

The relationship between career adaptability, person and situation variables,  
and career concerns in young adults

Authors

Peter A. Creed

Tracy Fallon

Michelle Hood

Affiliations

School of Psychology, Griffith University, Australia

Contact

Professor Peter A. Creed

School of Psychology

Griffith University

Gold Coast Campus

Queensland, Australia 9726

Email: [p.creed@griffith.edu.au](mailto:p.creed@griffith.edu.au)

Fax: +61 7 5552 8291

The relationship between career adaptability, person and situation variables,  
and career concerns in young adults

Abstract

We surveyed 245 first-year university students using measures of career concerns, career adaptability (career planning, career exploration, self exploration, decision-making, self-regulation), goal-orientation (learning, performance-prove, performance-avoid) and social support (family, friends, significant others), and tested: (a) whether the career adaptability variables could be represented by a second-order factor of career adaptability; (b) whether career adaptability, goal-orientation and social support were associated with fewer career concerns; and (c) whether career adaptability mediated the relationship between goal-orientation and social support and career concerns. The study demonstrated that the career adaptability variables were inter-related and could be represented by a higher-order factor. Decision-making and self-exploration were negatively associated with career concerns, and decision-making mediated the relationship between goal-orientation and career concerns. Having more of a learning orientation was associated with more decision-making and fewer career concerns, whereas holding a performance-prove orientation was associated with poorer decision-making and more career concerns.

Keywords: career adaptability, goal-orientation, social support, career concerns, self-regulation

Despite the importance of career adaptability as a construct, there have been few attempts to operationalise it or to investigate the adaptive resources needed to manage successful career transitions (Ebberwein, Krieshok, Ulven, & Prosser, 2004). The present study examined the relationship between career adaptability and the salient career-transition construct of career concerns among young adults. We also tested whether career adaptability mediated the relationship between person and situation variables and career concerns. First, we tested whether a higher-order construct of career adaptability could be represented by the career-focused self-regulatory strategies of exploration of self and environment, career planning and career decision-making, as well as general self-regulation (Savickas, 1997). Second, we responded to calls for research to investigate whether the relationship between person and situation variables and career-related issues were mediated by career adaptability strategies (Hall, 2002). We conceptualized person variables as individual differences in goal-orientation (Dweck, 1986), and operationalised situation variables as perceived social support from family, friends and significant others. Figure 1 presents the relationships being tested.

Insert Figure 1 about here

### *Career Concerns*

Concerns are an “uneasy state of blended interest, uncertainty, and apprehension” (Merriam-Webster Online Dictionary, 2008). Career concerns are concerns about one’s future career that represent worry or regret about a recent task failure, anxiety about a current task, and the excitement or stress of planning for a future task (Cairo, Kritis, & Myers, 1996; Savickas, Passen, & Jarjoura, 1988). In sum, career concerns represent apprehension about managing what a person considers to be personally important and essential to his or her career development (Code & Bernes, 2006).

Tertiary students are confronted with many career-related tasks. The stress associated with managing these career-related tasks can be considered as career concerns (Super, Savickas, & Super, 1996). Tertiary students have to adjust to a much less structured educational experience

than high school, monitor and resolve issues regarding their career direction, and manage educational and life demands as they develop as young adults. Further, they have to manage these career-related tasks in the context of family, peer and educational institution expectations.

### *Career Adaptability*

The term career adaptability was first suggested by Super and Knasel (1981) as the central construct in adult career development (Savickas, 1994), and has since been suggested as a key competency in career success generally (O'Connell, McNeely, & Hall, 2008). Savickas (1997) defined career adaptability as “the readiness to cope with the predictable tasks of preparing for and participating in the work role and with the unpredictable adjustments prompted by changes in work and working conditions” (p. 254). Rottinghaus, Day, and Borgen (2005) defined it as “a tendency affecting the way an individual views his or her capacity to plan and adjust to changing career plans... especially in the face of unforeseen events” (p. 5). Both of these definitions refer to self-regulatory processes, stress the importance of the interaction between the individual and their environment, and emphasize managing novel, non-maturational problems that confront the individual.

Career adaptability has been operationalised as career decision self-efficacy, career choice commitment (Duffy & Blustein, 2005), career outcome expectations, career planning, school identification, perceptions of educational barriers (Kenny & Bledsoe, 2005), proactive personality, boundaryless mindset (McArdle, Waters, Briscoe, & Hall, 2007), career exploration and career planning (Zikic & Klehe, 2006). Savickas (1997) suggested it could be operationalised by using the developmental dimensions of self and environmental exploration, career planning and decision-making, all of which also could be conceptualized as self-regulatory strategies. In this way, an individual's self development and career adaptability includes looking around at the opportunities available (exploring), looking ahead to the future (planning), making suitable and viable choices (deciding), and managing all of the intrapersonal, interpersonal and environmental factors that impinge on achieving one's goals; in

sum, self-regulating (Baumeister & Vohs, 2007). Self-regulatory mechanisms are relevant to career adaptability as they are activated in times of stress, change, or when confronted with novel challenges. In the present study, we tested whether the four career adaptability strategies recommended by Savickas (self and environmental exploration, career planning and decision-making) and a measure of general self-regulation could be represented by a second-order factor of career adaptability (we included a general measure of self-regulation to validate that Savickas' four career adaptability strategies could be operationalised as self-regulation).

In this context, environmental exploration involves gathering information relevant to career development (Blustein, 1997), whereas self exploration focuses on exploring personal interests, experiences and values, to better understand the self in the career world (Whiston & Keller, 2004; Zikic & Klehe, 2006). Such exploratory strategies and skills equip individuals to effectively negotiate changes in the career and life domains (Blustein, 1997). Career planning involves a future orientation and knowledge of what actions are required in order to pursue one's goals (Phillips & Blustein, 1994). Career and self exploration and career planning are lifelong activity especially salient for career transitions, and can be characterised as adaptive processes (Zikic & Klehe). Decision making involves evaluating knowledge and alternatives that support outcomes that individuals feel they can commit to (Phillips & Blustein). Many young adults are keen to make their first career decision (Gati, Kleiman, Saka, & Zakai, 2003) and have the goal of finding a specific career (Albion, 2000). Yet, career decision making problems are one of the significant difficulties faced by university students (Amir & Gati, 2006). Without clear mechanisms to assist the decision making process, many are guided by parents, teachers and friends (Mortimer, Zimmer-Gembeck, Holmes, & Shanahan, 2002). Lastly, self-regulation includes the myriad of processes whereby individuals exert control over their impulses, thoughts, feelings and task performances to achieve the goals they set for themselves (Baumeister, Gaijlot, DeWall, & Oaten, 2006; Boekaerts, Maes, & Karoly, 2005).

Self-regulation enhances the individual's ability to adjust to a diverse range of situational and social demands (Baumeister & Vohs, 2003).

### *Goal-orientation*

Bandura (1986) suggested that most human behaviours were goal-directed and that actions were performed to gain positive achievement outcomes or avoid negative ones. How individuals interpret, experience and act in achievement situations depends on the type of goal-orientation adopted at the outset (Elliot & Harackiewicz, 1996). We examined three types of goal-orientation: learning, performance-prove and performance-avoid. Learning goal-orientated individuals see intelligence as a flexible quality that can be developed continuously through experience and effort. They focus on effort as a means of activating ability, overcoming obstacles and increasing competence. This effort engenders pride in performance and encourages exploration, initiative and the pursuit of tasks that promote intellectual and personal growth. Performance-prove goal-orientated individuals see intelligence as a fixed, uncontrollable attribute. They seek to gain approval and demonstrate ability through achieving success. Performance-avoid goal-orientated individuals, who also have a fixed view of ability. They focus on avoiding normative incompetence, failure and negative outcomes. This orientation evokes processes of self-protection that can interfere with task engagement and derail goal-achievement motivations (Dweck, 1986; Vandewalle, 1997).

Previous research has shown positive outcomes in achievement situations for those with a learning goal-orientation, negative outcomes for those with a performance-avoid orientation, and mixed results for those with a performance-prove orientation, depending on the situation (Grant & Dweck, 2003). As learning and performance-prove goal-orientations represent approach orientations based on self-regulation toward positive results, we expected that individuals with these two goal-orientations would have lower levels of career concerns and higher career adaptability. As a performance-avoid goal-orientation represents an orientation

focused on avoiding negative outcomes, we expected that individuals with this approach would have higher levels of career concerns and lower career adaptability.

### *Social Support*

Individuals are not independent of the social environment, thus, the ability to cope with career concerns also depends on situational variables (Weisenberg & Aghakhani, 2007). In a meta-analysis, Viswesvaran, Sanchez, and Fisher (1999) found social support had both a direct and a buffering effect on career stress. Social support is a potential resource for career specific information and advice (Kracke, 2002; Seibert, Kraimer, & Liden, 2001) and represents an important resource for anyone coping generally with the demands of change (Cutrona, 1996). The social supports available to young adult students typically consist of the educational institution, the workplace, family and friends (Weisenberg & Aghakhani), although previous research has found friends to have the greatest influence in the career domain (Steinberg, Dornbusch, & Brown, 1992). We expected that social support would lessen an individual's career concerns and also boost the capacity to self-regulate.

### *Hypotheses*

We used a diverse sample of first year university students to test the hypotheses outlined in Figure 1; specifically that:

1. Environmental and self exploration, career planning, decision-making and general self-regulation can be represented by a second-order factor of career adaptability;
2. Greater career adaptability will be associated with fewer career concerns;
3. Learning and performance-prove goal-orientation will be associated with fewer career concerns, whereas performance-avoid goal-orientation will be associated with more career concerns;
4. Greater social support will be associated with fewer career concerns;
5. Career adaptability will mediate the relationship between goal-orientation and social support and career concerns.

## Method

### *Participants*

Participants were 245 full-time, first-year students (83.7% female) from a medium-sized public university in south-east Queensland, Australia. The mean age was 20 years (Range = 17-25;  $SD = 2.14$ ).

### *Scales*

*Person Variables of Goal-orientation.* Goal-orientation was measured using Vandewalle's (1997) 13-item scale, which taps learning (5-items), performance-prove (4-items) and performance-avoid orientations (4-items). Nine items were slightly reworded to remove reference to the workplace and make them more suitable for a student sample. For example, the learning goal-orientation item, "For me, development of my work ability is important enough to take risks", was changed to, "For me, development of my skills is important enough to take risks". A sample item for performance-prove was, "I enjoy it when others are aware of how well I am doing"; a sample item for performance-avoid was, "I prefer to avoid situations where I might perform poorly". The students rated their agreement with the items on a 5-point Likert response format with endpoints of *strongly disagree* to *strongly agree*. Higher scores indicated a stronger orientation to that type. Vandewalle reported internal reliability coefficients of .89 (learning), .85 (performance-prove) and .88 (performance-avoid), and test-retest reliability coefficients of  $> .40$  for a 3-month period, and demonstrated validity by using factor analysis and relationships with other scales. The internal reliability coefficients for the present sample were .76 (learning), .81 (performance-prove), and .84 (performance-avoid).

*Environmental Variables of Social Support.* Social support was measured using the 12-item Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988), which assessed support from three domains of family, friends and significant others (4 items per subscale). Sample items were, "My family really tries to help me" (family), "I can talk about my problems with my friends" (friends), and "There is a special person who is around when I

am in need” (significant others). Participants rated their agreement with the items on a 5-point Likert response format with endpoints of *strongly disagree* to *strongly agree*. Higher scores indicated greater support. Internal reliability coefficients have been reported as .91 (family), .89 (friends) and .91 (significant others; Canty-Mitchell, & Zimet, 2000), and a test-retest reliability of .85 was reported for the whole scale for a 2- to 3-month period (Zimet et al.). Validity was demonstrated by using factor analysis and examining correlations with other scales in community and university samples (Dahlem, Zimet, & Walker, 1991; Zimet, Powell, Farley, Werkman, & Berkoff, 1990). The internal reliability coefficients in the present study were .90 (family), .89 (friends) and .92 (significant others).

*Variables of Career Adaptability:* We operationalised career adaptability as planfulness, exploration and decision-making, as they “characterize the critical developmental dimensions of career adaptability” (Savickas, 1997, p. 256), and as self-regulation, which comes into play in times of change or when goals are being met (Karoly, 1993).

*Career Planning.* This was measured using the 8-item career thinking and planning dimension of Greenhaus’s (1971) Career Salience Scale, which was designed to assess an individual’s degree of vocationally relevant planning. A sample item was, “I enjoy thinking about and making plans about my future career”. The students were asked to indicate their level of agreement on a 5-point Likert scale with endpoints of *strongly disagree* to *strongly agree*. Higher scores represent more planning. Reported internal reliability for the career thinking and planning dimension was .72 (Zikic & Klehe, 2006). Zikic and Klehe provided evidence for the validity of the career planning and thinking dimension by finding positive correlations with job searching and job networking. The internal reliability for the present study was .74.

*Exploration of Career and Exploration of Self.* These two dimensions were measured using two subscales of Stumpf, Colarelli and Hartman’s (1983) Career Exploration Survey. A sample item from the 6-item career exploration subscale was, “In the last three months, I have sought information on specific areas of career interest”, and a sample item from the 5-item self

exploration subscale was, “In the last three months, I have reflected on how my past integrates with my future life and career”. Students responded on a 5-point Likert scale with endpoints of *never* and *very often*. Higher scores indicated more career and self exploration. Internal reliability coefficients have been reported previously as .88 (career exploration) and .84 (self exploration; Stumpf & Hartman, 1984; Zikic & Klehe, 2006). The two subscales have been shown to have independent factor structures (Werbel, 2000), and to be associated with career and self exploration outcomes of decision-making style (Blustein & Phillips, 1988), job interview behaviour (Stumpf et al., 1983) and planning attitudes (Hamer & Bruch, 1997). Internal reliabilities in the present study were .91 (career exploration) and .83 (self exploration).

*Decision-making.* This was measured using the 16-item indecision subscale of the Career Decision Scale (Osipow, 1987). This is a widely used measure of the reasons, nature and extent of career indecision (Betz, Klein, & Taylor, 1996). A sample item was, “Several careers have equal appeal to me. I’m having a difficult time deciding among them”. The students rated how true each statement was of them on a 5-point Likert scale with endpoints of *does not describe me* and *describes me well*. Higher scores indicate less career related indecision. Reliability coefficients around .80 have been consistently reported (Hartman, Fuqua, Blum, & Hartman, 1985). Predictive (Hartman et al., 1985), construct (Hartman, Fuqua, & Hartman, 1983) and concurrent validity (Hartman & Hartman, 1982) have been adequately demonstrated. The internal reliability coefficient for this study was .90.

*Self-regulation.* This was measured using the 21-item Self-regulation Questionnaire (Neal & Carey, 2005), which was chosen as it was designed to assess a generalised capacity to regulate behaviour to achieve a desired future result. Neal and Carey found evidence for two distinct factors, which they labeled as goal setting and impulse control. Sample items were, “Once I have a goal, I can usually plan how to reach it”, and “I usually think before I act”. Students rated how true each statement was for them on a 5-point Likert scale with endpoints of *strongly disagree* and *strongly agree*. Higher scores indicated a greater self-regulatory capacity.

Reliability for the scale has been reported as .92 (Carey, Neal, & Collins, 2004), and Neal and Carey reported evidence for convergent and discriminant validity. The internal reliability coefficient in the present study was .87.

*Outcome Variable of Career Concerns.* This was measured using the 20-item Career Concerns Scale (Westbrook et al., 1985), which was designed to measure the severity of perceived concerns, including financial, self-capacity, achievement capacity and opportunities associated with resolving a career choice. Sample items were, “I am not sure that I’ll be successful in today’s world”, and, “I am not sure that I can afford to get the education required for my career”. The students responded on a 5-point Likert scale with endpoints of *strongly disagree* to *strongly agree*. Higher scores indicated greater career concern. The authors reported an internal reliability for the scale of .81, and provided evidence for construct and predictive validity. The internal reliability coefficient for the present student sample was .93.

*Biographic Variables.* The students were also asked their age and gender.

### *Procedure*

The study was cross-sectional and survey-based. Students were recruited through announcements in lectures, notice boards and internal websites, and were offered the chance to enter a draw for a \$50 gift voucher for participating. The study was conducted under the auspices of the authors’ research ethics committee.

## Results

### *Data Management for Model Testing*

Bentler and Chou (1987) recommended a ratio of between 5:1 and 10:1 for participants to parameters estimated in a latent variable analysis. Including all items from all scales in the one analysis would have violated this assumption. Thus, we followed the recommendations of Landis, Beal, and Tesluck (2000) and created multi-item composites or item parcels to represent all scales. All scales were clearly unidimensional except for the 21-item self-regulation scale, which was best represented by three factors. Thus, we created two multi-item parcels to

represent all of the scales except for the 21-item self-regulation scale. The procedure for creating the two multi-item parcels was to subject the items for each scale individually to an exploratory factor analysis where a single-factor solution was specified. We paired the highest loading item with the lowest loading item and allocated these two items to the first composite. We then paired the second highest loading item with the second lowest loading item and allocated these to the second composite, and repeated this process until all items were exhausted. The two composites were formed by summing the items allocated to them. The three multi-item parcels for the self-regulation scale were based on the factor structure that we found.

### *Steps in Model testing*

The steps in the data analysis were (a) to assess whether the career adaptability variables (planning, career exploration, self exploration, decision-making, and self-regulation) loaded onto a super-ordinate factor of career adaptability (i.e., we first conducted a first-order confirmatory factor analysis testing whether the individual latent variables could be represented by their respective parcels; and second, we conducted a second-order confirmatory factor analysis testing whether a second-order latent variable of career adaptability could be represented by the individual career adaptability latent variables); (b) to assess the measurement model for the career adaptability variable with the other variables being tested (learning, performance-prove and performance-avoid goal-orientation, social support family, friends and significant-others, and career concerns); prior to (c) assessing the hypothesized structural model; and (d) testing whether career adaptability mediated the relationship between the person (goal-orientation), situation variables (social support) and career concerns.

All analyses were conducted using maximum likelihood estimation available within AMOS software. Model fit was assessed using the  $\chi^2$  statistic, Comparative Fit Index (CFI) and the Root Mean Square Error of Approximation (RMSEA; Byrne, 2001). The  $\chi^2$  and CFI indices compare the specified model to a model with complete independence. A non-significant  $\chi^2$  and CFI values  $> .90$  to  $.95$  reflect a good model fit. The RMSEA estimates the error due to the

approximate fit of the model. The less error the better, thus, RMSEA values  $< .05$  to  $.08$  are desirable. As the  $\chi^2$  statistic is sensitive to sample size (the more participants, the higher the  $\chi^2$  value), it has been recommended that it be used with caution and to also consider a  $\chi^2$  value two to three times greater than the degrees of freedom as acceptable (Carmines & McIver, 1981).

#### *Test of Career Adaptability Model*

First, we conducted a confirmatory factor analysis to test whether the multi-item composites represented the individual career adaptability variables as intended. This measurement model consisted of five latent variables (planning, career exploration, self exploration, decision-making, and self-regulation), each with multi-item composite indicators. The fit statistics for this analysis,  $\chi^2(33) = 47.43$ ,  $p = .05$ ,  $\chi^2/df = 1.44$ , CFI = .99, RMSEA = .042, demonstrated a good fit to the data, with all standardized regression weights significant ( $p < .001$ ), and ranging from .57 to .98. The second analysis tested a second-order confirmatory factor analysis to test whether these data could be represented by a super-ordinate factor, labeled career adaptability. This measurement model consisted of one latent variable (career adaptability) with five latent variable indicators (planning, career exploration, self exploration, decision-making, and self-regulation), each with two or three multi-item observed composites. The fit statistics,  $\chi^2(36) = 62.34$ ,  $p = .038$ ,  $\chi^2/df = 1.45$ , CFI = .99, RMSEA = .043, demonstrated a satisfactory fit to the data. All standardized regression weights were significant and ranged from .21 to .74.

#### *Predicting Career Concerns*

Prior to testing the hypothesized structural model, we again employed confirmatory factor analysis to test if all multi-item composites represented the latent variables as intended. This measurement model consisted of the five latent variables representing career adaptability (planning, self-exploration, career exploration, decision-making, and self-regulation), three latent variables representing goal-orientation (learning, performance-prove, and performance-avoid), three representing social support (family, friends, and significant others), and one representing career concerns. The twelve latent variables were allowed to freely covary. The fit

statistics,  $\chi^2(206) = 274.44$ ,  $p = .001$ ,  $\chi^2/df = 1.33$ , CFI = .98, RMSEA = .037, demonstrated an adequate fit to the data. Career concerns was significantly associated with self-exploration, career exploration, career planning, decision-making, self-regulation, learning goal-orientation, performance-avoid goal-orientation and social-support friends. See Table 1 for zero-order scale correlations and correlations among the latent variables.

Insert Table 1 about here

We tested the hypothesized structural model shown in Figure 1, with the variations that social support (friends, family, significant others) and goal-orientation (learning, performance-prove, performance-avoid) were represented by three latent variables. Age and gender had only weak correlations with career concerns ( $r = -.13$ ,  $-.13$ , respectively); thus, were not included. The model produced satisfactory fit statistics,  $\chi^2(270) = 385.45$ ,  $p < .001$ ,  $\chi^2/df = 1.43$ , CFI = .97, RMSEA = .042. Several non-significant pathways were progressively removed, and three additional pathways that were not hypothesized, were included. The final model (see Figure 2) generated a satisfactory fit to the data,  $\chi^2(292) = 365.52$ ,  $p = .002$ ,  $\chi^2/df = 1.25$ , CFI = .98, RMSEA = .032. Decision-making and self-exploration accounted for 69% of the variance in career concerns; learning and performance-prove goal-orientation, career exploration and planning accounted for 53% of the variance in self-regulation; learning and performance-prove goal-orientation accounted for 15% of decision-making; learning goal-orientation accounted for 14% of career exploration; social support significant others and career exploration accounted for 10% of career planning; and learning goal-orientation and social support significant others accounted for 15% of self-exploration.

Insert Figure 2 about here

### *Test of Mediation*

In the final structural model, two career adaptability variables (decision-making and self-exploration) directly predicted career concerns. We followed the recommendations of Shrout and Bolger (2002) to test whether these two variables mediated the relationship between

learning and performance-prove goal-orientation, social support significant others and career concerns. This involved testing two structural models, one that tested the direct effects only (i.e., learning and performance-prove goal-orientation and social support significant others predicting career concerns), and one that tested both the direct and indirect effects. We used the AMOS bootstrapping procedure to estimate standard errors and 95% bias-corrected confidence intervals for all direct and indirect estimates. Mediation occurs when the predictor is significantly associated with the outcome, the mediator is significantly associated with both the predictor and the outcome, and the 95% confidence intervals of the indirect effect via the mediator do not include zero.

When we tested the direct paths, there was a significant effect for learning ( $-.34, p < .001$ ) and performance-prove goal-orientation ( $.19, p = .013$ ), but not social support significant others ( $-.07, p = .29$ ), on career concerns. The fit statistics for this analysis were,  $\chi^2(29) = 27.00, p = .57, \chi^2/df = .93, CFI = .99, RMSEA = .01$ . This established that two of the three predictor variables met the first criterion for mediation. When we tested the direct and indirect effects together, there was a significant effect for decision-making ( $-.81, p < .001$ ) and self-exploration ( $-.12, p = .02$ ) on career concerns, and significant effects for learning goal-orientation on self-exploration ( $.34, p < .001$ ), and learning ( $.29, p < .001$ ) and performance-prove goal-orientation ( $-.27, p < .001$ ) on decision-making. This established that the two predictors were significantly associated with the mediators and that the two mediators were significantly associated with the outcome. The fit statistics here were,  $\chi^2(27) = 39.97, p = .052, \chi^2/df = 1.48, CFI = .99, RMSEA = .04$ . Indirect effects were based on 1000 bootstrapped samples and 95% bias-corrected confidence intervals (Shrout & Bolger, 2002). From Table 2, decision-making significantly mediated the relationship between performance-prove goal-orientation and career concerns ( $\beta = .22, p = .002; CIs = .10 \text{ to } .34$ ). The direct effect of performance-prove goal-orientation on career concerns when decision-making was included in the model was near-zero ( $-.03$ ), indicating near-full mediation for decision-making. Decision-making and self-exploration

significantly mediated the relationship between learning goal-orientation and career concerns ( $\beta = -.27, p = .001$ ; CIs =  $-.43$  to  $-.15$ ). The effect for self-exploration on career concerns was not significant with the bootstrapped sample ( $\beta = -.12$ ; CIs =  $-.23$  to  $.02$ ), and thus did not meet the criterion for mediation. The effect for learning goal-orientation on career concerns via decision-making alone was  $-.22$  ( $p = .003$ ; CIs =  $-.37$  to  $-.08$ ). Again, as the direct effect for learning goal-orientation on career concerns when decision-making was included in the model was near-zero ( $-.04$ ), the effect for decision-making was near-full mediation. These analyses indicated that decision-making mediated the relationship between learning and performance-prove goal-orientation and career concerns. Self-exploration was not a significant mediator.

Insert Table 2 about here

## Discussion

In an effort to extend the small body of research on this area, we tested a self-regulatory model of career adaptability, where career adaptability was viewed as the self-regulation of future career concerns in young adults. Career adaptability was operationalised as the four developmental dimensions (of exploration of environment, exploration of self, career planning and decision-making), proposed by Savickas (1997) as self-regulatory processes toward career adaptability, together with a general measure of self-regulation, which was included to assist in validating Savickas' four dimensions of career adaptability as self-regulation. Savickas (2005) suggested the best way to test adaptive strategies was by examining their effect during a salient occupational focus or transition. We achieved this by investigating how young adults, who are in a transition phase from school-to-work, self-regulated using the career adaptability strategies when asked to think about their future career plans. As self-regulation has been largely conceptualized as mediating between person, environment and behaviour (Pintrich, 2003), we viewed social support and goal-orientation as variables distal to career concerns, and self-regulation as a more proximal mediator between the distal variables and future career concerns.

First, this study confirmed Savickas' (1997) suggestion that the career adaptability variables of planning, exploration and decision-making and a general measure of self-regulation were inter-related and could be represented by a second-order factor, which we labeled career adaptability. These results suggest that when measuring career adaptability these domains need to be considered. The individual measures that we utilized to measure the career adaptability construct were quite long at 56 items and there is a need for shorter scales to be devised. Our operationalisation of self-regulation was based on an existing scale which tapped impulse control capacities and goal-setting; both important aspects of self-regulation. However, other self-regulatory strategies need to be examined. Those likely to also be important to career adaptability include emotion control (Porath & Bateman, 2006), motivation control (Wanberg, Kanfer, & Rotundo, 1999), feedback seeking (Callister, Kramer, & Turban, 1999) and social skills (Baron & Markman, 2003).

Second, we tested the hypothesized structural model predicting career concerns (Figure 1). This model accounted for a substantial portion of variance (69%), with decision-making having the major effect and self-exploration a lesser effect. For these first-year university students, elevated career concerns were associated with poorer decision-making and lower levels of self-exploration. Career decision-making and self exploration are both important career developmental tasks (Savickas, 1997; Whiston & Keller, 2004; Zikic & Klehe, 2006). Most career development theories are based on the notion that individuals will explore their environment, have insight into their own behaviours, values and affect, and use this information and insights to make decisions about choosing work and a career (e.g., Holland, 1985; Super, 1994). Previous studies have shown that decision-making difficulties are pervasive in adolescent populations (Kelly & Lee, 2002) and are of concern to the adolescents (Busacca & Wester, 2006; Code & Bernes, 2006). In one study, for example, 60% of young people did not know where to find the information needed to be able to make a career decision (Julien, 1999). Poor self-exploratory processes are likely also to lead to negative outcomes for the individual,

such as not being able to settle on a career, or impulsively choosing a career. Low levels of exploration have been linked to delayed vocational identity formation (Robitschek & Cook, 1999), having unrealistic career expectations (Stumpf & Hartman, 1984), and difficulties settling into a career (Jepson & Dickson, 2003). As noted by Porath and Bateman (2006), self management strategies are of most value when they improve individual effectiveness. It seems likely, from the current study, that improving the career adaptability skills of decision-making and self-exploration will reduce the career concerns of young adults.

Decision-making mediated the relationship between goal-orientation and career concerns. Holding a higher learning orientation was associated with more decision-making; whereas holding a higher performance-prove orientation was associated with poorer decision-making. Previous research has typically found positive effects for a learning orientation (Elliot & Harackiewicz, 1996; Porath & Bateman, 2006). This was confirmed in the present study where reduced career concerns were associated with an orientation focused on increasing competence and self-improvement, and characterised by increasing effort, persistence and gaining support in the face of difficulties. Some, but not all, previous studies have identified advantages associated with a performance-prove orientation, which is typified by wanting to demonstrate competence and gain favourable judgments from others. This was not the case in the present study, where a higher performance-prove orientation was associated with poorer outcomes. It has been suggested that a performance-prove orientation may be more suited to situations where the goals are short-term (Elliot & McGregor, 1999) and the tasks are routine and can be mastered by rehearsal (Davis, Carson, Ammeter, & Treadway, 2005). This does not reflect managing career concerns, which has a long-term focus, is not routine, and is conducted in the context where the individual is constantly being evaluated by peers and family. Overall, these results highlight the importance of the goal-orientation general expectancy variable for young adults when managing their career direction.

This study contributed to the career literature by demonstrating (a) that Savickas' (1997) operationalisation of career adaptability could be represented by a single higher order factor, (b) that Savickas' career adaptability variables were related to a general measure of self-regulation, and (c) that career adaptability did mediate the relationship between distal person and environmental variables and the important variable of career concerns. The findings of the study should inform the design of interventions to promote the development of a learning goal-orientation and the use of self-regulation strategies with young adults when they think about careers. Others have suggested that a learning goal-orientation can be developed and that self-regulation can be increased (Baumeister et al., 2006; Dweck, 2006), thus, increasing an individual's capacity for adaptability.

Finally, while we tested a plausible career adaptability model, the study relied on cross-sectional self-report data, which limited our capacity to make causal statements. Future research needs to test the effects of self-regulatory strategies longitudinally and to draw on data from other than individual sources. Other self-regulatory strategies, such as feedback-seeking, social competence (Porath & Bateman, 2006) and effort (VandeWalle, Brown, Cron, & Slocum, 1999) also need to be incorporated. Testing which self-regulatory strategies were best suited to which developmental stages would also be useful. Research investigating cultural and contextual differences would extend current knowledge in regard to both self-regulation and career adaptability.

#### References

- Albion, M. J. (2000). Career decision-making difficulties of adolescent boys and girls. *Australian Journal of Career Development, 9*, 14-19.
- Amir, T., & Gati, I. (2006). Facets of career decision-making difficulties. *British Journal of Guidance & Counselling, 34*, 483-503.
- Bandura, A. (1986). *Social foundations of thought and action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall.

- Baron, R.A., & Markman, G. D. (2003). Beyond social capital: The role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing, 18*, 41-60.
- Baumeister, R. F., Gailliot, M., DeWall, C. N., & Oaten, M. (2006). Self-regulation and personality: How interventions increase regulatory success and how depletion moderates the effects of traits on behavior. *Journal of Personality, 74*, 1773-1802.
- Baumeister, R. F., & Vohs, K. D. (2003). Self-regulation and the executive function of the self. In M. R. Leary & J. P. Tangney (Eds.), *Handbook of self and identity* (pp. 197-217). New York: Guilford.
- Baumeister, R. F., & Vohs, K. D. (2007). Self-regulation, ego depletion, and motivation. *Social and Personality Psychology Compass, 1*, 115-128.
- Bentler, P. M., & Chou, C. (1987). Practical issues in structural modeling. *Sociological Methods and Research, 16*, 78-117.
- Betz, N. E., Klein, K. L., & Taylor, K. M. (1996). Evaluation of a short form of the Career Decision-Making Self-Efficacy Scale. *Journal of Career Assessment, 4*, 47-57.
- Blustein, D. L. (1997). A context-rich perspective of career exploration across the life roles. *The Career Development Quarterly, 45*, 260-274.
- Blustein, D. L., & Phillips, S. D. (1988). Individual and contextual factors in career exploration. *Journal of Vocational Behavior, 33*, 203-216.
- Boekaerts, M., Maes, S., & Karoly, P. (2005). Self-regulation across domains of applied psychology: Is there an emerging consensus? *Applied Psychology: An International Review, 54*, 149-154.
- Busacca, L., & Wester, K. L. (2006). Career concerns of master's-level community and school counselor trainees. *Career Development Quarterly, 55*, 179-190.
- Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Lawrence Erlbaum Associates.

- Cairo, P. C., Kritis, K. J., & Myers, R. M. (1996). Career assessment and the Adult Career Concerns Inventory. *Journal of Career Assessment, 4*, 189-204.
- Callister, R. R., Kramer, M. W., & Turban, D. B. (1999). Feedback seeking following career transitions. *Academy of Management Journal, 42*, 429-438.
- Canty-Mitchell, J., & Zimet, G. D. (2000). Psychometric properties of the Multidimensional Scale of Perceived Social Support in urban adolescents. *American Journal of Community Psychology, 28*, 391-400.
- Carey, K. B., Neal, D. J., & Collins, S. E. (2004). A psychometric analysis of the Self-Regulation Questionnaire. *Addictive Behaviors, 29*, 253-260.
- Carmines, E. G., & McIver, J. P. (1981). Analyzing models with unobserved variables: Analysis of covariance structures. In G.W. Bohrnstedt and E.F. Borgatta (Eds), *Social measurement: Current issues*. Newbury Park, CA: Sage.
- Code, M., & Bernes, K. (2006). Adolescents' perceptions of career concerns. *The National Consultation on Career Development (NATCON)*. Retrieved May 25, 2008, from <http://www.natcon.org/natcon/papers/natconpapers2006e9.pdf>
- Cutrona, C. E. (1996). *Social support in couples: Marriage as a resource in times of stress*. Thousand Oaks: Sage Publications.
- Dahlem, N. W., Zimet, G. D., & Walker, R. R. (1991). The Multidimensional Scale of Perceived Social Support: A confirmation study. *Journal of Clinical Psychology, 47*, 756-761.
- Davis, W., Carson, C., Ammeter, A., & Treadway, D. (2005). The interactive effects of goal orientation and feedback specificity on task performance. *Human Performance, 18*, 409-426.
- Duffy, R. D., & Blustein, D. L. (2005). The relationship between spirituality, religiousness, and career adaptability. *Journal of Vocational Behavior, 67*, 429-440.
- Dweck, C. S. (1986). Motivational processes affecting learning. *American Psychologist, 41*, 1040-1048.

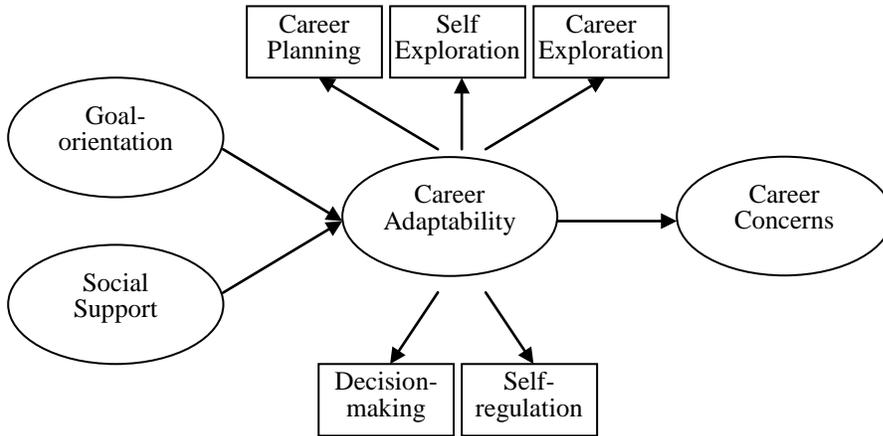
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York: Random House.
- Ebberwein, C. A., Krieshok, T. S., Ulven, J. C., & Prosser, E. C. (2004). Voices in transition: Lessons on career adaptability. *The Career Development Quarterly*, *52*, 292-308.
- Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, *70*, 461-475.
- Elliot, A. J., & McGregor, H. A. (1999). Test anxiety and the hierarchical model of approach and avoidance achievement motivation. *Journal of Personality and Social Psychology*, *76*, 628-644.
- Gati, I., Kleiman, T., Saka, N., & Zakai, A. (2003). Perceived benefits of using an internet-based interactive career planning system. *Journal of Vocational Behavior*, *62*, 272-286.
- Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology*, *85*, 541-553.
- Greenhaus, J. H. (1971). An investigation of the role of career salience in vocational behavior. *Journal of Vocational Behavior*, *1*, 209-216.
- Hall, D. T. (2002). *Careers in and out of organizations*. Thousand Oaks, CA: Sage.
- Hamer, R. J., & Bruch, M. A. (1997). Personality factors and inhibited career development: Testing the unique contribution of shyness. *Journal of Vocational Behavior*, *50*, 382-340.
- Hartman, B., Fuqua, D., Blum, C., & Hartman, P. (1985). A study of the predictive validity of the Career Decision Scale in identifying longitudinal patterns of career indecision. *Journal of Vocational Behavior*, *27*, 202-209.
- Hartman, B., Fuqua, D., & Hartman, P. (1983). The construct validity of the Career Decision Scale administered to high school students. *Vocational Guidance Quarterly*, *31*, 250-258.
- Hartman, B., & Hartman, P. (1982). The concurrent and predictive validity of the Career Decision Scale adapted for high school students. *Journal of Vocational Behavior*, *20*, 244-252.

- Holland, J. S. (1985). *Making vocational choices: A theory of vocational personalities and work environments*. Englewood Cliffs, NJ: Prentice-Hall.
- Jepsen, D.A., & Dickson, G. L. (2003). Continuity in life-span career development: Career exploration as a precursor to career establishment. *The Career Development Quarterly*, *51*, 217-233.
- Julien, H. E. (1999). Barriers to adolescents' information seeking for career decision making. *The American Society for Information Science*, *50*, 38-48.
- Karoly, P. (1993). Mechanisms of self-regulation: A systems view. *Annual Review of Psychology*, *44*, 23-52.
- Kelly, K. R., & Lee, W. C. (2002). Mapping the domain of career decision problems. *Journal of Vocational Behaviour*, *61*, 302-326.
- Kenny, M. E., & Bledsoe, M. (2005). Contributions of the relational context to career adaptability among urban adolescents. *Journal of Vocational Behavior*, *66*, 257-272.
- Kracke, B. (2002). The role of personality, parents and peers in adolescents. *Journal of Adolescents*, *25*, 19-30.
- Landis, R. S., Beal, D. J., & Tesluck, P. E. (2000). A comparison of approaches to forming composite measures in structural equation models. *Organizational Research Methods*, *3*, 186-207.
- McArdle, S., Waters, L., Briscoe, J. P., & Hall, D. T. (2007). Employability during unemployment: Adaptability, career identity and human and social capital. *Journal of Vocational Behavior*, *71*, 247-264.
- Merriam-Webster Online Dictionary (2008). <http://www.merriam-webster.com/dictionary/>.
- Mortimer, J. T., Zimmer-Gembeck, M. J., Holmes, M., & Shanahan, M. J. (2002). The process of occupational decision making: Patterns during the transition to adulthood. *Journal of Vocational Behavior*, *61*, 439-465.

- Neal, D. J., & Carey, K. B. (2005). A follow-up psychometric analysis of the Self-Regulation Questionnaire. *Psychology of Addictive Behaviors, 19*, 414-422.
- O'Connell, D. J., McNeely, E., & Hall, D. T. (2008). Unpacking personal adaptability at work. *Journal of Leadership and Organizational Studies, 14*, 248-259.
- Osipow, S. H. (1987). *Career Decision Scale Manual*. Odessa, FL: Psychological Service Assessment Resources.
- Phillips, S. D., & Blustein, D. L. (1994). Readiness for career choices: Planning exploring and deciding. *The Career Development Quarterly, 43*, 63-71.
- Pintrich, P. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology, 95*, 667-686.
- Porath, C. L., & Bateman, T. S. (2006). Self-regulation: From goal orientation to job performance. *Journal of Applied Psychology, 91*, 185-192.
- Robitschek, C., & Cook, S.W. (1999). The influence of personal growth initiative and coping styles on career exploration and vocational identity. *Journal of Vocational Behavior, 54*, 127-141.
- Rottinghaus, P. J., Day, S. X., & Borgen, F. H. (2005). The Career Futures Inventory: A measure of career-related adaptability and optimism. *Journal of Career Assessment, 13*, 3-24.
- Savickas, M. L. (1994). Measuring career development: Current status and future directions. *The Career Development Quarterly, 43*, 54-62.
- Savickas, M. L. (1997). Career adaptability: An integrative construct for Life-Span, Life-Space Theory. *The Career Development Quarterly, 45*, 247-259.
- Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42-70). Hoboken, NJ: John Wiley.

- Savickas, M. L., Passen, A. J., & Jarjoura, D. G. (1988). Career concern and coping as indicators of adult vocational development. *Journal of Vocational Behavior, 33*, 82-98.
- Seibert, S., Kraimer, M., & Liden, R. (2001). A social capital theory of career success. *Academy of Management Journal, 44*, 219-239.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422-445.
- Steinberg, L., Dornbusch, S. M., & Brown, B. B. (1992). Ethnic differences in adolescent achievement: An ecological perspective. *American Psychologist, 47*, 723-729.
- Stumpf, S. A., Colarelli, S. M., & Hartman, K. (1983). Development of the Career Exploration Survey (CES). *Journal of Vocational Behavior, 22*, 191-226.
- Stumpf, S. A., & Hartman, K. (1984). Individual exploration to organizational commitment of withdrawal. *Academy of Management Journal, 27*, 308-329.
- Super, D. E. (1994). A life span, life space perspective on convergence. In M. L. Savickas & R. W. Lent (Eds.), *Convergence in career development theories* (pp. 63-74). Palo Alto, CA: Consulting Psychologists Press Inc.
- Super, D. E., & Knasel, E. G. (1981). Career development in adulthood: Some theoretical problems and a possible solution *British Journal of Guidance & Counselling, 9*, 194-201.
- Super, D. E., Savickas, M. L., & Super, C. (1996). The life-span, life-space approach to careers. In D. Brown, L. Brooks, & Associates (Eds.). *Career choice and development (3rd Ed.)* (pp. 121-178). San Francisco: Jossey Bass.
- VandeWalle, D. M. (1997). Development and validation of a work domain goal orientation instrument. *Educational and Psychological Measurement, 57*, 995-1015.
- VandeWalle, D., Cron, W. L., & Slocum, J. W. (2001). The role of goal orientation following performance feedback. *Journal of Applied Psychology, 86*, 629-640.

- Viswesvaran, C., Sanchez, J. L., & Fisher, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior, 54*, 314-334.
- Wanberg, C., Kanfer, R., & Rotundo, M. (1999). Unemployed individuals: Motives, job-search competencies, and job-search constraints as predictors of job seeking and reemployment. *Journal of Applied Psychology, 84*, 897-910.
- Weisenberg, F., & Aghakhani, A. (2007). An exploration of graduate students' career transition experiences. *Canadian Journal of Counselling 41*, 107-123.
- Werbelt, J. D. (2000). Relationships among career exploration, job search intensity and job search effectiveness in graduating college students. *Journal of Vocational Behavior, 57*, 379-394.
- Westbrook, B. W., Sanford, E. E., O'Neal, P., Horne, D. F., Fleenor, J., & Garren, R. (1985). Predictive and construct validity of six experimental measures of career maturity. *Journal of Vocational Behavior, 27*, 338-355.
- Whiston, S. C., & Keller, B. K. (2004). The influences of the family of origin on career development: A review and analysis. *The Counseling Psychologist, 32*, 493-568.
- Zikic, J., & Klehe, U. (2006). Job loss as a blessing in disguise: The role of career exploration and career planning in predicting reemployment quality. *Journal of Vocational Behavior, 69*, 391-409.
- Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*, 30-41.
- Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 55*, 610-617.



*Figure 1.* Hypothesized model of career adaptability (career planning, self exploration, career exploration, decision-making and self-regulation) mediating relationships between goal-orientation, social support and career concerns

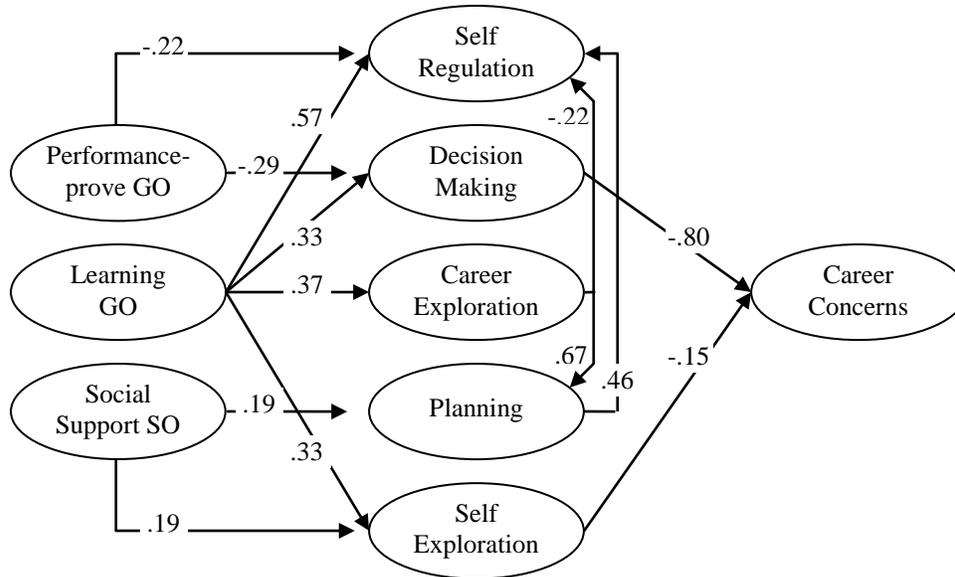


Figure 2. Final model predicting Career Concerns, with standardized regression weights reported.

Table 1

*Means, Standard Deviations, Zero-Order Correlations (above diagonal), and Correlations among Latent Variables (below diagonal); (N = 245)*

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Career concerns	52.18	14.49	-	-.25***	.10	.25***	-.06	-.07	-.15*	-.27***	-.21***	-.22**	-.73***	-.49***
2. Learning goal-orientation	18.57	2.80	-.26***	-	.18**	-.31***	.03	.08	.12	.14*	.32***	.28***	.17**	.41***
3. Performance-prove goal-orientation	14.15	3.10	.11	.22**	-	.27***	-.00	-.07	-.07	.10	.06	.09	-.17**	-.07
4. Performance-avoid goal-orientation	10.71	3.11	.25***	-.37***	.32***	-	-.05	-.08	-.11	-.10	-.13*	-.07	-.23***	-.26***
5. Social support – Significant others	16.91	3.27	-.05	.01	-.00	-.10	-	.28***	.43***	.17**	.11	.19**	.08	.09
6. Social support – Family	16.45	3.34	-.09	.11	-.09	-.10	.30***	-	.37***	.06	.05	.14*	.05	.06
7. Social support – Friends	16.36	2.96	-.16*	.14	-.09	-.13	.45***	.41***	-	.11	.11	.19**	.14*	.11
8. Career planning	29.33	4.57	-.45***	.23**	.07	-.23**	.24**	.12	.15*	-	.32***	.23***	.30***	.34***
9. Career exploration	17.94	5.54	-.20**	.38***	.07	-.13	.11	.05	.11	.39***	-	.35***	.12	.19**
10. Self exploration	18.39	3.38	-.26***	.32***	.10	-.07	.23**	.17*	.23**	.32***	.42***	-	.12	.20**
11. Career decision-making	61.56	11.30	-.82***	.22**	-.21**	-.29***	.07	.07	.16*	.48***	.12	.15*	-	.44***
12. Self-regulation	75.01	10.05	-.46***	.54***	-.07	-.33***	.06	.07	.10	.47***	.17*	.26***	.49***	-

\* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

Table 2

*Path estimates, SEs and 95% CIs for Learning Goal-orientation, Performance-prove Goal-orientation and Social Support Significant Others predicting Career Concerns with and without mediators; N = 245*

Model paths	B <sup>a</sup>	$\beta^a$	SE <sup>b</sup>	Lower <sup>b</sup> 95%CI	Upper <sup>b</sup> 95%CI
<u>Direct effects model</u>					
Learning goal-orientation → career concerns* **	-2.34	-.34	.08	-.50	-.19
Performance-prove goal-orientation → career concerns**	.91	.19	.07	.05	.35
Social support significant others → career concerns <sup>ns</sup>	-.65	-.07	.06	-.18	.06
<u>Indirect effects model</u>					
<i>Direct effects</i>					
Performance-prove goal-orientation → decision-making***	-1.04	-.27	.07	-.40	-.13
Learning goal-orientation → decision-making***	1.53	.29	.09	.13	.47
Learning goal-orientation → self-exploration***	.44	.34	.09	.15	.49
Decision-making → career concerns***	-.94	-.81	.04	-.88	-.71
Self-exploration → career concerns*	-.56	-.12	.06	-.23	.02
Performance-prove goal-orientation → career concerns <sup>ns</sup>	-.15	-.03	.05	-.13	.08
Learning goal-orientation → career concerns <sup>ns</sup>	-.24	-.04	.06	-.14	.11
<i>Indirect effects</i>					
Performance-prove goal-orientation → career concerns**	.98	.22	.06	.10	.34
Learning goal-orientation → career concerns**	-1.68	-.27	.08	-.43	-.15
Learning goal-orientation → career concerns <sup>c</sup> **	-1.26	-.22	.07	-.37	-.08

*Note:* a = Maximum likelihood estimates, b = 1000 Bootstrapped samples, c = effect of learning goal-orientation on career concerns via decision-making only; CI = Confidence Interval; \* =  $p < .05$ , \*\* =  $p < .01$ , \*\*\* =  $p < .001$ , ns = non-significant