

The Relationship Between Vocational Self-Concept, Ego-Identity Development, and Vocational Decision-Making

Jeffrey R. Landine
University of New Brunswick

Abstract

Occupational decision-making is an ongoing concern with university students and knowing what developmental tasks facilitate the process can make this particular problem-solving task easier. The present study explored the connection between vocational self-concepts, ego-identity and career indecision. Participants (N=202) were university students enrolled in an Introductory Psychology class. Correlational and regression analyses revealed a strong negative relationship between vocational self-concept crystallization and occupational indecision and a more moderate negative relationship between advanced identity status and career indecision. These results make a case for the importance of a vocational identity in the developmental and career decision-making process. Limitations and implications for future research and practice are discussed.

Résumé

Travail de prise de décision est une préoccupation permanente avec les étudiants universitaires et de savoir quelles sont les tâches de développement de faciliter le processus peut faire ce notamment à résoudre les problèmes tâche plus facile. La

présente étude a exploré la relation entre formation professionnelle des auto-concepts, l'ego-identité et l'indécision de carrière. Les participants (n = 202) étaient des étudiants universitaires inscrits dans une classe introduction à la psychologie. Les analyses de corrélation et de régression a révélé une forte relation négative entre la formation professionnelle du concept de soi de cristallisation et de l'indécision professionnelle et une relation plus modérée négative entre le statut des identités avancée et l'indécision de carrière. Ces résultats plaident en faveur de l'importance d'une identité professionnelle dans le développement et la carrière du processus décisionnel. Limitations et les implications pour la recherche future et de la pratique sont discutées.

Occupational decision-making can be seen as a problem-solving task that, even under the best of circumstances, can be daunting and difficult. Students as early as Grade 6, but in particular grade 12 and through the years immediately following graduation, are typically required to make decisions regarding education and training that will impact their occupational path. In making these decisions they are, by necessity, compelled to use whatever self-knowledge they

have available at the time, regardless of developmental status, along with whatever occupational information they have been given or with which they are familiar. Jarvis (2002) points out that it is "testimony to their personal resourcefulness that most students eventually find their way to acceptable, if not optimal, employment and lifestyles" (p. 41). The common belief during much of the twentieth century was that, given access to sufficient occupational information and guidance, students would make appropriate career decisions (Jarvis, 2002). Studies of school-to-work transitions have raised doubts about whether simply providing information and guidance is sufficient (Krumboltz & Worthington, 1999; Savickas, 1999), however, and in contrast, the present world-of-work environment necessitates an attitude of continuing self-appraisal and attunement to occupational information, within the context of self-knowledge, starting at an early age. This is something Savickas (1999) referred to as the need for students to "look ahead" and "look around".

In order to be able to engage in occupational decision making, Savickas (1999) suggested that students leaving school need to have developed competence and skill in five domains: (a) self-knowledge, (b)



occupational information, (c) decision making, (d) planning, and (e) problem solving. When any one of these requisite factors is lacking the task of making occupational decisions can move from daunting to insurmountable. While the provision of information that facilitates the development of the last four of these competencies and skills may potentially be quite uniform in content, the acquisition of information about self is both personal and idiosyncratic.

The research described here was motivated by the desire to better understand how the development of self-knowledge impacts occupational decision-making, within a cognitive information-processing model.

Growth at University

The university experience provides the opportunity to explore and develop a more clear and well-differentiated sense of self and the period of time students spend in university offers an environment structured primarily around facilitating student cognitive development. The developmental needs of university students, however, are not limited to cognitive development but include growth in the areas of personal and vocational identity (Chickering & Reisser, 1993; Morgan & Ness, 2003). University students frequently change their occupational plans and majors while in college. In addition, or possibly as contributing factors, they often experience a lack of confidence in the occupational

exploration process, self-knowledge that is unclear and uncertain, limited occupational knowledge, and the anxiety of vocational indecision (Johnson, Nichols, Buboltz, & Riedesel, 2002). Vocational indecision among university students and their high school counterparts has been a significant and widespread concern for career professionals across North America (Symes & Stewart, 1999).

Developmentally speaking, university students are typically moving from a recent “decision point” (Patton & Creed, 2001), senior year of high school, into a period that allows for further growth and exploration, but with another decision point on the horizon. It is during this period of late adolescence/early adulthood that they develop a realistic self-concept (Super, Savickas, & Super, 1996). Late adolescence is also viewed as the period in life when childhood identifications are synthesized (Marcia, 1966) and as a time of growing occupational and ideological commitment (Erikson, 1956) as ego-identity moves towards an achieved status. Identity formation involves a significant amount of personal exploration and Cote and Levine (1988) point out that the social contact typical of the university experience is likely to pressure students into exploring their identity, even when they may appear to have already made firm identity commitments. Developmentally speaking, there is an expectation in North American society that at this stage in life students should be able to “crystalize” or specify, and implement an occupational choice (Savickas, 1984).

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Vocational Decision-Making and Career Indecision

While “few if any students are ideal career planners...some appear to have less career indecision and seemingly find it easier to decide on a career path than others do” (Morgan & Ness, 2003, p. 33). Indecision refers to a broadly accepted term that encompasses both undecidedness and the more complex, indecisive decision maker. A majority of individuals appear to experience undecidedness, a normal developmental state, and in most cases the undecidedness is due to information deficits or a lack of developmental readiness (McAuliffe, Pickering, & Calliotte, 1991). While undecided individuals will typically make a decision when the appropriate circumstances arise, career indecisiveness is seen as more trait-like in its characteristics and often extends to other decision-making situations in their lives (Vondracek, Hostetler, Schulenberg, & Shimizu, 1990). Individuals who are indecisive tend to possess a more pervasive pattern of psychological difficulties than the undecided, with psychological type (DiRusso, Carney, & Bryan, 1995), anxiety (Healey, 1991), and a number of personality dimensions (Newman, Gray, & Fuqua, 1999) found to be related to vocational indecision.

Periods of vocational indecision may come and go over



the life span and these periods can be viewed as a necessary state through which individuals pass on their way to reaching a decision (Osipow, 1999). For adolescents and young adults, however, on-going indecision can result in missed opportunities, inappropriate decisions, and anxiety. Osipow et al. (Osipow, Carney, Winer, Yanico, & Koschier, 1976) suggested that there are four reasons for occupational indecision, the first of which, a lack of self-knowledge, may be related to deficits in encoding, processing, or being able to access relevant information about self stored in memory. Insufficient episodes or ineffective integration and/or differentiation of information could result in a lack of knowledge or insight into the aspects of self that are related to vocations (Tokar, Hall, & Moradi, 2003).

Development of Self Knowledge

Every new experience adds to our network of concepts and contributes to the overall organization of knowledge in memory and repeated experiences lead to generalizations that can enhance memory (Siegler, 1998). Thinking about and talking about memories helps to consolidate them in long-term memory and in the schema network (Schacter, 1996; Savickas, 2011). Pre-existing knowledge influences memory and the way one remembers an event will depend on the purposes and goals at the time of the event and when the event is recalled (Schacter, 1996). As people get older they have access to

a greater store of content knowledge to bring to bear on understanding new situations, and this greater store of knowledge helps in making decisions about what subsequent information to focus on. Existing knowledge also provides a framework for organizing new information and serves as a point of comparison against which to check the plausibility of recalled sequences.

What we believe about ourselves then, is largely determined by our past experiences and the episodes they create in memory. Schacter (1996) stated that our sense of self or identity is highly dependent on explicit memory for past episodes. The self is represented in memory at different levels (Hart & Fegley, 1997). At the highest level the self-concept is a theory with a set of assumptions about the nature of self in relation to the world. At a lower level the self is made up of many interrelated schemas. And at the most specific level the self is derived from personal episodes in memory. There are a number of factors related to an episode that make it likely that it will be reflected upon in determining a self-trait (Hart & Fegley, 1997). The episode's uniqueness and consequentiality, or relevance to personal goals, tend to make it more memorable. Unexpected events or episodes that evoke emotion are better remembered and actions are better remembered than thoughts.

Exploratory experiences are critical to vocational decision-making and occupational development because they modify and shape the way students see themselves and the world of

work. Taylor (1988) suggested that college work experiences like internships may aid in the transition from school to work because they contribute to a greater crystallization of vocational self-concept and work values. Clarification of vocationally related self-concepts can occur while reflecting on these past paid and unpaid work experiences (Sampson, Lenz, Reardon, & Peterson, 1999). The concepts that arise out of experience become the material for the development of a more broad system of self-concepts as described by Super (Super, Starishevsky, Matlin, & Jordaan, 1963) in the literature.

Vocational Self-concept

Super (Super, Starishevsky, Matlin, & Jordaan, 1963; Super, Savickas, & Super, 1996) advanced a model of vocational development that identified a series of age-related stages of development across the life span, leading to a constellation of personal constructs, or self-concepts, that individuals have about self and the world. Some of our self-concepts have relevance to occupations and their attributes. Vocational self-concepts have relevance to occupations and their attributes, and as one part of our self-concept system, overlap with other self-concepts within the system. For example, one's academic self-concept likely has a great deal of overlap with one's vocational self-concept. At the same time, the self-concepts considered to be part of the vocational self-concept do not have to be related to one's occupational



preferences (Landine, 2004). For instance, traits such as landscaping skills could be part of the vocational self-concept but may not be relevant to one's vocational preference. For some people, this system of self-concepts is well organized and for others it isn't.

Vocational self-concept crystallization is the term applied to the extent to which an individual has a clear sense of their own vocationally relevant interests, abilities, traits, and attitudes (Tokar, Hall & Moradi, 2003). The lack of a crystallized vocational self-concept as described here has been clearly linked with occupational indecision (McAuliffe, Pickering, & Calliotte, 1991; Tokar, Withrow, Hall, & Moradi, 2003).

Experience, in the form of practical work experiences such as domestic and overseas term work, has been shown to increase vocational self-concept crystallization (Hannigan, 2001), presumably because it provides students with the opportunity to test the "fit" between their abilities, interests, values and satisfaction with the chosen work environment. Hargrove, Creagh and Burgess (2002) suggested that greater exposure to a diversity of experiences in the form of different cultures, types of people, work environments, and leisure activities fosters greater self-awareness and knowledge of the world-of-work.

With a confident and clear understanding of self, based on developmental experiences, individuals are able to integrate additional information into vocational planning with some confi-

dence (McAuliffe, Pickering, & Calliotte, 1991). In contrast, for individuals whose understanding of self is less clear and whose expectations and cognitive schema are negative about their place in the world-of-work, the provision of self- and occupational information may not be useful and vocational planning may be impeded. For example, a study by Cabral and Salomone (1990) found that well-developed self-concepts enabled individuals to process information that had been unforeseen. This same information was confusing to persons with negative schemata about their own occupational potential.

It appears, not unexpectedly, that vocational concept crystallization increases with age. Older students and students in higher grades have been shown to score higher on crystallization (Barrett & Tinsley, 1977) and lower on indecision (Osipow, 1987). Poe (1991) found that students in later years of their undergraduate program reported more stable vocational identities and less need for occupational information. According to Chickering and Reisser (1993), autonomy is one of the major areas of development necessary to the formation of one's identity. As individuals grow up and experience more of the world they become more autonomous and their level of vocational maturity increases. Vondracek, Silbereisen, Reitzle, and Wiesner (1999) saw the timing of being able to state a vocational preference corresponded to more advanced levels of identity development.

Identity and Vocational Identity

The period of adolescence to young adulthood is one of synthesizing childhood identifications into something Marcia (1966) referred to as ego-identity status. Recognizing that not everyone achieves identity status the same way or at the same time, Marcia used empirical studies to identify four possible statuses of ego development: identity achievement, moratorium, foreclosure, and identity diffusion. The four identity statuses vary along two dimensions: the extent to which individuals have (or have not) experienced an identity crisis, and the extent to which individuals have committed to an ideological and interpersonal possible self. This analysis yields four identity status categories: at the extremes lie the identity-achieved status (people who have experienced a crisis and have made commitments) and identity diffused status (no crisis, no commitment). Between these extremes lie the foreclosed (no crisis, high degree of commitment) and the moratorium (currently experiencing a crisis, but have not yet made commitments) statuses. Research findings have left little doubt regarding the importance of these statuses. For instance, adolescents in the achieved and moratorium identity statuses, the extremes in status, tend to be more cognitively developed (Boyes & Chandler, 1992) and score higher on measures of occupational planning and exploration (Wallace-Broschius, Serafica, & Osipow, 1994). By contrast, youths identified as hav-



ing foreclosed and diffused identity statuses tend to hold more traditional masculine/feminine attitudes, experience more social anxiety (Adams, Ryan, Hoffman, Dobson, & Nielson, 1985), and display fewer prosocial behaviors and cognitions than moratorium and achieved adolescents (Adams, Bennion, & Huh, 1989). Subsequent studies (Vondracek, Silbereisen, Reitzle, & Wiesner, 1999) examined how ego-identity status relates to vocational preference and found that early formation of vocational preferences was associated with more advanced levels of identity development. Marcia's (1980) final status, Achievement, would represent an individual with a clear commitment to a vocational choice and the research has shown this status to be characterized by significantly less career indecision than the other three statuses (Vondracek, Schulenberg, Skorikov, Gillespie, & Walheim, 1995) and fewer occupational decision-making difficulties (Morgan & Ness, 2003). Marcia's theory suggests that those who are further along in the identity development process (Moratorium and Achievement) should experience fewer difficulties with vocational tasks than those at an earlier status of development because their sense of self is more developed.

Generally speaking, identity is the process of deciding "who one is with knowledge about oneself in the present and aspirations for the future" (Conroy, 1997, p.13) and forms from family background, education, and socialization experiences. Identity development occurs in a

variety of domains, one of which is vocation. Vondracek et al.(1999) suggested that vocational identity may actually lead all other domains in terms of advancement in development. The growing body of research literature in this area has formed a strong connection between the development of identity and vocational self-concept (Adamson, Hartman, & Lyxell, 1999; Blustein, Devenis, & Kidney, 1989; Grotevant & Thorbecke, 1982; Skorikov & Vondracek, 1998; Wallace-Broschious, Serafica, & Osipow, 1994). Vocational self-concept refers to the occupationally relevant traits the individual attributes to him or herself and identity refers to the level of differentiation and integration of the self-concept (Harren, 1979). The highly differentiated self-concept is aware of a wide range of traits that are held with clarity and confidence. A highly integrated self-concept is one in which the traits are unified and consistent. The result is a clear and stable sense of "who one is" or identity (Harren, 1979). A more recent study (Adamson, Hartman, & Lyxell, 1998) reversed the roles of self-concept and identity, conceptualizing identity as the broad theoretical construct of which the self-concept is but one component.

Saunders, Peterson, Sampson, and Reardon (2000) suggested that a strong vocational identity may serve as a cognitive structure or schema on which the tasks of assimilation and integration of occupational knowledge and self-knowledge can be based. In terms of making an occupational choice, young people may

be viewed as forming an identity template prior to their entrance into the world-of-work (Conroy, 1997). The template is composed of a compilation of identities including ideal and expected work roles, similar to Super's (1980) occupational self-concepts. These identities or occupational self-concepts result from gathering and processing conceptual information of a number of occupations, including those of parents, neighbors, and people read about in books or seen on television. These concepts are related to concepts of self and over time they evolve into considerations of vocational opportunities.

In the studies of vocational self-concept and identity development the uniform effect of age was similar to that found in the research literature for occupational decision-making. Generally speaking, vocational self-concept crystallization and ego-identity status achievement increase with age (Grotevant & Thorbecke, 1982; Skorikov & Vondracek, 1998; Wallace-Broschious, Serafica, & Osipow, 1994). Gender differences were found in some studies and differences were attributed to acceptance of challenging tasks and lack of concern for the negative evaluations of others for men, and an orientation toward working hard and avoiding competition for women (Grotevant & Thorbecke, 1982), men's tendency to establish identity and women's to intimacy (Skorikov & Vondracek, 1998), and men's orientation toward autonomy and women's toward connectedness (Lucas, 1997). Finally, and most



importantly in the context of this research, identity achievement and vocational self-concept crystallization have both been positively associated with career decidedness (Cohen, Chartrand, & Jowdy, 1995; Kelly & Lee, 2002; Nauta & Kahn, 2007; Wallace-Broschious, Serafica, & Osipow, 1994). The message emanating from this line of research is that when individuals lack crystallized self-concepts, identity development is less than optimal or lagging and the ability to articulate occupational choices is curtailed, resulting in indecision, or as in one study (Cohen, Chartrand, & Jowdy, 1995), a state of chronic indecision.

Based on these key factors identified in the literature as related to the decision-making task, the research hypotheses stated that:

- 1) Individuals who experience high degrees of occupational indecision will indicate a decreased clarity of vocational self-concept crystallization.
- 2) Individuals who experience high degrees of occupational indecision will indicate the less advanced identity statuses (diffused and foreclosed statuses) and those individuals who experience low degrees of occupational indecision will indicate more advanced identity statuses (achieved and moratorium statuses).

Method

Participants in the research were all members of Introductory Psychology classes offered at a university in Atlantic

Canada between March and May 2005. Two hundred and two students volunteered to participate. A cross-sectional research design was employed and participants were asked to complete a questionnaire package that consisted of a demographic questionnaire, a measure of career indecision and measures of vocational self-concept and identity.

Measures

Career decision scale.

The Career Decision Scale (CDS, Osipow, Carney, & Barak, 1976) consists of 18 items measuring the degree of an individual's career indecision. Agreement with each item is indicated on a Likert scale of 1 (Not at all like me) to 4 (Exactly like me). Items 1 and 2 indicate certainty of choice of career and/or major, while items 3 to 18 indicate indecision. The indecision score is the sum of items 3-18, with higher scores indicating higher levels of indecision.

The CDS manual (Osipow, 1987) reports indecision test-retest reliability coefficients ranging from .90 and .82 for two weeks to .70 for 6 weeks. A more recent study (Marco, Hartung, Newman, & Parr, 2003) reported an estimate of internal consistency for the Indecision scale of .89 (Cronbach's alpha). A Cronbach alpha of .89 was obtained when internal-consistency reliability was assessed in the present study. Discriminant validity of the Decided scale of the CDS has been demonstrated by its ability to differentiate career

decided and undecided groups (Osipow, 1987).

Crystallization of vocational self-concept.

Crystallization of vocational self-concept was assessed with the Vocational Rating Scale (VRS; Barrett & Tinsley, 1977). The VRS was developed as a global measure to assess the clarity and certainty of self-perceived patterns in vocational abilities and interests. An individual's degree of vocational self-concept crystallization was defined as "the degree of clarity and certainty of separate vocationally relevant self-concepts and the structure of the self-concepts as a whole" (Tinsley, Bowman, & York, 1989). It consists of 40 self-descriptive statements regarding the individual's awareness of vocationally relevant attributes and characteristics. Each item is rated on a five-point Likert scale (1 = completely false; 5 = completely true) indicating how true the respondent feels the statement is about him or herself at the time of testing. High total scores (range is 40-200) indicate a high degree of vocational self-concept crystallization.

The VRS was validated on selected groups of university undergraduate and graduate students by examining the relationship between scores on the VRS and the Distribution Scale on the Tennessee Self-Concept Scale (TSCS). The VRS has shown high internal-consistency reliability (Cronbach's alpha coefficient of .94) in previous research and



has been significantly related to students' level of confidence in their vocational decisions (Taylor, 1985). A test-retest reliability of .76 was obtained in the original study after a two-week interview. A Cronbach alpha of .95 was obtained when internal-consistency reliability was assessed in the present study.

Identity status.

The instrument used to assess adolescent identity status was the Extended Objective Measure of Ego Identity Status-II (EOMEIS-II, Adams, Bennion & Huh, 1989). The EOMEIS-II is a 64-item self-report scale designed to assess both ideological and interpersonal identity. Ideological identity includes occupational, religious, political and philosophical life-style values, goals, and standards, while interpersonal identity incorporates aspects of friendship, dating, sex roles, and recreational choices. Items were designed to determine the extent of crisis, exploration, experimentation, and commitment in which adolescents had engaged in each of these domains. The total scale is broken down into eight subscales (each containing eight items), with examinees receiving four scores in the ideological domain and four scores in the interpersonal domain. Items target each of the four identity statuses in four ideological domains (politics, religion, occupation, lifestyle) and four interpersonal domains (friendships, dating, gender roles, recreation) (Schwartz, 2004). Responses to each item are on a 6-point scale, ranging from

strongly agree to strongly disagree. Thus, scores on each subscale can range from 8 to 48.

Adams et al. (1985) reported status classification agreements between the original EOMEIS and Marcia's Ego Identity Interview that ranged from 70% and 100% working with a population of undergraduate students (late adolescence). For the eight EOMEIS-II subscales, Adams et al., (1989) reported internal consistency alphas ranging from .37 to .77, four-week test-retest reliabilities ranging from .59 to .82, and moderate correlations between the ideological and interpersonal subscales, suggesting that these identity domains, although related, are generally independent. Klaczynski, Fauth, and Swanger (1998) collected six-week test-retest reliabilities in the ideological domain (achievement .33, moratorium .36, foreclosed .54, diffused .60) and in the interpersonal domain (achievement .27, moratorium .38, foreclosed .67, diffused .74). With the exception of the interpersonal-achievement subscale ($p = .07$) each of these correlations was significant. A more recent study by Klaczynski (Klaczynski & Lavalley, 2005) reported Cronbach's alphas of .66, .72, .80, and .7 for the achieved, moratorium, foreclosed, and diffused statuses. A Cronbach alpha of .76 was obtained for the overall instrument when internal-consistency reliability was assessed in the present study.

Results

Males represented 28 % (56) of the sample and females

72 % (146). The average age of the participants was 20.92, ranging from 17 to 54 years. The majority came from the Faculty of Arts (40.1 %), with the Faculty of Science (20.8 %) as the next highest faculty represented. As participants were drawn from an Introductory Psychology class, it was not surprising to find that the majority of participants were in their first year (75.1 %) and the percentages grew smaller the further away from first year participants got. When asked to indicate a chosen major, over half (51.5 %) answered none/unknown. Over one quarter of the sample (26.7 %) had seen a career counsellor or participated in career counselling before. Participants were also asked to assess their level of self-knowledge on a 10 point Likert scale in three different areas: interests, abilities, and personality (A score of 10 was described as High and a score of 1 Low). The mean score for self-knowledge of interests was 7.8. For self-knowledge of abilities the mean was 7.4 and for personality 8.1. Participants were also asked to rate their level of information about the occupations they had considered (using the same scale as above) and the mean score for this rating was 7.1. The final two demographic questions asked participants to indicate whether or not they had made a career choice and then were asked to name, if possible, two occupations, in addition to their first choice, that they had thought about. More than three quarters of the sample (86.5%) indicated some present career choice and 72.3% named another two occupations that they had



considered.

Mean scores and ranges were calculated for all variables and then correlation analyses were done on the variables in groups according to their function in the study. To answer the question of how much of the variability in indecision could be determined by vocational self-concept crystallization a standard multiple regression analysis was calculated using the Statistical Package for the Social Sciences (SPSS).

Vocational self-concept, identity and occupational decision-making

Vocational self-concept crystallization scores represent the sum of all items endorsed on the Vocational Rating Scale. The mean score for vocational self-concept crystallization was 144.60. The scores for this sample ranged from a low of 85 to a high of 194 (possible range 40 to 200), meaning that although the sample represented a normal curve, the curve was situated at the high end of the range of possible scores. Ideological Identity and Interpersonal Identity Sta-

tuses were calculated using the SPSS computer syntax provided by the authors (Adams, Bennion & Huh, 1989). All participants were grouped into one of four status groups (1 = diffusion, 2 = foreclosure, 3 = moratorium, 4 = achieved) for the Ideological side of identity status and then again for the Interpersonal identity status construct. For the Ideological aspect of identity, the part containing vocational identity, the majority of participants were placed in two of the status groups: diffused (41.6 %) and moratorium (43.6 %). The other two groups, foreclosed and achieved accounted for 5.4 % and 9.4 % of the sample respectively. For the Interpersonal aspect of identity the majority continued to fall into the diffused (19.8 %) and moratorium (58.9 %) and the foreclosed and achieved groups accounted for 7.9 % and 11.6 % of the sample respectively.

Correlational analysis of the variables with age and gender indicated a low but significant correlation between age and vocational self-concept (.17, $p < .05$). The first research hypothesis proposed that vocational self-concept crystallization and

ego-identity status were related to each other and related to career indecision. The Pearson product-moment correlation was used to determine the relationships between these variables. The first two hypotheses stated that vocational indecision scores would be higher for those participants with lower vocational self-concept crystallization, and that vocational indecision scores would be lower (a negative correlation) for more advanced identity status (achieved and moratorium statuses) and higher for the less advanced identity statuses (diffused and foreclosed statuses). Correlation coefficients (Table 1) indicate that a significant inverse correlation between vocational self-concept crystallization and career indecision was present ($r = -.72, p < .01$) as well as smaller but significant inverse correlations between both Identity status domains and indecision: Ideological ($r = -.32, p < .01$) and Interpersonal ($r = -.17, p < .05$). The two domains were also significantly correlated ($r = .24, p < .01$) and vocational self-concept was significantly correlated with both Ideological ($r = .39, p < .01$) and Interpersonal ($r = .18, p < .01$).

Table 1

Means, Ranges and Inter-correlations of Age, Gender, Vocational Self-Concept Crystallization, Identity Status and Career Indecision

Variable	M	Range	Correlations					
			1	2	3	4	5	6
1. Age	20.91	17 – 54	--	-.05	.17*	.10	-.01	-.13
2. Gender				--	-.04	-.09	.22**	-.07
3. VSC	144.60	85 – 194			--	.39**	.18**	-.72**
4. Ideological Id.	2.21	1 – 4				--	.24**	-.32**
5. Interpersonal Id.	2.64	1 – 4					--	-.17*
6. Indecision	30.80	16 – 57						--

N = 189

* $p < .05$

** $p < .01$



Standard regressions were performed on both variables independently with career indecision as the dependent variable in an effort to determine the amount of variance each variable contributed separately to career indecision. Vocational self-concept crystallization [F (1, 192) = 201.84, $p < .001$], contributed 51% ($R^2 = 0.513$) of the variability in predicting career indecision. The Ideological identity status domain [F (1, 192) = 21.53, $p < .001$], contributed 10% ($R^2 = 0.101$) and the Interpersonal identity status domain [F (1, 192) = 5.51, $p < .001$], contributed 3% ($R^2 = 0.028$). When taken together the vocational self-concept crystallization variable contributed almost all of the variance accounted for by the two variables in predicting career indecision, suggesting that the two variables are measuring things that are quite consistent and that ego-identity status is only a significant contributor to the variance when paired with vocational self-concept crystallization. Statistically speaking, while the simple correlations between the two identity scales, ideological identity and interpersonal identity, and indecision were $-.32$ and $-.17$ respectively, the partial correlations were much closer to zero ($-.03$ and $-.05$), indicating redundancy between the vocational self-concept scale and the ego-identity status scales. Altogether, 55% (51% adjusted) of the variability on career indecision was predicted by knowing the level of participants' vocational self-concept crystallization and ego-identity status in the two domains.

Discussion

The results of this study indicated a number of significant statistical relationships that serve to support the importance of self-knowledge to the occupational decision-making process. The sample population was relatively young (average age 20.92) and predominantly enrolled in the Faculty of Arts, traditionally a haven for the occupational undecided. Half of the students had not chosen a major but 86% indicated a career choice. This would suggest the possibility of a lack of realism or commitment to the indicated career choice (Super, 1980). The three self-knowledge areas (interests, abilities, and personality) were all scored on the high end of the Likert scale, indicating that these students believe that they have a high level of self-knowledge in these areas.

The first of two research questions asked if a relationship existed between vocational self-concept crystallization and the incidence of occupational indecision. The second considered the relationship between ego-identity status and the incidence of occupational indecision. A third question, considered in the regression analysis, asked which of the two (vocational self-concept crystallization and ego-identity status) is the stronger predictor of occupational indecision (and would hence warrant more attention in the decision-making process).

The results would suggest, as predicted, that there is a strong negative relationship between vocational self-concept

crystallization and occupational indecision. This is not surprising as the literature is filled with research that supports the positive impact that a clear and certain vocational self-concept has on career indecision (Barrett & Tinsley, 1977; McAuliffe, Pickering, Calliotte, 1991; Tokar et al., 2003). Mean and range scores for the vocational self-concept variable, suggest that this group of largely first year Psychology students have self-concepts that are well crystallized.

The literature was less clear about the relationship between the development of ego identity and career indecision (Vondracek, Silbrereisen, Reitzle, & Weisner, 1999; Zagora & Cramer, 1994), but the results here indicate that the more established the identity, the less the likelihood of occupational indecision. The majority of students were in the diffused or moratorium groups in both identity domains. This would suggest that the majority of students in this study were neither initiating exploration into possible selves nor committing to possible (diffusion) selves or they were in the process of self-exploration, moving towards achieving an identity, but had not committed to future selves (moratorium). While the second group could be seen as figuring themselves out, the first group isn't trying yet. What was surprising was the finding that identity status scores for the Interpersonal domain saw more people in the more established status groups (moratorium and achieved made up 72.3 % of the participants in this domain) than for the Ideological identity do-



main (moratorium and achieved groups made up only 53% of the total sample) and fewer still were in the less established groups (Interpersonal diffused and foreclosed 27.7 % and Ideological diffused and foreclosed 47.0 %). This is surprising because vocational identity is measured as part of the Ideological domain, along with politics and religion, and in the literature frequently develops before the Interpersonal domain. This finding may be a result of the large gender imbalance and the tendency for females to develop in the interpersonal domain earlier than males (Lucas, 1997).

The significant correlations between the two domains of identity and vocational self-concept were expected, and suggest that they are measuring the same thing, with vocational self-concept being the better formulated of the two constructs for this group. The two constructs together accounted for over half of the variability in indecision scores, providing clear support for the importance of vocational self-concept and identity to the occupational decision-making process (Wallace-Broschious, Serafica & Osipow, 1994).

Conclusion, Limitations and Further Research

As with most studies of this nature, the fact that the sample is quite homogenous (all university students, majority first year student, majority in Arts) limits the extent which results can be extended to the larger community or to a comparable group that differed in age for example. Super (1980) would sug-

gest, however, that the majority of these students are still in the exploration stage (albeit, with some commitment) of vocational development and so should be engaged in the tasks of crystallizing a sense of self and specifying and implementing an occupational choice. The potential lack of generalizability becomes less significant when the study is done with the group most firmly entrenched in the tasks being assessed.

The close relationship between vocational self-concept and ego-identity, in particular the ideological domain including vocational identity, was also supported. As Marcia (1966) and Erikson (1968) both contended, the vocational identity is one of the first to develop. Given that identity is conceptualized in the literature as the level of differentiation and integration of the self-concept (Harren, 1979) and that self-concept refers to the occupationally relevant traits the individual attributes to him or herself, it would seem that the crystallization of vocational self-concept may precede and facilitate the formation of the vocational identity. The question of how, specifically, vocational self-concept and ego-identity status are related represents an area of research that would contribute to researchers' and practitioners' understanding of how vocational and mainstream psychology constructs are related.

The literature review has identified a number of possible reasons why students flounder when it comes to the school-to-work transition including: anxiety (Healey, 1991), a lack of

readiness (Peterson, Sampson, & Reardon, 1991), individual personality and cognitive differences (Newman, Gray, & Fuqua, 1999). The results here would suggest that a poorly developed system of vocational self-concepts or certain identity statuses also contribute to these difficulties. The results indicating strong effects for age were encouraging as they support the contention that while not all students are at the same place developmentally, they will likely, in their own time, reach the place of maturity where they will be able to effectively make occupational decisions.

Possibly the most important result to come out of this study is the rationale it provides for continued integration of career development theory into the mainstream of developmental psychology (Blustein, Devenis, & Kidney, 1989). Erikson (1968) clearly set vocational identity as the developmental precursor to the formation of other identities. The strong empirical ties evidenced in the present study between identity development through Marcia's stages and the development of self-concept, more specifically vocational self-concept, are encouraging. Blustein et al. (1989) suggest that adolescents and young adults will be able to engage in a process of self-discovery that need not be compartmentalized ("It's time you started focusing on what you're going to be when you grow up"). The connection of identity and vocational self-assessment offers the opportunity for broader exploration with the knowledge that ultimately the



vocational self-concept is being crystallized also.

These results serve to stimulate a number of practical implications for working with university students and late adolescents on career development issues. Firstly, Poe (1991) suggested that a choice of major by freshman and sophomore students should possibly be “re-garded more as career exploration than as a reflection of a mature vocational choice” (p.251). Given the tremendous variability in the development of vocational self-concept and identity, and the potential for premature, and possibly unrealistic, foreclosure on aspects of self-concept and identity, it may be best to treat the first years of university as a period of exploration. It is possible that the results presented here describe a group of largely first year students who believe that they have formed a clear sense of who they are vocationally speaking, but are accepting that picture prematurely. Students who foreclose too early do not learn to expand their experiences and develop skills commensurate with the struggle (Greene, 2006).

The importance of vocational identity in the developmental process can't be understated. Cohen, Chartrand, and Jowdy (1995) found that differences in ego identity development are related to the kinds of career decision difficulties that individuals experience and Zagora and Cramer (1994) suggested, based on their research, that students who have not yet reached desired levels of self-awareness may not yet have a clear and stable picture

of their goals, interests, personality, and talents, while high vocational identity students may still be uncertain, albeit temporarily, merely waiting for the appropriate time and context to acknowledge an already well thought through decision. Gordon and Meyer (2002) recommend differential counseling, including the development of specific skills, for different types of undecided client and undecided students may well benefit from interventions that enable them to explore and crystallize identities as they acquire career info (Kelly & Lee, 2002). If a well-articulated identity and crystallized vocational self-concept contribute to less problematic occupational decision-making, as the results here would suggest, it might be in practitioners best interest to assess individual student readiness (Sampson, Peterson, Reardon, & Lenz, 2000) and ensure that the identity and vocational self-concept are developed before further vocational development work is done.

References

Adams, G., Bennion, I., & Huh, K. (1989). Objective measure of Ego Identity Status: A reference manual. Unpublished manuscript, University of Guelph.

Adams, G. R., Ryan, J. H., Hoffman, J. J., Dobson, W R., & Nielson, E. C. (1985). Ego-identity status, conformity behavior and personality in late adolescence. *Journal of Personality and Social Psychology*, 47, 1091-1104.

Adamson, L. Hartman, S. G., & Lyxell, B. (1999). Adolescent identity – a qualitative approach: Self-concept, existential questions and adult contacts. *Scandinavian Journal of Psychology*, 40, 21-31.

Barrett, T. C., & Tinsley, H. E. A. (1977). Measuring vocational self-concept crystallization. *Journal of Vocational Behaviour*, 11, 305-313.

Blustein, D. L., Devenis, L. E., & Kidney, B. A. (1989). Relationship between the identity formation process and career development. *Journal of Counselling Psychology*, 36(2), 196-202.

Boyes, M. C., & Chandler, M. (1992). Cognitive development, epistemic doubt, and identity formation during adolescence. *Journal of Youth and Adolescence*, 21, 277-304.

Cabral, A. C., & Salomone, P. R. (1990). Chance and careers: Normative versus contextual development. *The Career Development Quarterly*, 39(1), 5-17.

Chickering, A. W., & Reisser, L. (1993). *Education and identity*. San Francisco: Jossey-Bass.

Cohen, C. R., Chartrand, J. M., & Jowdy, D. P. (1995). Relationship between career indecision subtypes and ego identity development. *Journal of Counselling Psychology*, 42(4), 440-447.

Conroy, C. A. (1997). Influences on career choice of rural youth and resulting implications for career development programming: When job awareness and exploration



- are not enough. *Journal of Vocational Education Research*, 22(1), 3-19.
- Cote, J. E., & Levine, C. (1988). A critical examination of the ego identity status paradigm. *Developmental Review*, 8, 147-184.
- DiRusso, L., Carney, J. V., & Bryan, B. (1995). Psychological type of education majors and career decisiveness. *Journal of Psychological Type*, 32, 36-42.
- Erikson, E. (1956). The problem of ego identity. *Journal of the American Psychoanalytic Association*, 4, 56-121.
- Erikson, E. (1968). *Identity: Youth and Crisis*. New York: Norton
- Gordon, L. & Meyer, J. C. (2002). Career indecision among prospective university students. *South African Journal of Psychology*, 32(4), 41-47.
- Greene, M. (2006). Helping build lives: Career and life development of gifted and talented students. *Professional School Counselling* 10(1), 34-42.
- Grotevant, H. D., & Thorbecke, W. L. (1982). Sex differences in styles of occupational identity formation in late adolescence. *Developmental Psychology*, 18(3), 396-405.
- Hannigan, T. P. (2001). The effect of work abroad experiences on career development for U.S. undergraduates. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 7, 1-14.
- Hargrove, B. K., Creagh, M. G., & Burgess, B. L. (2002). Family interaction patterns as predictors of vocational identity and career decision-making self-efficacy. *Journal of Vocational Behavior*, 61, 185-201.
- Harren, V. A. (1979). A model of career decision making for college students. *Journal of Vocational Behavior*, 14, 119-133.
- Hart, D. & Fegley, S. (1997). Children's self-awareness and self-understanding in cultural context. In U. Neisser & D. A. Jopling (Eds.), *The conceptual self in context. Culture, experience, self-understanding*. Cambridge, UK: Cambridge University Press.
- Healey, C. C. (1991). Exploring a path linking anxiety, career maturity, grade point average, and life satisfaction in a community college population. *Journal of College Student Development*, 32, 207-211.
- Jarvis, P. S. (2002). Formula for success in career building. *The Canadian Journal of Career Development*, 1(1), 40-44.
- Johnson, P., Nichols, C. N., Buboltz, W. C., & Riedesel, B. (2002). Assessing a holistic trait and factor approach to career development of college students. *Journal of College Counselling*, 5(1), 4-14.
- Kelly, K. R., & Lee, W. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behavior*, 61, 302-326.
- Klaczynski, P. A., Fauth, J. M., & Swanger, A. (1998). Adolescent identity: Rational versus experiential processing, formal operations, and critical thinking beliefs. *Journal of Youth and Adolescence*, 27(2), 185-207.
- Klaczynski, P. A., & Lavallee, K. L. (2005). Domain-specific identity, epistemic regulation, and intellectual ability as predictors of belief-biased reasoning: A dual-process perspective. *Journal of Experimental Child Psychology*, 92, 1-24.
- Krumboltz, J. D. & Worthington, R. L. (1999). The school-to-work transition from a learning theory perspective. *The Career Development Quarterly*, 47(4), 312-325.
- Landine, Jeffrey. (January, 2004). Using the episodes in our past effectively. *Proceedings of the National Consultation on Career Development (NATCON)*, Ottawa, ON.
- Lucas, M. (1997). Identity development, career development, and psychological separation from parents: similarities and differences between men and women. *Journal of Counselling Psychology*, 44(2), 123-132.
- Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, 3(5), 551-558.
- Marcia, J. E. (1980). Identity in adolescence. In J. Adelson (Ed.), *Handbook of adolescent psychology*, (pp. 159-187). New York: Wiley.
- Marco, C. D., Hartung, P. J., Newman, I., & Parr, P. (2003). Validity of the decisional process inventory. *Journal of Vocational Behavior*, 63, 1-19.
- McAuliffe, G. J., Pickering, J.



- W., & Calliotte, J. A. (1991). Identifying critical internal barriers to effective career decision-making among college students. Unpublished manuscript, Old Dominion University, Norfolk, Virginia.
- Morgan, T., & Ness, D. (2003). Career decision-making difficulties of first-year students. *The Canadian Journal of Career Development*, 2(1), 33-39.
- Nauta, M. M., & Kahn, J. H. (2007). Identity status, consistency and differentiation of interests, and career decision self-efficacy. *Journal of Career Assessment*, 15(1), 55-65.
- Newman, J. L., Gray, E. A., & Fuqua, D. R. (1999). The relation of career indecision to personality dimensions of the California Psychological Inventory. *Journal of Vocational Behavior*, 54, 174-187.
- Osipow, S. (1987). *Career decision scale manual*. Odessa, FL: Psychological Assessment Resources.
- Osipow, S. (1999). Assessing career indecision. *Journal of Vocational Behavior*, 55, 147-54.
- Osipow, S., Carney, C., & Barak, A. (1976). A scale of educational-vocational undecidedness: A typological approach. *Journal of Vocational Behavior*, 9, 233-243.
- Osipow, S., Carney, C., Winer, J., Yanico, B., & Koschier, M. (1976). *The Career Decision Scale*. Odessa, FL: Psychological Assessment Resources.
- Patton, W., & Creed, P. A. (2001). Developmental issues in career maturity and career decision status. *The Career Development Quarterly*, 49, 336-351.
- Peterson, G., Sampson, J., & Reardon, R. (1991). Career development and services: A cognitive approach. Pacific Grove, CA: Brooks/Cole.
- Poe, R. E. (1991). Developmental changes in vocational identity among college students. *Journal of College Student Development*, 32, 249-252.
- Sampson, J. P., Lenz, J. G., Reardon, R. C., & Peterson, G. W. (1999). A cognitive information processing approach to employment problem solving and decision making. *The Career Development Quarterly*, 48(1), 3-18.
- Sampson, J. P., Peterson, G. W., Reardon, R. C., & Lenz, J. G. (2000). Using readiness assessment to improve career services: A cognitive information-processing approach. *The Career Development Quarterly*, 49, 146-174.
- Saunders, D. E., Peterson, G. W., Sampson, J. P., & Reardon, R. C. (2000). Relation of depression and dysfunctional career thinking to career indecision. *Journal of Vocational Behavior*, 56, 288-298.
- Savickas, M. L. (1984). Career maturity: Construct and its measurement. *Vocational Guidance Quarterly*, June, 222-231.
- Savickas, M. L. (1999). The transition from school to work: A developmental perspective. *The Career Development Quarterly*, 47, 26-336.
- Savickas, M. L. (2011). *Career counselling*. Washington, D.C.: American Psychological Association.
- Schacter, D. L. (1996). *Searching for memory: The brain, the mind, and the past*. New York, NY: Basic Books.
- Schwartz, S. J. (2004). Brief report: Construct validity of two identity status measures: the EIPQ and the EOM-EIS-II. *Journal of Adolescence*, 27, 477-483.
- Siegler, R. S. (1998). *Children's thinking*. (3rd ed.). Chapter 7. Upper Saddle River, New Jersey: Prentice Hall.
- Skorikov, V. B., & Vondracek, F. W. (1998). Vocational identity development: Its relationship to other identity domains and to overall identity development. *Journal of Career Assessment*, 6(1), 13-35.
- Super, D. (1980). A life-span, life-space approach to career development. *Journal of Vocational Behavior*, 13, 282-298.
- Super, D. E., Savickas, M. L., & Super, C. M. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds), *Career Choice and Development* (3rd ed. pp. 121-178). San Francisco: Jossey-Bass.
- Super, D., Starishevsky, R., Matlin, N., & Jordaan, J. (1963). *Career development: Self-concept theory*. (CEEB Research Monograph No.4). New York: College Entrance Examination Board.
- Symes, B. & Stewart, J. (1999). The relationship between metacognition and vocational indecision. *Canadian Journal of Counselling*, 33, 195 - 211.



- Taylor, M. S. (1985). The roles of occupational knowledge and vocational self-concept crystallization in students' school-to-work transition. *Journal of Counselling Psychology*, 32(4), 539-550.
- Taylor, M. S. (1988). Effects of college internships on individual participants. *Journal of Applied Psychology*, 73(3), 393-401.
- Tinsley, H. E. A., Bowman, S. L., & York, D. C. (1989). Career decision scale, my vocational situation, vocational rating scale, and decisional rating scale. Do they measure the same constructs? *Journal of Counselling Psychology*, 36(1), 115-120.
- Tokar, D. M., Hall, R. J., & Moradi, B. (2003). Planting a tree while envisioning the forest – the recursive relation between theory and research: Reply to Blustein (2003). *Journal of Counselling Psychology*, 50(1), 24-27.
- Tokar, D. M., Withrow, J. R., Hall, R. J., & Moradi, B. (2003). Psychological separation, attachment security vocational self-concept crystallization, and career indecision. A structural equation analysis. *Journal of Counselling Psychology*, 50(1), 3-19.
- Vondracek, F. W., Hostetler, M., Schulenberg, J. E., & Shimizu, K. (1990). Dimensions of career indecision. *Journal of Counselling Psychology*, 37(1), 98-106.
- Vondracek, F. W., Schulenberg, J., Skorikov, V., Gillespie, L. K., & Walheim, C. (1995). The relationship of identity status to career indecision during adolescence. *Journal of Adolescence*, 18, 17-29.
- Vondracek, F. W., Silbereisen R. K., Reitzle M., & Wiesner, M. (1999). Vocational preference of early adolescents: Their development in social context. *Journal of Adolescent Research*, 14(3), 267-288.
- Wallace-Broschious, A., Serafica, F. C, and Osipow, S. H. (1994). Adolescent career development: Relationships to self-concept and identity status. *Journal of Research on Adolescents*, 4, 127-149.
- Zagora, M. A., & Cramer, S. H. (1994). The effects of vocational identity status on outcomes of career decision-making intervention for community college students. *Journal of College Student Development*, 35, 239-247.