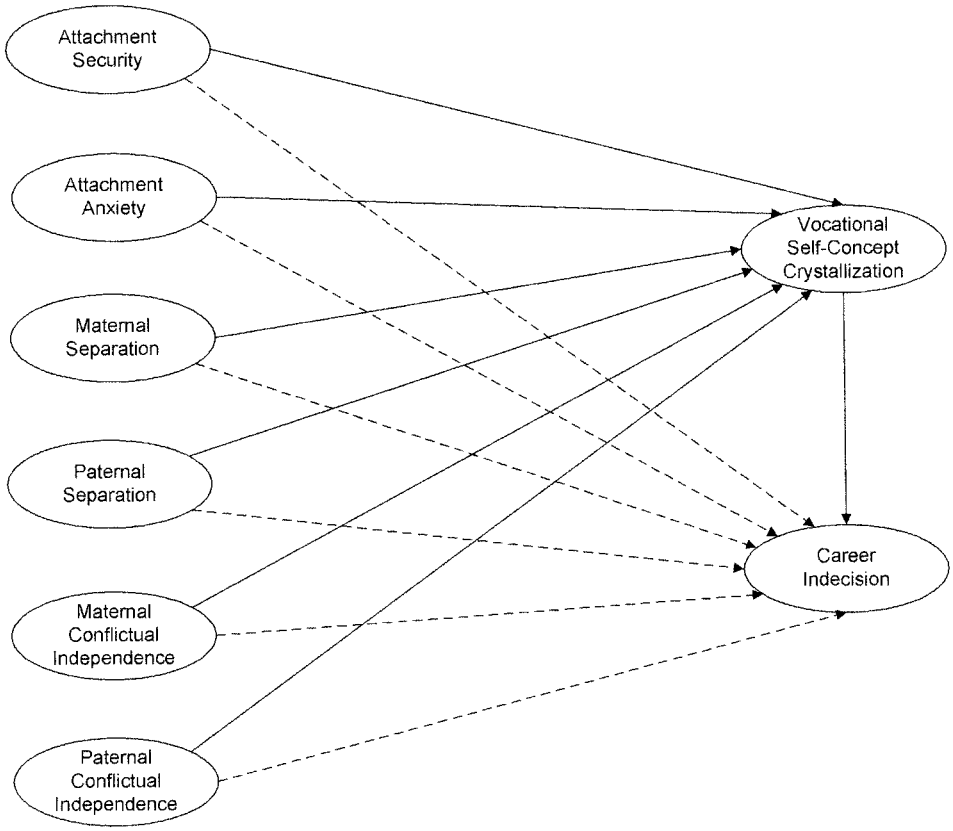

Figure 1. Hypothesized structural mediator model.

content. The PSI measures four aspects of parental separation: (a) Functional Independence (26 items assessing ability to manage personal affairs without parental help); (b) Emotional Independence (34 items assessing freedom from excessive need for parental closeness, approval, and emotional support); (c) Attitudinal Independence (28 items assessing the extent to which attitudes, values, and beliefs differ from those of parents); and (d) Conflictual Independence (50 items assessing freedom from excessive anger, guilt, resentment, and mistrust toward parents). Higher scores on the PSI subscales indicate greater separation and independence.

Previous research has established adequate reliability of the PSI subscales (alphas ranging from .84 to .92, and 2-week test–retest coefficients ranging from .49 to .96) and has shown evidence of construct validity, through relationships with personal adjustment, problems in romantic relationships, and academic problems (Hoffman, 1984). Three of the four subscales (Functional Independence, Emotional Independence, and Attitudinal Independence) show a pattern of moderate to high intercorrelations and have null to negative relationships with the fourth subscale (Conflictual Independence) (Hoffman, 1984; O'Brien, 1996). Thus, some researchers (e.g., Fischer & Good, 1998) have used the Conflictual Independence subscale separately from the other PSI subscales or have simply combined scores on the other three PSI subscales to measure overall separation (e.g., O'Brien et al., 2000). Thus, in our LISREL analyses, maternal and paternal separation and maternal and paternal conflictual independence were specified as four separate latent variables. The Maternal and Paternal Separation latent variables used the corresponding Functional Independence, Emotional Independence, and Attitudinal Independence subscales as indicators. Also, because the item wordings for the subscales used as indicators of the separation constructs were very similar for the maternal and paternal versions, we followed Marsh's (1993) recommendation to allow correlated uniquenesses between the relevant indicators. Finally, the Maternal and Paternal Conflictual Independence latent variables used the corresponding Conflictual Independence subscales as single indicators.[2]

Attachment styles. We used the Adult Attachment Scale (AAS; Collins & Read, 1990), which operationalizes Hazan and Shaver's (1987) descriptions of secure, anxious–ambivalent, and avoidant adult attachment styles. The AAS is an 18-item Likert-type (1 = *not at all characteristic of me* to 5 = *very characteristic of me*) self-report questionnaire consisting of three subscales that measure dimensions shown to underlie the three attachment styles: (a) Depend (6 items measuring belief that others can be depended on), (b) Close (6 items measuring comfort with closeness), and (c) Anxiety (6 items assessing extreme desire for closeness and fear of abandonment). Collins and Read (1990) reported internal consistency reliability estimates ranging from .69 to .75 and 2-month test–retest reliabilities ranging from .52 to .71 for the AAS subscales. AAS subscale scores appear to characterize the three attachment styles as expected; for example, secure types are characterized by higher Close and Depend scores and lower Anxiety scores; anxious–ambivalent types are characterized by higher Anxiety, Close, and Depend scores; and avoidant types are characterized primarily by lower Close and Depend scores (Collins & Read, 1990).

Reported subscale intercorrelations indicate moderate to high overlap of Depend and Close dimensions but weak relations between either of these two dimensions and Anxiety (Collins & Read, 1990). In addition, Collins and Read's (1990) analyses suggested that secure types tend to be differ-

[2] To achieve identification with single indicator latents, the path to the indicator was fixed to 1.0, and the error term was fixed to $(1 - \alpha)$ times the variance of the indicator, per Jöreskog and Sörbom's (1993) recommendation.

entiated from less secure types by lower scores on Anxiety and higher scores on a combination of Close and Depend. On the basis of this literature, we modeled attachment style to reflect dimensions of attachment security versus insecurity, by using Close and Depend scores as indicators of the Attachment Security latent construct and by using Anxiety scores as the single indicator of an Attachment Anxiety latent construct.

Vocational self-concept crystallization. The Vocational Rating Scale (VRS) is a 40-item Likert-type (1 = *completely false* to 5 = *completely true*) self-report questionnaire that was developed rationally as a global measure of vocational self-concept crystallization (Barrett & Tinsley, 1977a). Higher scores on the VRS indicate greater vocational self-concept crystallization. Barrett and Tinsley (1977a) reported an internal consistency reliability estimate of .94 and a 2-week test–retest reliability of .76 for VRS scores in a college sample. In support of the VRS's validity, Barrett and Tinsley (1977a) found that VRS scores were related as expected to overall self-perception and commitment to vocational choice. The Vocational Self-Concept Crystallization latent variable thus had a single indicator, consisting of the VRS score, with the path coefficient and error term of the single indicator fixed as previously described.

Career indecision. The current study included two career indecision measures, both to provide a global measure of career indecision and also to allow us to distinguish between indecision based on a need for information versus chronic indecisiveness. Career indecision was measured globally using the Indecision subscale of the Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, & Koschier, 1987). This subscale is composed of 16 Likert-type (1 = *not at all like me* to 4 = *exactly like me*) items that assess the extent to which respondents endorse various decisional problems. Higher scores indicate greater career indecision. For two separate samples, Osipow, Carney, and Barak (1976) reported 2-week test–retest reliability coefficients of .90 and .82 for CDS total scores (including scores on the 2-item Certainty subscale). In terms of validity, CDS Indecision scores have been found to relate negatively to career decision making self-efficacy (Blustein et al., 1991) and positively to neuroticism and its variants (see Tokar et al., 1998).

Because of inconsistent results from factor analyses of the CDS (e.g., Fuqua, Newman, & Seaworth, 1988; Shimizu, Vondracek, Shulenberg, & Hostetler, 1988), researchers typically have used the CDS as a global, rather than a multidimensional, measure of career indecision. Such use is consistent with Tinsley et al.'s (1989) combined factor analysis of several instruments designed to assess career decision-making-related constructs; their results of scale- and item-level analyses revealed that the CDS Indecision subscale emerged as a well-defined independent factor. Thus, the CDS Indecision subscale was used as a global measure of career indecision, which served as the single indicator of the Global Career Indecision latent variable.

The 21-item self-report Career Factors Inventory (Chartrand et al., 1990) was used to assess separate aspects of career indecision. This inventory is scored for four subscales; higher scores on each indicate greater career indecision (response scales are Likert-type, with varying anchors). Two subscales—Career Choice Anxiety (6 items) and Generalized Indecisiveness (5 items)—measure personal–emotional antecedents (e.g., anxiety) of chronic indecisiveness. The remaining two subscales—Need for Career Information (6 items) and Need for Self-Knowledge (4 items)—measure informational antecedents of developmental indecision (see Chartrand & Nutter, 1996). Chartrand et al. (1990) reported internal consistency reliability estimates ranging from .73 to .86 and 2-week test–retest reliabilities ranging from .79 to .84 for the four subscales and found that the subscales related as expected to measures of anxiety, goal instability, vocational identity, and self-esteem.

On the basis of previous distinctions (e.g., Chartrand et al., 1990; Crites, 1981) between career indecision resulting from the need for information and career indecisiveness resulting from personal–emotional issues, we modeled need for information and career indecisiveness dimensions separately. The Need for Career Information and Need for Self-Knowledge subscales were used as indicators of the Need for Information latent variable, and the Career Choice Anxiety and Generalized Indecisiveness subscales were used as indicators of the Career Indecisiveness latent variable.

Overview of Analytic Strategy for Mediator Effects

Our overview of mediation borrows heavily from the extensive work by David Kenny (e.g., Baron & Kenny, 1986; Judd & Kenny, 1981; D. A. Kenny, Kashy, & Bolger, 1998) describing a simple, three-variable mediator relationship and suggesting a set of conditions for empirically establishing the presence of mediation. Suppose that variable *X* is causally related to variable *Y*. A mediator variable, *M*, is a variable that intervenes as an intermediate step in the causal sequence leading from *X* to *Y*. Adopting Kenny's notation, use the letter *c* to designate the path coefficient for the *X*→*Y* path, in a model that includes only these two variables (see Figure 2a). Here, path *c* represents the *total* effects of *X* on *Y*. Importantly, because the mediator *M* has not yet been included in the model, the value of path *c* is actually the sum of any *indirect* effects of *X* on *Y* that are mediated by variable *M and* any additional *direct* effects of *X* on *Y* that are not mediated through *M*.

Figure 2b shows the relationship between *X* and *Y*, now including the mediator variable, *M*. The test of a mediator model could lead to three broad patterns of results. First, if mediation is complete, then (a) the two path coefficients representing the mediator effect, designated with the letters *a* and *b*, will have substantial nonzero values; and (b) the remaining

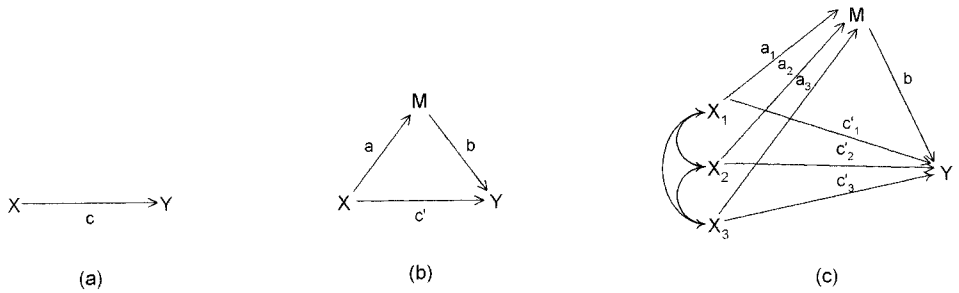

Figure 2. Basic mediator model: (a) Variable *X* is causally related to variable *Y*; path coefficient *c* represents the total effects of *X* on *Y*. (b) Mediator variable *M* intervenes as an intermediate step in the causal sequence from *X* to *Y;* path coefficients *a* and *b* represent the mediator effect, and path coefficient *c′* represents the remaining direct effect. (c) Multiple *X* variables (X_1, X_2, X_3, etc.) have effects on *Y*, which are mediated through a single mediator, *M*.

direct effect of *X* on *Y*, designated as *c′*, will be zero (notice the prime for path *c′*, which indicates that in most cases the value of the direct *X*→*Y* path in the mediator model of Figure 2b will not equal the value of the total effect, *c*, of Figure 2a). This pattern of *complete mediation* results indicates that variable *X* has its effect on *Y* solely through the mediator. Second, if mediation is partial, paths *a*, *b*, and *c′* all have substantial nonzero values. This pattern of *partial mediation* results indicates that *M* carries some nontrivial portion of the effect of *X* on *Y*, but not all of that effect. Partial mediation might be observed either when additional variables also function as mediators of the effects of *X* on *Y*, but those variables have not been included in the model, or when *X* truly has both direct and indirect effects on *Y*. Finally, if *M* does not mediate any of the effects of *X* on *Y*, then paths *a* and *b* will be zero (or trivial), and *c′* in this case will equal (or be very close to) the value of *c*. This pattern of *no mediation* indicates either that all effects of *X* on *Y* are direct or that a mediator exists but has not been included in the model.

Baron and Kenny (1986) and Judd and Kenny (1981) proposed four analytic steps, all of which should be undertaken to determine whether one's empirical data are consistent with mediation. Mediation is plausible when analyses demonstrate that (a) *X* is related significantly to *Y* (path *c* of Figure 2a); (b) *X* is related significantly to the presumed mediator, *M* (path *a* of Figure 2b); (c) *M* is related significantly to *Y* (path *b* of Figure 2b); and (d) the relation between *X* and *Y* (path *c′* of Figure 2b) is substantially reduced when the effect of the mediator is statistically controlled or partialed out (complete mediation is evidenced when *c′* is reduced to a value not significantly different from zero). The magnitude of the mediated, or indirect, effect is equal to the product of paths *a* and *b*. This indirect effect may itself be tested for statistical significance and thus provides a useful adjunct to the four steps described above. Such additional information is especially helpful because there are some circumstances in which not all four steps hold, yet a mediator effect is present.[3]

In the current study, the basic mediator model is made more complex by proposing that multiple *X* variables (X_1, X_2, etc.) have effects on *Y*, which are mediated through a single mediator variable (*M*). See Figure 2c for an illustrative example of such a model. This is an interesting model conceptually because it suggests that a set of potentially interrelated predictor variables (*X*'s) have their cumulative effects on the outcome (*Y*) through a single psychological mechanism, *M*. The four steps described in the previous paragraph thus are followed for each *X* variable in this model to determine for each whether its unique effects on *Y* are transmitted through the mediator variable. We also determine the proportion of variance (i.e., R^2) in the mediator variable explained by the entire set of predictors, because they are measures of conceptually and empirically related constructs and thus share some variance that will not be reflected in the estimates of unique paths.

Results

Descriptive Statistics

Means, standard deviations, internal consistency reliability estimates, and intercorrelations for the 17 observed variables are reported in Table 1. A preliminary inspection of the correlations in Table 1 suggested that proceeding to a more formal test of our hypotheses was justified. Roughly half of the attachment and separation scales showed clear patterns of significant relationships with the career indecision scales. The direction of the relationships was consistent with our key research hypothesis that greater separation and attachment security would be associated with lower levels of career indecision. Furthermore, the correlations of Table 1 suggested that it would be reasonable to test our entire mediational model, given results showing that, again, roughly half of the separation and attachment scales related in the expected direction to vocational self-concept crystallization, and in turn, vocational self-concept crystallization significantly related to all of the career indecision scales.

Structural Equation Modeling Analyses

Structural equation modeling was used to perform a number of tests of the relationships among latent attachment and separation, vocational self-concept crystallization, and career indecision variables, including (a) tests of the equivalence of relationships across respondent age and gender; (b) confirmation of the latent variable measurement models, as suggested by Anderson and Gerbing (1988); and (c) tests of the mediation hypothesis. All structural equation models were analyzed with LISREL 8.30 (Jöreskog & Sörbom, 1999), using maximum-likelihood estimation procedures. Bentler's (1993) suggested minimum cases-to-parameter ratio of 5:1 was met for all of our measurement and structural model tests. Several indicators of model fit were consulted, including the chi-square significance test, comparative fit index (CFI), nonnormed fit index (NNFI), root-mean-square error of approximation (RMSEA), and standardized root-mean-square residual (SRMR). Values above .90 for the CFI and NNFI and less than .05 for the RMSEA and SRMR indicate good fit (e.g., Ullman, 1996). For the test of the mediator models, the emphasis moved from model fit to inspection of the parameter estimates and decomposition of the total effects for each attachment and separation variable into direct and indirect (i.e., mediated) effects.

Preliminary tests of equality of covariance matrices. Two multivariate tests of the equality of the two respective covariance matrices (i.e., older vs. younger and males vs. females) were performed to explore whether respondent age and gender influenced the pattern of corelationships among the whole set of study variables. The results of these omnibus tests of differences and more specific information about the source of differences guided us in determining whether combining data from women and men and from younger and older respondents would be appropriate (Green, 1992).

To determine whether the relationships among the study variables were different for younger participants than older participants (who might have already made a number of important career decisions), we split the sample into two subsamples and tested the equivalence of the resulting two covariance matrices. The younger group included participants who were 21 years and younger (n = 212), and the older group included all participants over the age of 21 (n = 138). The null hypothesis of equivalence was rejected for the two groups, $\chi^2(153, N = 350) = 226.84$, $p < .01$. However, each of the two covariance matrices compared had 153 unique elements (the 17 variances of the observed variables, and all 136 possible covariances among these variables). In other words, there were a lot of potential sources of misfit, which, even if relatively small, might result in a significant chi-square statistic. Thus, we looked at two alternative indices of model fit, CFI and NNFI, to determine whether the statistically significant differences were large (and thus practically meaningful), or whether they were trivial for our purposes. The CFI and NNFI values were .97 and .95, respectively, indicating an excellent fit of the equivalence-

[3] See http://nw3.nai.net/~dakenny/mediate.htm.

Table 1
Means, Standard Deviations, Internal Consistency Reliabilities, and Intercorrelations for Observed Variables

Variable	1a	1b	1c	2a	2b	2c	2d	2e	2f	2g	2h	3	4	5a	5b	5c	*M*	*SD*	α
1. Adult Attachment Scale																			
a. Depend	—																19.45	4.82	.79
b. Anxious	−.27***	—															13.19	4.59	.67
c. Close	.45***	−.17**	—														22.08	4.13	.63
2. Psychological Separation Inventory																			
a. Maternal Functional Independence	−.11*	−.15**	−.06	—													34.39	11.18	.89
b. Paternal Functional Independence	.02	−.23***	−.03	.56***	—												38.55	11.04	.91
c. Maternal Attitudinal Independence	−.15**	−.02	−.14**	.59***	.32***	—											27.83	11.93	.88
d. Paternal Attitudinal Independence	−.07	−.04	−.11*	.37***	.59***	.58***	—										31.84	13.28	.92
e. Maternal Conflictual Independence	.26***	−.38***	.18**	.15**	.30***	−.08	.08	—									77.37	18.08	.93
f. Paternal Conflictual Independence	.23***	−.41***	.23***	.24***	.16**	.02	−.15**	.51***	—								78.58	18.11	.93
g. Maternal Emotional Independence	−.11*	−.25***	−.11*	.79***	.42***	.56***	.26***	.05	.23***	—							43.30	14.05	.91
h. Paternal Emotional Independence	.00	−.25***	−.06	.50***	.80***	.30***	.60***	.24***	.08	.54***	—						47.70	14.37	.92
3. Vocational Rating Scale	.14*	−.35***	.18**	.17**	.10	−.01	−.04	.26***	.26***	.18**	.09	—					149.70	26.35	.96
4. Career Decision Scale	−.08	.34***	−.16**	−.23***	−.16**	−.06	−.03	−.31***	−.31***	−.22***	−.13*	−.80***	—				29.76	10.22	.92
5. Career Factors Inventory																			
a. Career Choice Anxiety	−.05	.29***	−.07	−.16**	−.05	−.06	.03	−.22***	−.23***	−.18**	−.06	−.62***	.59***	—			16.06	5.34	.89
b. Generalized Indecisiveness	−.01	.28***	−.20***	−.23***	−.05	−.11*	−.06	−.25***	−.17**	−.20***	−.10	−.45***	.32***	.48***	—		13.55	3.91	.78
c. Need for Career Information	−.04	.15**	−.05	−.19***	−.11*	−.13*	−.07	−.13*	−.12*	−.13*	−.11*	−.43***	.47***	.44***	.26***	—	18.43	5.68	.83
d. Need for Self-Knowledge	−.07	.24***	−.10	−.14**	−.09	−.08	−.07	−.16**	−.14**	−.14**	−.15**	−.38***	.37***	.39***	.32***	.70***	11.86	4.73	.88

Note. $N = 350$.
* $p < .05$. ** $p < .01$. *** $p < .001$.

constrained model to the data. Thus, it seemed reasonable to combine the data from younger and older participants into a single sample.

Again, results of the chi-square test for gender differences indicated that the matrices were not identical, $\chi^2(153, N = 350) = 294.15$, $p < .01$. Although the null hypothesis of equivalence was rejected for the two groups, other indicators suggested that the lack of fit was minor. The CFI was equal to .95 and the NNFI was equal to .92. Overall, results suggested that it would be reasonable to collapse data across gender in subsequent analyses.

Test of the measurement model. Prior to testing the proposed structural model, confirmatory factor analysis was used to determine the extent to which the observed indicators measured the latent variables as intended. The measurement model consisted of 10 latent constructs with indicators as described in the Method section. All latent constructs were allowed to freely covary. Although the chi-square test was statistically significant, this model otherwise showed an adequate fit to the data, $\chi^2(76, N = 350) = 202.70$, CFI = .96, NNFI = .92, RMSEA = .066, SRMR = .048, indicating that it was appropriate to proceed with tests of the structural model. The standardized covariances among the full set of latent variables are reported in Table 2. Of interest, the pattern of correlations among the three latent career indecision variables suggested that the three indecision variables were meaningfully distinguishable. Specifically, the correlations between pairs of indecision latent variables were as follows: Global with Need for Information, .53; Global with Indecisiveness, .71; and Need for Information with Indecisiveness, .59. Vocational Self-Concept Crystallization showed moderate to strong relationships with the career indecision variables, ranging from −.50 (with Need for Information) to −.86 (with Global Career Indecision). Intercorrelations among the set of six attachment and separation latent variables ranged in absolute value from .03 to .56, indicating moderate to no overlap.

Focal Analyses: Tests of Structural Models

Two separate structural models were tested, one for the global indecision criterion (Career Decision Scale) and one using the multidimensional indecision criteria (Career Factors Inventory). On the basis of the literature, we expected stronger relationships for the indecision outcomes that include more chronic components (i.e., the CDS global construct and the Career Indecisiveness construct of the Career Factors Inventory) than for the Need for Information outcome. To test the proposed mediator relationships in a structural equation modeling context, we followed Brown's (1997) recommendation to estimate the complete mediational model, which simultaneously includes both the hypothesized indirect (i.e., mediated) paths and direct paths from the separation and attachment variables to the indecision outcome. (The overall fit of both models was good; details are available from David M. Tokar on request.) Figures 3 and 4 depict the models, including standardized path estimates. Table 3 summarizes this information in terms of Kenny's (Baron & Kenny, 1986; Judd & Kenny, 1981) four steps.

For both indecision models tested, Step 1 of the mediator analyses addressed the question of whether separation and attachment processes are related to career indecision. Importantly, this step thus incorporates a test of Hypothesis 1, our primary research emphasis, which proposed that higher levels of separation and attachment security would be associated with less indecision. Two of the six predictors, Attachment Anxiety and Maternal Separation, had significant ($p < .05$) unique relationships with all three indecision constructs. In addition, Maternal Conflictual Independence was significantly related to both indecision constructs that include chronic components (i.e., Career Indecisiveness and Global Indecision). Finally, Paternal Separation had a significant unique relationship with the Career Indecisiveness construct. See Table 3 for values of all Step 1 path coefficients. Not surprisingly, because of the very specific definition of each attachment or separation variable, these significant relationships ranged from small ($\beta = -.16$) to moderate ($\beta = .45$) in effect size. Furthermore, in terms of total variance accounted for, the relationship of the *full set* of attachment and separation predictors to indecision was practically meaningful for all three indecision constructs. The relevant values of R^2 ranged from .09 for the Need for Information construct to .24 for the CDS Global Indecision construct to .30 for the Career Indecisiveness construct of the Career Factors Inventory.

Table 2
Intercorrelations Among Attachment, Separation, Vocational Self-Concept Crystallization, and Career Indecision Constructs

Construct	Standardized covariances									
	1	2	3	4	5	6	7	8	9	10
Attachment and separation										
1. Attachment security	—	−.41	−.17	−.03	.35	.34	.22	−.09	−.11	−.15
2. Attachment anxiety		—	−.26	−.29	−.48	−.52	−.44	.24	.47	.44
3. Maternal separation			—	.56	.10	.26	.18	−.20	−.26	−.25
4. Paternal separation				—	.29	.09	.09	−.15	−.09	−.15
5. Maternal conflictual independence					—	.54	.28	−.17	−.31	−.33
6. Paternal conflictual independence						—	.28	−.15	−.29	−.34
Vocational self-concept and career indecision							—			
7. Vocational self-concept crystallization								−.50	−.78	−.86
8. Need for information								—	.59	.53
9. Career indecisiveness									—	.71
10. Global career indecision										—

Note. All covariances greater than ±.11 are statistically significant at $p < .05$.

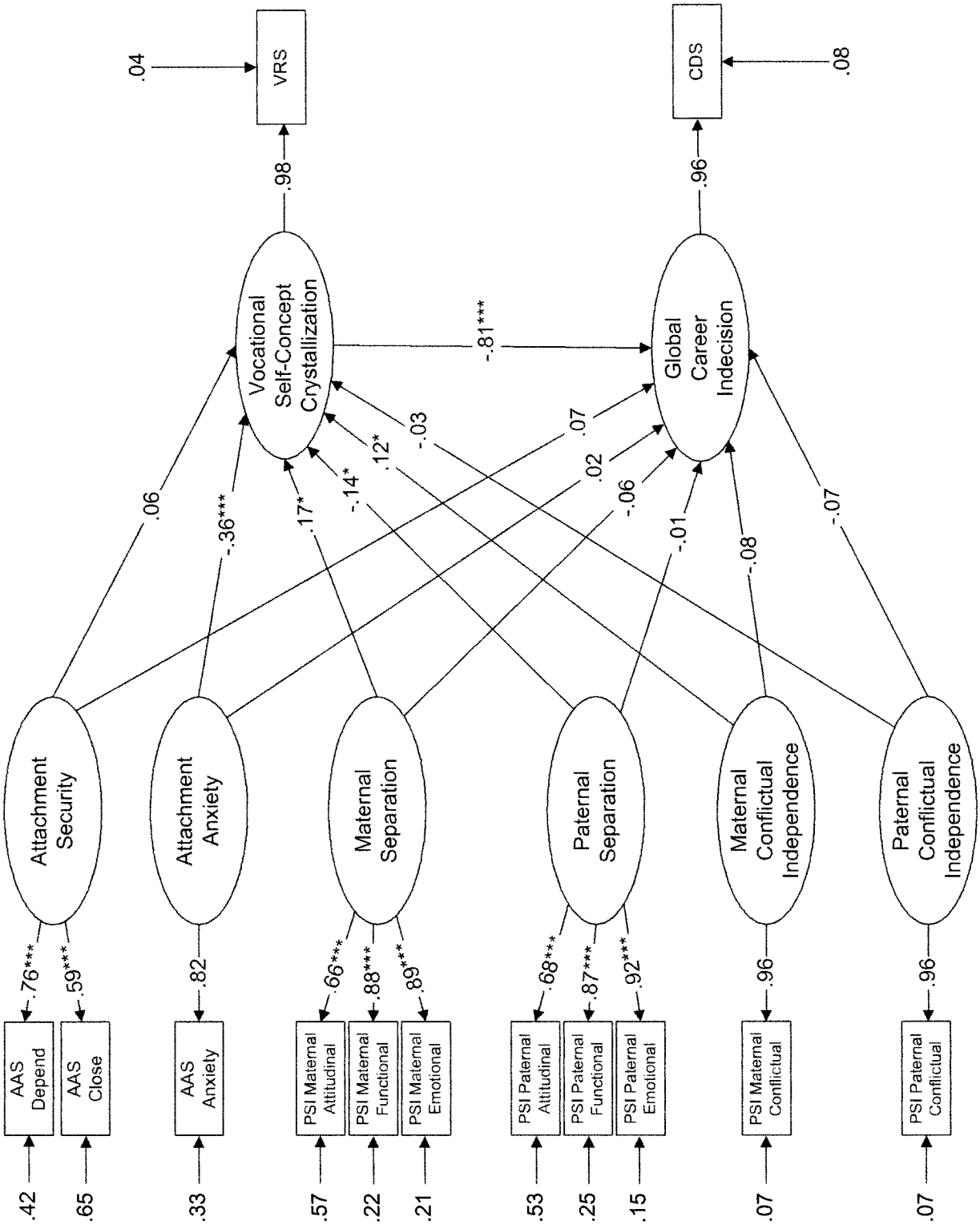

Figure 3. Structural model predicting Global Career Indecision. All possible intercorrelations among exogenous latent variables were also included in the structural model. AAS = Adult Attachment Scale; PSI = Psychological Separation Inventory; VRS = Vocational Rating Scale; CDS = Career Decision Scale. Paths from latent variables to single indicators were fixed; therefore, no significance tests were performed on these paths. * $p < .05$. *** $p < .001$.

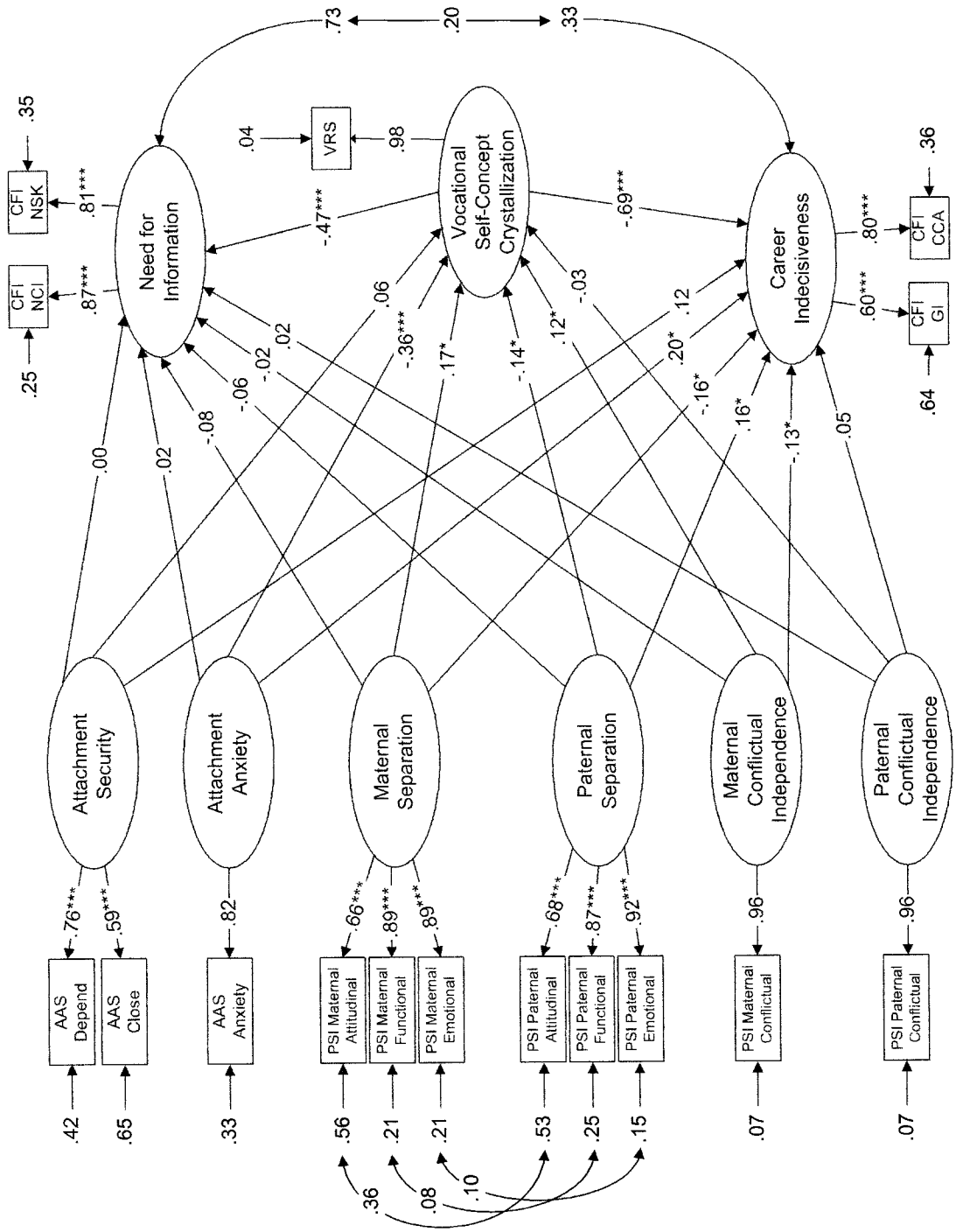

Figure 4. Structural model predicting Need for Information and Career Indecisiveness. All possible intercorrelations among exogenous latent variables were also included in the structural model. AAS = Adult Attachment Scale; PSI = Psychological Separation Inventory; VRS = Vocational Rating Scale; CFI = Career Factors Inventory; NCI = CFI Need for Career Information subscale; NSK = CFI Need for Self-Knowledge subscale; GI = CFI Generalized Indecisiveness subscale; CCA = CFI Career Choice Anxiety subscale. Paths from latent variables to single indicators were fixed; therefore, no significance tests were performed on these paths. * $p < .05$. *** $p < .001$.

Table 3
Summary of Structural Equation Modeling Mediator Test Results

Focal *X* variable	Path coefficients from mediator tests: Step 1 *X→Y*	Step 2 *X→M*	Step 3[a] *M→Y*	Step 4 *new X→Y*	Indirect effect *X→M→Y*	Mediation conclusion
Global indecision model (CDS)						
Attachment						
Security	.02	.06	−.81*	.07	−.05	No
Anxiety	.32*	−.36*	−.81*	.02	.29*	Yes
Separation						
Maternal	−.20*	.17*	−.81*	−.06	−.13*	Yes
Paternal	.11	−.14*	−.81*	−.01	.11*	Yes
Conflictual Independence						
Maternal	−.18*	.12*	−.81*	−.08	−.10†	Weak yes
Paternal	−.05	−.03	−.81*	−.07	.02	No
R^2, full set of predictors	.24	.21	.66			
Two-dimensional indecision model (CFI Career Indecisiveness and Need for Information)						
Attachment						
Security						
Career Indecisiveness	.08	.06	−.69*	.12	−.04	No
Need for Information	−.03		−.47*	.00	−.03	No
Anxiety						
Career Indecisiveness	.45*	−.36*	−.69*	.20*	.25*	Yes
Need for Information	.19*		−.47*	.02	.17*	Yes
Separation						
Maternal						
Career Indecisiveness	−.28*	.17*	−.69*	−.16*	−.12*	Yes
Need for Information	−.16*		−.47*	−.08	−.08*	Yes
Paternal						
Career Indecisiveness	.26*	−.14*	−.69*	.16*	.10*	Yes
Need for Information	.01		−.47*	−.06	.07*	Yes
Conflictual Independence						
Maternal						
Career Indecisiveness	−.21*	.12*	−.69*	−.13*	−.08†	Weak yes
Need for Information	−.08		−.47*	−.02	−.06	No
Paternal						
Career Indecisiveness	.07	−.03	−.69*	.05	.02	No
Need for Information	.03		−.47*	.02	.01	No
R^2, full set of predictors						
Career Indecisiveness	.30	.21	.46			
Need for Information	.09	.21	.22			

Note. All models tested include the full set of six predictors. *X* indicates the Attachment or Separation independent variable; *M* indicates the Vocational Self-Concept Crystallization mediator variable; *Y* indicates the Career Indecision dependent variable. The path coefficient for Step 1 represents the total effects of *X* on *Y*. The path coefficient for Step 4 represents the direct effects of *X* on *Y*, when the mediator variable is also included in the model. CDS = Career Decision Scale; CFI = Career Factors Inventory.
[a] Values for Step 3 are the same value within a given model.
† $p < .10$ (marginally significant). * $p < .05$.

Step 2 of the mediator analysis framework addressed whether the separation and attachment variables were related to the Vocational Self-Concept Crystallization mediator. Thus, the results from this step addressed Hypothesis 2. This step was met at $p < .05$ for four of the six attachment and separation variables: Attachment Anxiety ($\beta = -.36$), Maternal Separation ($\beta = .17$), Paternal Separation ($\beta = -.14$), and Maternal Conflictual Independence ($\beta = .12$). Again, the effect sizes reported in Table 3 are relatively small, reflecting the fine distinctions made between the various attachment and separation constructs.

Step 3 of the mediator analysis framework addressed Hypothesis 3, namely, whether the Vocational Self-Concept Crystallization mediator variable was related to indecision. This moderate to strong relationship was statistically significant for all three indecision constructs: CDS Global Indecision ($\beta = -.81$), and the Career Indecisiveness ($\beta = -.69$) and Need for Information ($\beta = -.47$) constructs of the Career Factors Inventory.

Finally, the results of both Step 4 of the mediator analysis and the significance test of the indirect effect addressed Hypothesis 4. This hypothesis proposed that Vocational Self-Concept Crystallization mediated the relationships of the attachment and separation variables with indecision. This hypothesis was unambiguously supported for Attachment Anxiety, Maternal Separation, and Paternal Separation for all three indecision constructs. Weaker support was also found for the mediated relationship of Maternal Conflictual Independence with Career Indecisiveness and Global

Indecision. Notice that in the full path model, but not in the measurement model results of Table 2, the direction of the effect for the Paternal Separation variable is in a direction opposite from that expected. The sign change and relative magnitude of the coefficient in the path model suggests the possibility of a discrepancy relationship between Maternal and Paternal Separation in the prediction of indecision. Specifically, it may be important to consider the predictive effects of these two variables not only in isolation but in relationship to each other—the extent of Maternal Separation is important compared with the extent of Paternal Separation.

Discussion

In contrast to previous studies, which have found either weak or no support for a relationship between attachment or separation variables and career indecision, the current study found that some components of attachment and separation clearly did relate to career indecision in a theoretically supportable direction. In addition, tests for the mediation of attachment and separation effects through vocational self-concept crystallization were supported for a subset of the attachment and separation variables. Although strong causal conclusions should not be drawn given the cross-sectional nature of the data, the overall results suggest that it may be profitable to pursue the mediational hypothesis further, using longitudinal or experimental designs that would allow one to make firmer statements about causal relationships. Because the results varied somewhat when indecision was measured globally versus for specific personal–emotional and informational antecedents, the following detailed discussion points treat these models separately, then return to a more integrative discussion of the implications of both sets of findings for future research and career counseling.

Global Career Indecision

The global career indecision results showed that students who experienced greater psychological separation from and freedom from negative feelings toward their mother reported greater vocational self-concept crystallization and less career indecision. Conversely, psychological separation from father was related to less vocational self-concept crystallization and, through its effect on vocational self-concept crystallization, greater indecision. In terms of attachment's contribution to the model, results indicated that students who experienced greater levels of attachment anxiety (i.e., fear of abandonment coupled with the desire for extreme closeness) also reported less vocational self-concept crystallization and greater global indecision.

Significant associations of maternal separation and conflictual independence with both vocational self-concept crystallization and indecision (as well as the strong inverse relation between vocational self-concept crystallization and indecision) are consonant with Lopez and Andrews's (1987) theory, which posits that "career decision making is intertwined with the other major developmental tasks of young adulthood: adult identity formation and psychological separation from the family" and, more specifically, that "career indecision is indicative of inadequate parent-child separation" (p. 306). On the other hand, paternal separation's inverse relation to vocational self-concept crystallization and positive relation to indecision (through vocational self-concept crystallization) make little theoretical sense, although previous research has supported the possibility that maternal and paternal separation differentially affect both ego identity development and career development (M. Lucas, 1997; O'Brien, 1996).

One possible explanation for our unanticipated findings is that psychological connection to fathers, who historically have held work outside the home to a greater extent than mothers, serves an important modeling function for young adults in the process of crystallizing a vocational self-concept and deciding on a career direction. Alternatively, the change in direction of parental separation's relation to indecision from the measurement model (the relation was negative, see Table 2) to the full path model (the relation was positive, see Table 3) suggests the possibility of a discrepancy relationship between paternal and maternal separation in the prediction of career indecision. Further research is needed to explore the predictive effects of these two variables not only in isolation but in relationship to each other. Considered collectively, our results suggest that movement toward psychological independence from mother and psychological connection to father are associated with a clearer, more certain view of oneself in relation to the world of work. Further, it is through this facilitation of a more coherent vocational self-concept system that maternal separation and paternal connectedness positively affect career decision making.

It is noteworthy that significant relations between psychological separation variables and global indecision, although supportive of Lopez and Andrews's (1987) theory, represent a departure from prior empirical reports of nonsignificant (e.g., Blustein et al., 1991) and negligible (e.g., Kinnier et al., 1990) associations between these variables. One possible explanation for these inconsistent findings is that in both Blustein et al. (1991) and Kinnier et al. (1990), separation–individuation from mother and father were combined, which may have suppressed meaningful parent-specific relations between separation–individuation and indecision.

Attachment anxiety's inverse relation to vocational self-concept crystallization and positive relation to global indecision offer partial support for our theory-based (i.e., Blustein et al., 1995) hypothesis that individuals with secure attachment styles (characterized in part by less abandonment fear and less unhealthy extreme desire for closeness; Collins & Read, 1990) would have a clearer vocational self-concept and less career indecision. Contrary to our hypothesis, however, other characteristics of securely attached types (e.g., comfort with closeness) did not contribute to the prediction of vocational self-concept crystallization or indecision. One explanation for this pattern of findings is that attachment-related anxiety appears to be one manifestation of the personality disposition of neuroticism (Shaver & Brennan, 1992), the only dimension of the five-factor model of personality that has been linked consistently to indecision (see Tokar et al., 1998).

Also consistent with prediction, three of the four significant associations of separation and attachment security variables with indecision were fully mediated through vocational self-concept crystallization. (Note in Table 3 that the indirect effects of maternal conflictual independence were significant at the more liberal alpha of $p < .10$ and that the direct effect of this variable [$\beta = -.08$], though nonsignificant, was roughly equal in magnitude to the indirect effects. For this reason, it could not be concluded that the effect of maternal conflictual independence on indecision was fully mediated.) These findings are consistent with Lopez and

Andrews's (1987) family systems theory of career indecision, Blustein et al.'s (1995) theory of attachment security and career development, and Super et al.'s (1963) developmental self-concept theory. According to Lopez and Andrews (1987), inadequate psychological separation from one's parents will inhibit the emergence of a functional self-concept, which may be expressed as difficulty making an independent career choice. Similarly, Blustein et al. (1995) postulated that attachment security facilitates ego identity formation, which is central to aspects of career development, including career decision making. Super et al.'s (1963) most basic theoretical proposition was that career choice is an implementation of one's vocational self-concept system, the formation and crystallization of which are influenced in part by important relationships with family and peers.

Finally, as hypothesized, vocational self-concept crystallization was strongly inversely related to global career indecision. In fact, the relation was strong enough ($r = -.86$ in the measurement model) to suggest redundancy between our measures of these constructs (i.e., the VRS and CDS). This finding is inconsistent with previous research by Tinsley et al. (1989), who demonstrated through a joint factor analysis of various career decision-making-related instruments that the CDS Indecision subscale and the VRS measure distinct constructs. Further research illuminating the commonality and uniqueness of the constructs measured by these instruments clearly is warranted.

Informational and Personal–Emotional Antecedents of Indecision

Although the model predicting informational and personal–emotional antecedents of indecision differed appreciably from the model predicting global indecision, several of the significant relations reported for the latter also were observed in the former. In the interest of avoiding redundancy, we only briefly summarize these relations, whereas we highlight and discuss in more detail unique aspects of this model. Consistent with the model predicting global indecision, lower levels of attachment anxiety and paternal separation and greater maternal separation were associated with greater vocational self-concept crystallization, less need for self- and occupational knowledge, and less career indecisiveness; and freedom from maternal conflict was associated with greater vocational self-concept crystallization and less career indecisiveness. Also consistent with the model predicting global indecision, associations of attachment anxiety, maternal separation, and paternal separation with both need for information and career indecisiveness were mediated through vocational self-concept crystallization. However, these relations to career indecisiveness also included unique direct effects, whereas similar relations to global indecision as well as attachment anxiety's relation with perceived need for information were fully mediated. (Note in Table 3 that the direct effects of maternal and paternal separation on need for information, βs $= -.08$ and $-.06$, respectively, though nonsignificant, were roughly equal in magnitude to the indirect effects. For this reason, it could not be concluded that the effects of maternal and paternal separation on need for information were fully mediated.) These findings suggest that vocational self-concept crystallization is driving the effects of attachment anxiety on both global indecision and perceived informational needs for career and self-knowledge, as well as the effects of maternal and paternal separation on global indecision. On the other hand, our results suggest that greater attachment anxiety, inadequate maternal separation, and greater movement toward psychological independence from father also contribute uniquely (i.e., beyond the effect due to an inadequately formed vocational self-concept) to students' chronic anxiety about and inability to make career decisions.

A second important departure from the model predicting global indecision was the additional (i.e., beyond the effect mediated by vocational self-concept crystallization) direct (although inverse) effect of maternal conflictual independence on career indecisiveness. (Recall that none of the direct paths from any of the separation or attachment variables to global indecision was significant when the mediator was included in the model.) This finding makes both theoretical (i.e., Lopez & Andrews, 1987) and intuitive sense; freedom from anger and resentment toward one's mother should be associated with lower levels of affective interference (e.g., anxiety) thought to contribute to chronic career indecisiveness.

Finally, results indicated that the combination of separation, attachment security, and vocational self-concept crystallization variables accounted for much more of the variance in personal–emotional antecedents (67%) than in informational antecedents (27%) of career indecision. Similarly, the set of separation and attachment security variables (excluding the mediator) explained much more variance in personal–emotional (30%) than in informational (9%) aspects of indecision. These findings suggest that additional factors not examined in this research (e.g., career search self-efficacy, number of positive career network contacts and role models) should be included in future efforts to understand informational antecedents of career indecision.

Considered collectively, results of the model predicting informational and personal–emotional antecedents of career indecision revealed that the extent to and manner in which separation, attachment security, and vocational self-concept crystallization variables predict these related but distinct aspects of indecision differ appreciably.

Implications for Future Research and Career Counseling

Our findings have several important implications for career researchers and counselors. First and foremost, they add to current understanding of the career decision-making process and support recent theories postulating aspects of psychological separation–individuation and attachment security as explanatory factors contributing to students' career decision-making difficulties (Blustein et al., 1995; Lopez & Andrews, 1987). Further, our findings challenge conclusions from previous reports of nonsignificant and negligible relations between psychological separation and indecision (e.g., Blustein et al., 1991; Kinnier et al., 1990; Santos & Coimbra, 2000). The apparent inconsistency between our results and those of previous researchers may be attributed, in part, to previous investigators' global assessments of parental psychological separation (instead of separate assessments for mother and father) and career indecision (instead of separate assessments of personal–emotional and informational antecedents). In light of the current findings and previous research suggesting that maternal and paternal separation may be related differently to other aspects of career development (e.g., O'Brien, 1996), we strongly encourage future researchers to include separate estimates of maternal

and paternal separation. In a similar vein, we support previous scholars' consideration of separate personal–emotional and informational antecedents of career indecision (see Chartrand & Nutter, 1996) and encourage future researchers to use more current, multidimensional measures of career indecision (e.g., the Career Factors Inventory; Chartrand et al., 1990).

The differential prediction of informational and personal–emotional antecedents of indecision from separation and attachment security variables also has potential important implications for practice. For example, counselors may want to explore not only vocational self-clarity issues with career-indecisive clients but also possible issues concerning psychological independence from parents and attachment anxiety, all of which may be contributing uniquely to these clients' chronic career decision-making difficulties. On the other hand, our results suggest that counselors working with clients experiencing more informational indecision difficulties should explore separation and especially attachment anxiety issues primarily for the purposes of understanding and increasing clients' clarity, certainty, and differentiation of vocationally relevant self-perceptions.

The findings also support previous speculation that the joint influence of separation–individuation and the experience of attachment security (typically conceptualized and operationalized as perceptions of parental attachment) on career development is greater than either factor alone (e.g., Blustein et al., 1991). We support previous efforts to examine the influence of both separation and parental attachment on other aspects of career development, including career self-efficacy and career orientation (O'Brien, 1996), and encourage future investigators to include additional assessments of characteristic strategies for gaining felt security (e.g., adult attachment styles). In this way, career researchers may begin to respond to Bartholomew and Thompson's (1995) challenge to explore the extent to which different sources of attachment security are related and how they might interact to contribute to different aspects of young adults' adjustment, including their career development.

Additionally, our results support the notions of Super et al. (1963) and others (e.g., Savickas, 1994) regarding the importance of the clarity and differentiation of the vocational self-concept system for understanding phenomena such as career indecision. Researchers may benefit from including assessments of vocational self-concept crystallization in future studies that examine both career indecision and other determinants and aspects of career choice and adjustment. Also, as mentioned previously, we encourage further investigation of the convergent and discriminant validity of the VRS and CDS Indecision scales.

Future researchers are also challenged to examine the extent to which neuroticism—a largely heritable personality trait (McCrae & Costa, 1996) shown to relate consistently to indecision (see Tokar et al., 1998)—may be driving the observed significant relations of separation and attachment security variables to vocational self-concept crystallization and indecision. Attachment anxiety, the strongest predictor of both vocational self-concept crystallization and indecision in both models, may be one manifestation (or determinant) of neuroticism. Relatedly, maternal conflictual independence, a significant predictor of vocational self-concept crystallization and both indecision variables tapping more chronic aspects of indecision (i.e., career indecisiveness and global indecision), is conceptually similar to neuroticism (see Hoffman, 1984). Future researchers are encouraged to investigate the potential mediational role of neuroticism and its variants in relations of separation (especially conflictual independence) and attachment security (especially attachment anxiety) to indecision and other previously linked career development variables (e.g., career self-efficacy, vocational identity).

Another important direction for future research would be to replicate the current study using more diverse samples. Results reported herein, which included several modest (yet significant) relations, were based on a sample of mostly White, Midwestern college students of unknown sexual orientation. Future research is needed to examine the role of psychological separation and attachment security in the vocational self-concept crystallization and career decision-making process of underrepresented populations (e.g., African Americans; lesbian, gay, and bisexual people).

Finally, although results were not inconsistent with the proposed mediator model, it is important to acknowledge that the cross-sectional nature of the present data precludes any strong causal inferences about relationships between the variables of interest. Thus, it is not inconceivable that alternative models would fit the data equally well. For example, it may be that vocational self-concept crystallization is an outcome rather than a mediator. In other words, the relationship of vocational self-concept crystallization with career indecision may be due to shared antecedents (including separation and attachment security) rather than a causal relationship existing between the two variables. Furthermore, to the extent that the model we tested does not include other important causes of vocational self-concept crystallization and career indecision, estimates of the relationships could be biased by model misspecification error. Given our suggestive results, future researchers are encouraged to explore alternative models and to use research designs that allow them to illuminate further the potential causal links among separation, attachment security, vocational self-concept crystallization, and career indecision.

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