Assessing the relationship of career goal autonomy and intrinsic content on vocational and general well-being

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ASSESSING THE RELATIONSHIP OF CAREER GOAL AUTONOMY AND INTRINSIC CONTENT ON VOCATIONAL AND GENERAL WELL-BEING

by

Andrew E. Kerlow-Myers

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This year I will celebrate my PhD, my 10th wedding anniversary, and my fourth child’s second birthday. Without the unflagging dedication of my wife, Sarah, these milestones would not be possible. Sarah has worked at least as hard as I have since I began graduate school 6 years ago, and words cannot express my gratitude.

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Abstract

Self-Determination Theory (SDT; Ryan & Deci, 2000) argues that if the goals pursued in a life domain are not congruent with the needs of autonomy, competence, and relatedness, well-being in that domain will be negatively impacted or at best, stagnant. Goals are an important part of career interventions (Lent, Brown, & Hackett, 1994), yet no research to date has assessed the importance of need congruent goals in the career domain. The present study assessed the effect of career goal autonomy (CGA) and career goal intrinsic content (CGIC) on well-being in the career domain (vocational well-being; VWB) and two components of global well-being: Positive well-being (PWB) and negative well-being (NWB). Participants were full time college juniors and seniors between the ages of 18 and 25.

In the proposed model, the effects of CGA and CGIC on PWB and NWB were hypothesized to be mediated through VWB. This model was assessed using structural equation modeling (SEM), and was found to have an adequate fit to the data. Hypotheses concerning CGA were supported, while hypotheses concerning CGIC were rejected. The effect of CGA on PWB ($r = .57$) was partially mediated by VWB, and the effect of CGA on NWB ($r = -.33$) was fully mediated by VWB. CGIC did not have bivariate relationships with VWB, PWB, or NWB. In addition, although CGIC was predicted to be negatively related to NWB, CGIC had a positive direct effect on NWB ($r = .13$). Implications for theory, research, and practice are discussed.
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Chapter 1

Statement of the Problem

In recent years, goal progress has received attention as an important constituent of well-being (e.g., Eccles & Wigfield, 2002; Lent 2004). Many theories of goal setting, drawing from value expectancy theory (Vroom, 1964), hold that progress on personal goals leads to greater well-being (e.g., Lent et al., 2005; Locke & Latham, 1990). Research based on self-determination theory (SDT; Ryan & Deci 2000), however, has provided evidence that the pursuit and achievement of some types of personal goals may not increase well-being, suggesting that the motivation and content of personal goals are important. Given the significant theoretical and empirical links between goal progress and well-being (e.g., Roberts, O'Donnell, & Robins, 2004), and that progress on some types of goals may not promote well-being (Sheldon & Kasser, 1998), it is important to more fully explore SDT's predictions about the relationship between goals and well-being. In particular, the relationships between goal motives, content and well-being may be especially relevant in the context of college students' career goals, however little research has explored these relationships. The purpose of this study was to explore the degree to which the motives and contents of college students' career goals were related to well-being.

SDT (Ryan & Deci, 2000) is a humanistic theory of motivation and well-being that has significant implications for goal setting. Ryan and Deci (2001) define general well-being as “the degree to which a person is fully functioning” (p. 141). SDT's explanation of how individuals enhance or deplete their well-being is closely tied to the concept of psychological needs. Ryan and Deci (2000) hold that a psychological need is
“an energizing state that, if satisfied, conduces toward health and well-being but, if not satisfied, contributes to pathology and ill-being” (p. 74). SDT posits three psychological needs: autonomy, competence, and relatedness. Autonomy is defined as experiencing one's behavior as self-determined; competence involves feeling that one is able to affect a valued outcome; and relatedness refers to feeling interpersonally connected with and cared for by others (Deci & Ryan, 2000). Self-determination theorists hold that goals, or “personalized choices that individuals make as they direct their lives toward certain outcomes and away from others” (Emmons & Kaiser, 1996, p. 81), enhance well-being only to the extent that goal pursuit and attainment fulfill these needs. Therefore, the pursuit and attainment of personal goals that do not enhance an individual's sense of autonomy, competence, or relatedness will not increase well-being, even if these goals are rated as important by the individual (Deci & Ryan, 2000).

SDT based research has focused on two goal properties that serve to indicate the extent to which a goal is congruent with psychological need fulfillment: goal autonomy and goal intrinsic content (Kasser & Ryan, 1996; Ryan & Deci, 2000). Goal autonomy refers to the degree to which a goal is experienced as self-determined. Goals emanating from values or interests are considered more self-determined, while goals emanating from environmental constraints or contingent self-worth are considered less self-determined (Sheldon & Kasser, 1995). Goal intrinsic content refers to the degree to which the aims of a goal are more intrinsic (e.g., self-growth, helping the community, or forming close relationships) rather than extrinsic (e.g., achieving money, fame, or an attractive image; Kasser & Ryan, 1996).

Because college is a critical developmental period for setting goals across
multiple life domains (Arnett, 2000; Roberts et al., 2004), much of the research on goal setting has focused on the general well-being outcomes of college students’ life goals. Research on college students’ life goals has found that life goal autonomy and life goal intrinsic content are each positively related to general well-being at the time the goals were assessed, and were also related to changes in well-being over the following year (Sheldon, Ryan, Deci, & Kasser, 2004). Additionally, research with college students has shown that the autonomy and intrinsic content of life goals moderate the effect of goal progress on general well-being, such that progress on more autonomous or intrinsic life goals leads to increased general well-being, whereas progress on less autonomous or intrinsic life goals does not (Sheldon & Kasser, 1998).

This line of research has led authors writing from a SDT perspective to emphasize the importance of the autonomy and content of college students’ life goals for their current and future well-being (e.g., Niemiec et al., 2009; Sheldon et al., 2004). College students' life goals, however, encompass goals in a wide variety of domains. For example, Lent et al. (2005) identified five domains of goals that fall under the heading of life goals: school, family, social life and friends, work and income, and romance. Although it has been established that college students' life goal autonomy and intrinsic content are related to general well-being, the extent to which these findings generalize to predicting well-being outcomes for goals in these specific domains is unknown. It could be, for example, that goal autonomy and intrinsic content are very important in the association between school goals and well-being, but not important for romantic goals. Therefore, more research needs to be done to test the predictions of SDT on goals in these specific domains.
Arguably, one of the critical developmental tasks for college students is to identify and ultimately pursue a potential career path. Thus, the career domain is one of the most relevant domains in which to explore the relationship between college students' goals and well-being. Donald Super (1992) defined career as “the sequence of positions, jobs, and occupations that a person occupies and pursues during the course of a life of preparing to work, working, and retiring from work” (p. 422). College students' goals in the career domain, then, are those goals associated with choosing, and preparing for, a field of work. Because of the differing lifestyles associated with different fields of work, and because adults spend more of their time working than engaged in any other activity, Hackett and Betz (1995) argue that the choice of a field of work may be one of the most important choices adults make. Research supports this assertion, demonstrating that work-related goals (Lent et al., 2005) and work satisfaction (Heller, Watson & Ilies, 2004) are important constituents of general well-being. Therefore, it is important to test SDT's predictions concerning the relationship between goal autonomy and intrinsic content and well-being in the career domain.

Although career goals feature prominently in theories of career counseling (e.g., Lent, Brown & Hackett, 1994, Super, 1990) and in theories of well-being (Lent et al., 2005), there have not been any explorations to date of the associations between the extent to which career goals are congruent with psychological needs and well-being. Because of the importance of career goals to well-being (Lent & Brown, 2006), and the possibility raised by SDT that the pursuit and achievement of some types of goals may not lead to well-being (Sheldon et al., 2004), the purpose of this study was to test the predictions of SDT with career goals. This was accomplished by assessing the degree to which career
goal autonomy and career goal intrinsic content were associated with career-specific (i.e., vocational) and general well-being. The model developed to test the hypothesized relationship between career goal autonomy, career goal intrinsic content, vocational well-being and general well-being appears in Figure 1.

Figure 1

*Hypothesized Model*

In this model, the full scope of general well-being is captured using two related latent constructs: positive well-being, encompassing positive factors indicative of full functioning, and negative well-being, encompassing negative factors indicative of dysfunction. Although positive well-being and negative well-being are related, recent theoretical and empirical investigations have supported viewing positive well-being and negative well-being as two distinct constructs (e.g., Karademas, 2007). Additionally, splitting general well-being into two constructs allowed this test of SDT to assess the effects of career goal autonomy and career goal intrinsic content on positive well-being and negative well-being independently, generating more specific results. For example,
Neimiec et al. (2009) employed a similar strategy of splitting general well-being, finding that the attainment of goals less aligned with psychological needs was not related to positive well-being, but was positively related to negative well-being.

The model tested in this study also proposed that the effect of career goal autonomy and career goal intrinsic content on general well-being (i.e., positive well-being and negative well-being) was mediated by vocational well-being, defined as the degree to which a person is fully functioning in the vocational domain. As was discussed above, previous research based on SDT has related the autonomy and intrinsic content of life goals to general well-being (e.g., Sheldon et al., 2004), but has not investigated the process by which these goal properties in specific domains are related to well-being. Lent (2004), however, hypothesized that the effect of domain level goals on general well-being would be mediated through well-being in that domain. The proposed model adopted Lent's approach, hypothesizing that the effects of career goals on general well-being is mediated through vocational well-being. In practice, the model predicts that college students with non-autonomous or non-intrinsic career goals (such as feeling forced to choose a career that has a high income to win the approval of one's parents) are likely to have lower vocational functioning (e.g., more career indecision and an underdeveloped vocational identity), which will in turn cause them to have lower general functioning (e.g., less subjective vitality and more depression).

In summary, SDT argues that the pursuit and attainment of goals that are not congruent with the needs of autonomy, competence, and relatedness are not likely to increase, and may even decrease, well-being (Ryan & Deci 2000). These predictions have been supported in research investigating the general well-being consequences of life
goals (e.g., Sheldon et al. 2004) but have not been tested with goals in specific domains. Because of the importance of work-related goals to general well-being (Lent & Brown, 2006), this study tested SDT’s predictions with career goals among college juniors and seniors, using the model displayed in Figure 1. It was hypothesized that career goal autonomy and career goal intrinsic content would each be positively related to positive well-being, and negatively related to negative well-being. It was also hypothesized that vocational well-being would partially mediate the relationships between the career goal variables (i.e., career goal autonomy and intrinsic content) and general well-being (i.e., positive well-being and negative well-being).

**Significance of the Study**

This study had a number of theoretical, empirical, and practical implications. This study was one of a handful of studies to use SDT to explore the career domain (e.g., Blustein, 1988; Guay, Senécal, Gauthier, & Fernet, 2003), and was the first to explicitly test the predictions of SDT on goals in the career domain. Additionally, the study was also one of three studies that assessed the independent effects of goal autonomy and intrinsic content on (any type of) well-being (the others being Sheldon et al., 2004 and Sheldon & Kasser, 1998). Finally, the study was one of a few scholarly works (e.g. Robbins & Kliwer, 2000) to explicitly discuss vocational adjustment as a type of well-being and to explicitly relate vocational well-being to other types of well-being.

One unique contribution of the study was that it estimated the relationship of both goal autonomy and intrinsic content to well-being using structural equation modeling (SEM). This statistical model allowed the correlation between goal autonomy and well-being and between goal intrinsic content and well-being to be assessed with higher
reliability (Muthen, 1992). This is an important component of the study, as the effects of goal intrinsic content have been criticized due to small effect sizes (Nickerson, Schwarz, Diener, & Kahneman, 2003). Additionally, this study built on previous methodologies used to measure goal autonomy and intrinsic content (e.g., Sheldon et al., 2004) by applying them to measure these attributes of goals in a specific domain.

Lent (2004) noted that the primary practical implication of understanding goal properties is so that psychological interventions can help individuals develop more functional goals. This study was the first step towards exploring the possibility that some types of career goals may not lead to well-being. In this case, career counselors would be advised to be aware of the degree of autonomy and intrinsic content of their clients' career goals, and to pay special attention to clients particularly at risk, for example, clients who appear unaware of their interests or values, but who are nonetheless driven to pursue high-paying or highly prestigious careers.
Chapter 2

Literature Review

Previous research with college students based on SDT has demonstrated that pursuing and achieving life goals that have more autonomy or intrinsic content leads to increased general well-being (GWB), while pursuing and achieving life goals that have less autonomy or intrinsic content leads to stagnant or reduced GWB (Neimiec et al., 2009; Sheldon & Elliot, 1999; Sheldon et al., 2004). Career goals are also important for college students’ well-being (Arnett, 2000; Lent et al., 2005), and more empirical and theoretical work needs to be done exploring the specific properties of career goals that influence well-being. The study sought to test SDT in the career domain by assessing the degree to which career goal autonomy and career goal intrinsic content drive GWB. Based on Lent's (2004) hypothesis that the effect of domain level goal progress on GWB is mediated by domain level well-being, it was hypothesized that the effect of career goal autonomy and career goal intrinsic content on GWB would be mediated by vocational well-being (VWB).

Well-being

SDT defines GWB broadly as “the degree to which a person is fully functioning” (Ryan & Deci, 2001, p. 147), and variables that have served as indicators of GWB include: life satisfaction, pleasure, the absence of negative affect, subjective vitality, self-actualization, social productivity, and the absence of depression and anxiety (Kasser & Ryan, 1993; Sheldon, Arndt, & Houser-Marko, 2003). In line with other humanistic theories (e.g., Maslow, 1954; Rogers, 1963), SDT’s explanation of how individuals enhance or deplete their well-being is closely tied to the concept of psychological needs.
SDT, through a largely inductive program of research beginning with the work of Deci (1971), postulates that there are three psychological human needs: autonomy, competence, and relatedness. SDT holds that the fulfillment of each of these needs plays a necessary role in the development of well-being (Deci & Ryan, 2000), and that other factors (such as a lack of financial means) affect well-being only to the extent that those other factors help or hinder the fulfillment of an individual’s needs. For example, social scientists have known for some time that income is strongly related to well-being at extreme levels of poverty, but more weakly related to well-being among more affluent individuals (Freedman, 1978). A SDT based interpretation of this phenomenon is that for truly impoverished individuals, increased income influences the ability to fulfill psychological needs (especially autonomy), but once individuals have the level of income necessary to attain some basic control over their life circumstances, additional income tends to be spent on activities less associated with need fulfillment, such as purchasing consumer products (Kasser, 2002). In other words, need fulfillment drives well-being, not income.

The link between the fulfillment of SDT’s psychological needs and GWB has received considerable empirical support. A number of longitudinal studies have related parental support of children’s autonomy (see Joussemet, Landry, & Koestner, 2008), relatedness (e.g., Bohlin, Hagekull, & Rydell, 2000), and competence (e.g., Caprara, Steca, Gerbino, Paciello, & Vecchio, 2006) to the children’s later GWB. Longitudinal studies have also associated needs met during adolescence and college to GWB (Luyckx, Vansteenkiste, Goossens, & Duriez, 2009; Sheldon & Elliot 1999). Additionally, Reis, Sheldon, Gable, Roscoe, and Ryan (2000) found over a period of two weeks that college
students’ daily fluctuations in having each of the three needs met predicted concurrent fluctuations in GWB. Finally, Sheldon and Niemiec (2006) found, in a series of four studies, that individuals experiencing balanced need satisfaction (e.g., having all of one’s needs met moderately) reported more GWB than individuals experiencing the same sum total of need satisfaction, but with more variability (e.g., experiencing an abundance of autonomy but little relatedness). Thus, it appears that balanced need satisfaction in children and adolescents leads to GWB.

There has also been theoretical and empirical support for the relationship between domain level need fulfillment and well-being. Vallerand and Ratelle (2002), extending the predictions of SDT, developed a model predicting that domain level need fulfillment leads to domain level well-being, as well as GWB. For example, Vallerand and Ratelle's model would predict that need fulfillment within the social domain (i.e., feeling autonomous, competent and connected when relating with others in social situations) will lead to social well-being outcomes (such as pro-social behavior and feeling confident in social interactions) and will also affect more general well-being outcomes (such as overall behavioral inclinations and positive affect).

There is support for the causal connection between domain level need fulfillment, domain level well-being and GWB in the vocational domain. For example, Vallerand, Fortier and Guay (1997) found that teachers’ and parents’ lack of support of high school students’ autonomy and competence was related to later high school dropout. Guay et al. (2003) found that peer and parental support for college students' career decision autonomy and competence predicted career indecision, and Vansteenkiste et al. (2007) found that the level of satisfaction of autonomy, competence and relatedness at work was
associated with multiple indicators of VWB, such as job vitality, job satisfaction, and work family conflict. Additionally, there is significant evidence that functioning in the vocational domain (i.e., VWB) is related to general functioning (i.e., GWB; see Blustein & Spengler, 1995). Therefore, as Vallerand and Rattele's (2002) model predicts, it appears that psychological need fulfillment in the vocational domain leads to VWB, which in turn leads to GWB.

In summary, SDT views the needs of autonomy, relatedness and competence as necessarily linked to well-being. Research has demonstrated that stable (trait like) levels of well-being, as well as daily fluctuations in well-being, develop as a result of the balanced satisfaction of needs for autonomy, competence, and relatedness. Need fulfillment within a domain is also hypothesized to be related to well-being (i.e., functioning) in that domain which is in turn related to GWB, and there is evidence to suggest that this is the case in the vocational domain. Given the importance of psychological need fulfillment, many researchers have investigated factors related to need fulfillment. One factor widely recognized as important (e.g., Sheldon, 2002; Ryan et al., 2008) is goal pursuit.

Goals and Well-being

In SDT, the extent to which a goal promotes the balanced fulfillment of an individual's needs of autonomy, competence, and relatedness is called the goal's *organismic congruence* (Sheldon & Kasser, 1995). In other words, the organismic congruence of a goal is the extent to which the goal is congruent with the needs of human organism (Rogers, 1964). According to SDT, individuals who pursue more organismically congruent (OC) goals enhance their well-being, which makes them more
likely to pursue even more OC goals in the future, resulting in a virtuous cycle of increasing well-being; alternately, those pursuing less OC goals produce a vicious cycle of lowered or stagnant well-being (Sheldon & Houser-Marko, 2001; Sheldon & Kasser, 2001). Indeed, it has been shown that both the pursuit (Kasser & Ryan, 1993, 1996) and attainment (Kasser & Ryan, 2001; Sheldon & Elliot, 1999; Sheldon & Kasser, 1998) of more OC goals is positively related to well-being. For example, Niemiec et al. (2009), in a longitudinal study, found that goal organismic congruence moderated the relationship between goal attainment and GWB such that attaining goals that were more OC was positively related to GWB, whereas attaining goals that were less OC was negatively related to GWB.

SDT based research has focused on two goal properties that serve to indicate the extent to which a goal is OC: goal autonomy and goal intrinsic content (Sheldon et al., 2004).

Goal autonomy. Motivation to set and pursue goals can come from a variety of sources, and a goal's level of autonomy is the degree to which the motives associated with the goal are self-determined. SDT holds that goals motivated by values and interests (i.e., goals emanating from the self) are more OC and will lead to a greater and more balanced satisfaction of psychological needs than goals motivated by external controls on behavior or by seeking the approval of others (i.e., goals external to the self; Deci & Ryan, 1985; also see deCharms, 1968).

Ryan (1995) described two types of autonomous motivation and two types of non-autonomous motivation. The first type of autonomous motivation is intrinsic motivation. Goals that have intrinsic motivation are innately pleasurable to pursue. For example, an
individual may be intrinsically motivated to professionally network if making professional acquaintances is pleasurable in and of itself. Intrinsically motivated goals are the most obvious type of autonomous goal motive, because intrinsically motivated goals are clearly self-determined as they are enjoyable to pursue and are driven by the individual’s interests.

The second type of autonomous motivation is identified motivation. In identified motivation, goal pursuit is experienced as freely chosen in order to seek valued outcomes. Therefore, even though goal pursuit may not be experienced as interesting or innately enjoyable, it is still experienced as freely chosen. Blustein (2006) discussed workers who, although not finding their jobs intrinsically interesting, nevertheless experienced themselves as working autonomously. For example, although working in some positions at a post office may be rote and uninteresting (i.e., not intrinsically motivating), workers who see the job as helpful to the community, and perceive themselves as engaging in this work for that reason, are likely to experience the work as autonomous. Another example of identified motivation would be individuals who are motivated to work an uninteresting job because the income allows them to pursue an outcome they deeply value, such as financially supporting a family or practicing a hobby.

Ryan (1995) also discussed two types of goal motives that are experienced as non-autonomous. The first type, externally controlled goal motives, describes a situation where an individual perceives his or her activities as being controlled by punishments or rewards in the environment. As Blustein (2006) described, workers who are not intrinsically motivated in their jobs and do not feel that they freely chose to pursue the outcomes associated with their jobs may perceive themselves as working only because
they have to. These workers would perceive their work-related goal pursuit as externally
controlled by the environment. Externally controlled goal motives are the clearest case of
non-autonomous motives, because individuals perceive a clear line of causality between
external circumstances and their actions, and see themselves as having little choice in the
matter (e.g., “I have to work hard or I will lose my job and be unable to afford rent”).

Not all motives experienced as non-autonomous, however, are experienced as
externally controlled. Introjected goal motives, Ryan’s (1995) second type of non-
autonomous motives, involves pursuing a goal to meet self and other approval. Goal
pursuit is not experienced as freely chosen, but as necessary to avoid guilt and anxiety. As
an example of this type of motivation, Blustein (2006) wrote that he had worked with a
number of unemployed clients who felt compelled to search for a job, not primarily
because of the need to reestablish a source of income (an externally controlled goal
motive), but out of the shame associated with financially relying on family members (an
introjected goal motive).

Individuals can (and frequently do) experience multiple types of motivation
simultaneously when pursuing a single goal. To continue with Blustein’s (2006) example,
a woman may search for a job because she enjoys exploring new career possibilities
(intrinsic motivation), she values her role as a financial provider for her family (identified
motivation), she feels compelled to because her funds are getting low (externally
regulated motivation), and because she feels guilty for borrowing money from her family
(introjected motivation). Higher well-being outcomes are predicted by whether goal
motivation, overall, tends to be more autonomous (Sheldon et al., 2004). If the woman in
the previous example experiences all four types of motivation, yet is primarily motivated

to find a job because she values being a provider for her family, she would be predicted to have higher well-being during and after the job search process than if she was primarily motivated by guilt over borrowing money\(^1\).

To assess the degree to which an individual’s goal has autonomous motives, participants have been prompted to generate a goal and to numerically rate it on each of the four types of motivation: intrinsic, identified, external, and introjected (Sheldon et al., 2004). The relative autonomy of the goal, then, is considered the sum of the two types of autonomous motives minus the sum of the two types of non-autonomous motives. This index of relative autonomy is one representation of the organismic congruence of the goal, and is associated with GWB (Sheldon et al., 2004).

In summary, the first factor in determining the degree to which goals are congruent with psychological needs is whether the goals are experienced as being pursued primarily for autonomous reasons (because of intrinsic or identified motivation), or primarily for non-autonomous reasons (by rewards and punishments in the environment or by the approval of self or others). In the context of the model of VWB and GWB above, this suggests that college students with less autonomous career goals (e.g., pursuing a career in medicine to seek the approval of one’s parents) are likely to have less well-being than college students with more autonomous career goals (e.g., pursuing a career in medicine because of values congruent with medical practice).

**Goal intrinsic content.** The second indicator of the degree to which a goal is OC is how much the content of the goal is aligned with the individual meeting his or her psychological needs. Kasser and Ryan (1996) argued that aims such as self-growth,

\(^1\) It is also likely she would be more persistent in pursuing a job and have a better likelihood of finding a job with more autonomous motives, see Sheldon & Elliot (1999).
helping the community, and forming close relationships with others should be considered intrinsic goal contents because they are likely to directly lead to the satisfaction of an individual's psychological needs. In other words, these goals are inherently (intrinsically) valuable to an individual. Extrinsic goal contents, on the other hand, are goal contents that are less likely to directly meet individual's needs, such as financial success, social recognition, and appealing appearance (Kasser & Ryan, 1996). SDT authors (Kasser, 2002, Sheldon et al., 2004; Vansteenkiste et al., 2007) have noted that, far from being merely benign, goals primarily focused on extrinsic outcomes actually thwart need satisfaction in a number of ways. For example, individuals with major life goals that prize money may lose out on need fulfillment because they have less time to directly pursue need-satisfying experiences (i.e., opportunity cost), because they may make more frequent social comparisons (thereby reducing their sense of competence), and because they may be more tempted to do things which violate their ethical beliefs (thus reducing their sense of relatedness).

It is important to note that a goal's content is the ultimate aim of the goal, not the immediate aim (Kasser & Ryan, 1993). For example, two individuals may have the goal of volunteering at a food bank. One person volunteers with the ultimate aim of forming a helping relationship with others in the community, whereas the other volunteers with the ultimate aim of padding her resume for law school and eventually gaining a high social status. Research suggests that the person with intrinsic aims is likely to increase his or her well-being, whereas the well-being of the person with extrinsic aims is likely to remain stable, or may be reduced (Niemiec et al., 2009).

Just as goals can have multiple motivations, goals can also have multiple contents.
For example, an individual may desire a well-paying job. He may ultimately aim to use his money to help others in his community (an intrinsic content), but may also relish being the envy of his peers due to possessing a well-paying job (social recognition, an extrinsic content). The quality of the individual’s well-being during goal pursuit and after goal attainment would hinge on the extent to which, on balance, the goal seeks the intrinsic outcomes (Sheldon et al., 2004).

In previous research assessing the degree to which an individual's goal has intrinsic contents, participants have been prompted to rate a self-generated goal on the extent to which it might help to bring about six possible futures which map onto the six types of intrinsic and extrinsic goal contents discussed above (e.g., Sheldon et al., 2004). The relative intrinsic content of the goal, then, is considered to be the sum of the three types of intrinsic contents (self-growth, helping the community, and forming close relationships with others) minus the sum of the three types of extrinsic contents (financial success, social recognition, and appealing appearance). This index of relative intrinsic content is one representation of the organismic congruence of the goal, and is associated with GWB, even after controlling for goal autonomy (Sheldon et al., 2004).

In summary, the second factor in determining the degree to which goals are congruent with psychological needs is extent to which the outcomes sought are aligned with an individual's autonomy, competence, and relatedness. In the context of the model of VWB and GWB above, this suggests that college students with less intrinsic career goals (e.g., pursuing a career in medicine because of the high income and prestige associated with the field) are likely to have less well-being than college students with more intrinsic career goals (e.g., pursuing a career in medicine to help others improve
their quality of life).

**Distinction between goal autonomy and intrinsic content.** Although goal autonomy and intrinsic content each independently contribute to GWB (Sheldon et al., 2004), they are also correlated at about $r = -.30$ (Sheldon et al.) such that goals with more OC motives (i.e., autonomous motives) tend to have more OC contents (i.e., intrinsic content; Ryan et al., 2008). Drawing from the humanistic tradition (e.g. Rogers, 1951), Deci and Ryan (2000) explained this relationship between goal autonomy and intrinsic content by arguing that when individuals are supported in pursuing their interests and deeply held values (i.e., goals with more autonomous motives), they naturally orient towards self-growth by choosing goals that meet their needs (i.e., goals with more intrinsic content). Sheldon and Kasser (2008) lent some empirical support to this line of reasoning, demonstrating in an experimental study that inducing the perception of economic threat (a prototypical example of feeling controlled by one's environment) led to the development of less OC goals.

Because of the theoretical link between goal autonomy and intrinsic content, some researchers looking at the relationship between OC goals and well-being (e.g., Kasser & Ryan, 1993, 1996) did not make a conceptual distinction between goal autonomy and goal intrinsic content, assuming that more autonomous goals would also have more intrinsic content. Some authors however (e.g., Srivastava, Locke, & Bartol, 2001), have emphasized that goal autonomy and goal intrinsic content are conceptually distinct. For example, individuals may report that their deeply held values endorse goals that ultimately aim primarily at money (i.e., OC motives for non-OC contents), or that they feel compelled to help the community primarily out of a sense of guilt (i.e., non-OC
motives for OC contents; Carver & Baird, 1998).

Noting the conceptual distinction between goal autonomy and goal intrinsic content, and that most research demonstrating an association between goal OC and well-being had measured goal autonomy or goal intrinsic content (but not both), authors (e.g., Carver & Baird, 1998; Srivastava et al., 2001) have argued that perhaps only goal autonomy is related to well-being, and that the relationship between goal intrinsic content and well-being is spurious (i.e., completely explained by goal autonomy's relationship with both goal intrinsic content and well-being). In response, Sheldon et al. (2004) measured both goal autonomy and goal intrinsic content, and found an association between goal intrinsic content and GWB after controlling for goal autonomy, demonstrating that the relationship between goal intrinsic content and GWB is not spurious. In order to test whether both goal autonomy and goal intrinsic content in the career domain are independently related to VWB and GWB, the study used structural equation modeling (SEM) to assess the association between goal autonomy, goal intrinsic content, and GWB.

**Summary**

In summary, well-being (as conceptualized by SDT) is a multidimensional construct concerning functioning which increases (and decreases) based on the extent to which individuals experience the balanced satisfaction of their psychological needs of autonomy, competence, and relatedness. Adults attempt to increase their well-being primarily through goal setting and pursuit, and goals that are more OC are those goals that are more likely to satisfy psychological needs, both during goal pursuit and upon the goal’s realization. Goals can be more OC either because the goal is experienced as
autonomous or because the goal seeks outcomes that are congruent with an individual's psychological needs. Goal autonomy and intrinsic content are modestly correlated, and are each independently related to well-being. The highest levels of need satisfaction, therefore, result when a goal has both highly autonomous motives and highly intrinsic content.

**Career Goals and Well-Being**

In industrialized societies, the ages during which most individuals attend college (late teens through the mid twenties) have traditionally been viewed as an important developmental period for setting and pursuing goals that have a significant effect on later well-being (Erikson, 1968). Arnett (2000) called this period of development emerging adulthood, and argued that “by the end of this period, the late twenties, most people have made life choices that have enduring ramifications” (p. 469). Due to the importance of goals during this developmental period, much of the research applying the predictions of SDT to goals has been conducted with young adults in college (e.g., Kasser & Ryan, 1993; Sheldon & Elliot, 1999), or shortly after graduation (e.g., Niemiec et al., 2009; Sheldon et al., 2004).

The results obtained by these authors suggest that pursuing life goals during college with high levels of autonomy and more intrinsic content will lead to enhanced well-being in the future, while pursuing goals with less autonomy and intrinsic content will not. College students' life goals, however, are likely to be a heterogeneous group of goals from multiple life domains (Lent et al., 2005). One college student’s life goals may focus on career pursuits, while another's may focus on social and family goals. To date, research associating life goal autonomy and intrinsic content to GWB has not attempted
to assess the extent to which the domain of the goal moderates this relationship, and thus has not explored whether the association between OC goals and GWB holds across all domains of goals. For example, it may be the case that GWB is strongly associated with the OC of college students' educational goals, but not as strongly related to the OC of goals in other domains. Therefore, research is needed in order to generalize these results to goals in important life domains.

One important domain for goal setting during the college years is the career domain. While discussing emerging adulthood, Arnett (2000) stated “during this time, many young people obtain the level of education and training that will provide the foundation for their incomes and occupational achievements for the remainder of their adult work lives” (p. 469). Hackett and Betz (1995) also argue for the importance of the career choices made during this period of development, stating that choosing a field of work may be one of the most important decisions most people make in their lifetime because of this decision's lasting implications for daily activities, lifestyle, and well-being. Given the importance of career goals during this critical developmental period, it is important to understand what types of career goals will, and will not lead to increased well-being. Therefore this study explored the degree to which the OC of career goals is related to well-being.

In summary, because of the importance of career goals for college students, and because it cannot be assumed that results obtained regarding the OC of life goals generalize to career goals, the purpose of this study was to test the extent to which goal autonomy and intrinsic content in the career domain is related to VWB and GWB. The model proposed to capture these relationships appears in Figure 2.
The Hypothesized Model

The model appearing in Figure 2 represents a number of hypotheses derived from SDT as well as from the vocational literature. In the following sections, each construct in the model will be conceptually and operationally defined, followed by an explanation of the conceptual and empirical basis of each of the model's paths.

Career goal autonomy. In the model presented above, career is defined as relating to the world of work, goals are defined as choices individuals make to direct their lives, and being autonomous is defined as experiencing one's behavior as self-determined. Therefore, a career goal's autonomy is the extent to which a choice an individual makes regarding the world of work is experienced as self-determined. In order to operationalize a goal's autonomy, SDT has defined two types of autonomous motivation (i.e., intrinsic and identified motivation), and two types of non-autonomous motivation (introjected and external motivation). Any career goal can involve all four types of motivation, so the
amount of autonomy a career goal is considered to have is determined by the degree to which the autonomous motives outweigh the non-autonomous motives for that goal.

In order to assess career goal autonomy, the study first prompted participants to generate five career goals using a procedure similar to Dik, Sargent, and Steger (2008). Specifically, the study asked participants to consider the actions they were taking to help them build a successful career, and gave participants a series of examples and additional instructions before prompting participants to write down their five most important career goals. After these goals were generated, goal autonomy was operationalized in a manner identical to Sheldon et al. (2004). Specifically, participants were asked to rate the extent to which each goal was driven by each of the four types of motivation, and an index of overall relative autonomy was computed based on the difference between the rated importance of the autonomous motives and the non-autonomous motives across all goals.

**Career goal intrinsic content.** Previously, a goal’s *intrinsic content* has been defined as the degree to which the ultimate aims of the goal are likely to meet an individual's psychological needs of autonomy, competence and relatedness. Based on this definition, and those offered in the preceding section, a career goal's intrinsic content is the extent to which a choice an individual makes regarding the world of work ultimately aims at ends that are likely to meet an individual's psychological needs. Although there are many ultimate aims that are more and less likely to meet an individual's psychological needs, six aims have been given attention in the SDT literature: self-growth, helping the community, and forming close relationships with others (considered to be intrinsic outcomes because they directly contribute to psychological need satisfaction), and financial success, social recognition, and appealing appearance (considered to be
extrinsic outcomes because they do not directly contribute to psychological need satisfaction; Kasser & Ryan, 1996). Any given career goal can aim at all six outcomes to some degree, and a career goal is considered to have more intrinsic content when it aims more at the intrinsic outcomes than the extrinsic outcomes.

After participants generated career goals using the procedure described in the preceding section, goal intrinsic content was operationalized in a manner identical to Sheldon et al. (2004). Specifically, participants were asked to rate the extent to which each goal was likely to bring about the six outcomes discussed above, and an index of overall relative intrinsic content was computed based on the difference between the rated importance of the intrinsic outcomes and the extrinsic outcomes across all goals.

**Vocational well-being.** GWB is defined as “the degree to which a person is fully functioning” (Ryan & Deci, 2001, p. 141), so VWB is defined as the degree to which a person is fully functioning in the vocational domain. Helping to increase individuals’ vocational functioning has been a focus of vocational psychology since the field's inception (e.g., Kitson, 1925; Parsons, 1909), and in the vocational literature, the degree to which a person is fully functioning in the vocational domain has most commonly been referred to as an individual's vocational adjustment² (e.g., Blustein & Spengler, 1995; Super, 1988). Many constructs have been used to indicate general functioning, including life satisfaction, social productivity, and the absence of anxiety, and many constructs have also been used to indicate vocational functioning, including work satisfaction (Lent & Brown, 2006), work productivity (Dawis & Lofquist, 1984), and the absence of career indecision (Guay, Ratelle, Senécal, Larose, and Deschênes, 2006).

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² The study used the terms *vocational functioning* and *vocational well-being* rather than *vocational adjustment* in order to more directly connect the literature reviewed with concepts found in self-determination theory.
As many authors have noted (e.g., Gottfredson 1981; Super 1990), functioning in the vocational domain amounts to being prepared for different tasks at different points in vocational development. For example, for adults in mid-career, it has been argued that important tasks include being able to meet the requirements of one's current work environment (i.e., satisfactoriness; Dawis & Lofquist, 1984) as well as being able to adapt to unexpected events in one's career path (i.e., adaptability; Hall, 2004). For many adults later in their careers, retirement is an important vocational task, which requires a capacity for planning and being in touch with one’s values (Sterns & Subich, 2005).

For adults nearing the end of their undergraduate education, it has been argued that the primary vocational task is committing to a career choice (Erikson, 1968; Super, 1957), which Blustein, Ellis and Devenis (1989) defined as a steady attachment to a career choice and a stable plan for implementing this choice. Super et al. (1963) argued that it is necessary for these individuals to commit to a career choice before they move onto the next important vocational task: implementing their choice. Arnett (2000) also notes that committing to a career choice tends to happen near the end of emerging adulthood, stating that “in the transition from emerging adulthood to young adulthood in the late twenties … the diversity narrows and the instability eases, as young people make more enduring choices in love and work” (p. 471).

Wang, Jome, Haase, and Bruch (2006) recently operationalized college students’ ability to commit to a career choice as vocational identity (Holland, Diage & Power, 1980), progress in commitment to career choice (Blustein et al., 1989), and an absence of career indecision (Osipow et al., 1976). With a sample of college students, Wang et al. demonstrated that this operationalization of college students' ability to commit to a career
choice was related appropriately with indicators of general functioning (i.e., positively with extraversion and negatively with neuroticism), and also with other indicators of vocational functioning (positively with career decision making self-efficacy), providing some evidence for the validity of this operationalization of career choice commitment to measure college students' vocational functioning.

In summary, VWB amounts to being prepared for developmentally important vocational tasks. For students nearing the end of their undergraduate education, the most developmentally important vocational task is committing to a career choice. Therefore, college juniors’ and seniors’ VWB is their ability to form a steady attachment to a career choice and a stable plan for implementing this choice. Wang et al. (2006) highlighted three variables indicative of college students' ability to successfully navigate these tasks: vocational identity, career indecision, and progress in commitment to career choice. These indicators were used to operationalize college juniors’ and seniors’ VWB in the current study.

**Positive and negative well-being.** Although many authors have conceptualized well-being as a unitary construct concerning functioning (e.g., Ryan & Deci, 2001), recent theoretical and empirical work (e.g., Huppert & Whittington, 2003; Karademas, 2007) has argued that more precision can be gained by viewing GWB as two separate (but related) constructs: positive well-being (PWB) and negative well-being (NWB). For example, of the variables known to be related to GWB, Karademas demonstrated that some variables (self-efficacy and positive approach) are related only to the positive factors indicative of full functioning (PWB), and others (e.g., stress) are related only to the negative factors indicative of dysfunction (NWB). Karademas argued that using both
PWB and NWB allow for a deeper understanding of the associations between GWB and other variables.

Niemiec et al. (2009) applied this distinction to SDT research in order to more fully explore the relationship between the achievement of OC goals and GWB. Niemiec et al. found that while the attainment of intrinsic goals was positively related to PWB and negatively related to NWB, the attainment of extrinsic goals was positively related to NWB, but unrelated to PWB. Additionally, Niemiec et al. noted that using PWB and NWB as outcomes fit the data better than a competing model using GWB as the outcome. Therefore, because using both PWB and NWB as outcomes allows for more fine grained results, and because it was likely that using PWB and NWB as outcomes would fit the data better than using GWB alone, the model used both PWB and NWB to more fully capture GWB.

As was previously discussed, GWB has been operationalized in different ways in different tests of SDT. Kasser and Ryan's (1993, 1996) seminal research on the relationship between the OC of goals and GWB, however, conceptualized GWB most often as the presence of vitality and self-actualization and the absence of depression and anxiety. Additionally, in their influential 2001 article on GWB, Ryan and Deci noted that self-actualization and vitality form an important piece of their understanding of the positive aspects of GWB. Therefore, to maintain continuity with Kasser and Ryan (1993, 1996), this study used self-actualization and vitality as indicators of PWB, and depression and anxiety as indicators of NWB.

Thus far, each construct in the model has been defined and operationalized. In the following sections, the theoretical and empirical rationale for the relationships between
the variables in this model will be outlined.

**Paths from career goal autonomy and intrinsic content to positive and negative well-being.** Previous research relating college students' life goals to GWB has suggested that the OC of these goals is related positively to GWB (e.g., Kasser & Ryan, 1996; Sheldon & Elliot, 1999). More recent research splitting GWB into PWB and NWB replicated these results, finding that the OC of life goals is positively related to PWB and negatively related to NWB (Niemiec et al., 2009). Although this was the first study to explicitly assess the relationship between well-being and the OC of goals in the career domain, Vallerand and Ratelle's (2002) theory of domain level need fulfillment suggests that domain level goal OC relates to well-being in much the same way as life goal OC. Therefore, the model predicted that career goals would be related with GWB in much the same way as life goals; in other words, it was hypothesized that the OC of career goals would relate positively to PWB, and negatively to NWB.

As discussed above, Sheldon et al. (2004) demonstrated that both life goal autonomy and intrinsic content are independently associated with GWB. Therefore, it was hypothesized that CGA and CGIC would each be independently associated with the well-being outcomes. Specifically, the model predicted that CGA would be positively related to PWB, and negatively related to NWB, and that CGIC would also be positively related to PWB, and negatively related to NWB.

**Paths from career goal autonomy and intrinsic content to vocational well-being.** As was stated previously, this model predicted that the effect of CGA and CGIC on PWB and NWB would be mediated through VWB. The overall rationale for predicting mediation was provided by Lent's (2004) hypothesis that the effects of domain
level goals on GWB are mediated through domain level well-being. The vocational literature, however, also provides evidence for the paths involved in this mediation: the paths from CGA and CGIC to VWB (i.e., paths A & B), and the paths from VWB to GWB (i.e., paths G & C).

In support of the paths from CGA to VWB, Guay et al. (2006) found that students who entered college with a more autonomous style of career decision making were more career decided after three years, suggesting that students entering college who were more likely to set and pursue autonomous career goals possessed higher levels of VWB later in college. Guay (2005) also lent support to the association between CGA and indicators of VWB, demonstrating that college students whose career motives were more autonomous had more career decision-making self-efficacy and less career indecision.

Abele and Spurk (2009) provided evidence of the association between CGIC and VWB. Abele and Spurk measured the strength of graduating college seniors’ *career advancement goals*, which they defined as goals “directed at climbing up the career ladder and at being successful in terms of influence, material gain, and prestige” (p. 54). As the authors note (p. 60), their definition of career advancement goals maps very closely onto Ryan and Deci’s (2000) concept of a goal with high extrinsic content, only in the vocational domain. Abele and Spurk tracked participants longitudinally, and found that more extrinsic career goal content at graduation was negatively related to career satisfaction seven years later. Interestingly, Abele and Spurk also found that more extrinsic career goal content at graduation was positively associated with work-status and salary seven years later, suggesting that even when more extrinsic career goals “worked” (i.e., had presumably helped individuals achieve higher status and income), they were
still associated with less VWB. Therefore, based on Guay et al. (2006), and Guay (2005),
CGA was hypothesized to be positively related to VWB, and based on Abele and Spurk
(2009), CGIC was hypothesized to be positively related to VWB.

**Paths from vocational well-being to positive and negative well-being.** The
relationship between vocational functioning and overall functioning (i.e., between VWB
and PWB and NWB) has received a significant amount of attention in the career
literature. For example, Super (1955) articulated this relationship when he wrote:
by relieving tensions, clarifying feelings, giving insight, helping attain success,
and developing a feeling of competence in one important area of adjustment, the
vocational, it is possible to release the individual's ability to cope more adequately
with other aspects of living, thus bringing about improvement in his general
adjustment. (p.217)

In addition to theoretical support, there is also significant empirical support for
the relationship between VWB and PWB, and VWB and NWB. For example, Lofquist
and Dawis (1984) demonstrated an association between work satisfaction and anxiety,
depression, and self-esteem. Additionally, Strauser, Lustig and Çiftçi (2008) found
significant relationships between multiple indicators of PWB (e.g., autonomy, purpose in
life, self-acceptance) and VWB (e.g., vocational identity, decision making confusion, and
commitment anxiety). Blustein and Spengler (1995), in their review of the empirical and
theoretical literature on personal and vocational counseling, argued that vocational and
general functioning are closely related, stating that “it would be fair to conclude that there
is probably considerable overlap between career and noncareer domains of functioning”
(p. 302).

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3 Robbins and Kliewer (2000) note that the career literature often refers to well-being as adjustment.
In addition to evidence that vocational functioning is related to general functioning, there is also evidence that college students' VWB (as currently defined by vocational identity, career indecision, and progress in commitment to career choice), is related to college students' NWB (as currently defined by anxiety and depression). For example, Saunders, Peterson, Sampson, and Reardon (2000) reported that career indecision was positively associated with anxiety and depression, and Sweeney and Schill (1998) reported that depression was negatively associated with vocational identity, and positively associated with career indecision. Additionally, Hardin, Varghese, Tran, and Carlson (2006) found a negative association between making progress in committing to career plans and anxiety. Therefore, because of the theoretical and empirical support for the association between vocational functioning and general functioning, the model predicted that college students' VWB would be positively related to PWB, and negatively related to NWB.

There has been a significant debate as to the directionality of effects between domain and global well-being. In the career domain, Judge and Watanabe (1993) argued that effects flow predominantly from global well-being to domain well-being, while Rain, Lane, and Steiner’s (1991) “spillover hypothesis” suggests that domain and global well-being mutually influence each other. Theoretically, both Vallerand and Ratelle (2002) and Lent (2004) argue that the relationship between domain well-being and global well-being is a bidirectional one.

Using SEM to explore the relationship between domain and global well-being, Lent et al. (2005) modeled a unidirectional path from domain to global well-being, arguing that for important life domains, the flow of effects would be primarily from
domain to global well-being. In the present study, the vocational domain is hypothesized to be important for college juniors and seniors. Thus, while acknowledging that there is likely a bidirectional relationship between vocational well-being and global well-being, the present study will model a unidirectional path from VWB to PWB and NWB due to a) the limitations of modeling reciprocal relationships in cross-sectional SEM designs (Jöreskog & Sörbom, 1993), and b) the belief that the flow of effects for the study participants will be primarily from VWB to PWB and NWB.

**Summary of model variables and paths.** The model (Figure 2) captures the hypothesized relationships between CGA, CGIC, VWB, PWB, and NWB. CGA, defined as the extent to which a choice an individual makes regarding the world of work is experienced as self-determined, and CGIC, defined as the extent to which a choice an individual makes regarding the world of work ultimately aims at ends that are likely to meet an individual's psychological needs, were both operationalized using methods adapted from Dik et al. (2008) and Sheldon et al. (2004). VWB, defined in general as the degree to which a person is fully functioning in the vocational domain, and defined specifically for college students as a steady attachment to a career choice and a stable plan for implementing this choice, was operationalized using vocational identity, career indecision, and progress in commitment to career choice as indicators (see Figure 3). PWB, defined as positive factors indicative of full functioning, was operationalized using vitality and self-actualization as indicators, and NWB, defined as negative factors indicative of dysfunction, was operationalized using anxiety and depression as indicators.

Based on Vallerand and Ratelle (2002), CGA and CGIC were hypothesized to be related to GWB in much the same way as life goal autonomy and intrinsic content.
Therefore, CGA and CGIC were hypothesized to positively influence PWB, and negatively influence NWB. Based on Lent's (2004) hypothesis, however, the effect of CGA and CGIC on PWB and NWB was hypothesized to be partially mediated by VWB. Specifically, CGA and CGIC were hypothesized to increase VWB, and VWB was hypothesized to increase PWB and decrease NWB, based on the career literature discussed in the relevant sections above.

In practice, this model predicts that college students who set career goals primarily to attain financial success, social recognition, or appealing appearance (as opposed to more intrinsic aims, such as self-growth, helping the community, or forming close relationships with others) will likely have trouble committing to a career, which will in turn deleteriously affect their overall functioning. The model also predicts that college students whose career goals are motivated primarily by exigencies in the environment or by a contingent sense of self-worth (as opposed to being motivated primarily by interests or deeply held values) are also likely to have trouble committing to a career, which will in turn deleteriously affect their overall functioning.

**Summary and Hypotheses**

SDT holds that when individuals’ needs of autonomy, relatedness and competence are satisfied, well-being results. Goal directed activity is the primary way that adults attempt to satisfy their needs, and research has demonstrated that pursuing and making progress on more OC (i.e., need congruent) life goals leads to greater GWB. Because college is a particularly important time for setting and pursuing goals in multiple life domains, and because goals in the vocational domain are arguably among the most important goals set during this developmental period, this study tested the predictions of
SDT with college students’ career goals. Therefore, it was predicted that the OC of college students’ career goals (as assessed by CGIC and CGA) would increase their GWB (as assessed by PWB and NWB). Additionally, because Lent (2004) and Lent et al. (2005) argued that the effect of domain level goals on GWB is mediated by domain level well-being, this study also predicted that the effect of career goal OC on GWB would be mediated by well-being in the vocational domain (i.e., VWB). In SDT terms, VWB is hypothesized to mediate the effects of CGIC and CGA on PWB and NWB because college students with more autonomous and intrinsically-oriented career goals are likely to have greater need satisfaction in the career domain, thus increasing their VWB.

Because the vocational domain is important for college juniors and seniors, their greater VWB will in turn increase their global well-being, as captured by PWB and NWB.

More specifically, the study had four hypotheses: Hypothesis 1, that VWB would mediate the relationship between CGA and PWB; Hypothesis 2, that VWB would mediate the relationship between CGA and NWB; Hypothesis 3, that VWB would mediate the relationship between CGIC and PWB, and Hypothesis 4, that VWB would mediate the relationship between CGIC and NWB. These hypotheses were tested using the approach outlined in Baron and Kenny (1986). Thus, for each mediation, the unadjusted correlations between the three variables involved in the mediation were first tested to establish the logical possibility of mediation, followed by Sobel's (1987) test of indirect effects to establish mediation (i.e., that the predictor variable had an effect on the criterion variable through the mediator).
Chapter 3

Method

Design

The design was an ex post facto structural equation model (SEM) as implied in Figure 2, and SEM was used to test the hypotheses. SEM was chosen because latent variables can be defined by multiple measured indicators in order to control measurement error, because it can be used for examining the relationships between specific latent variables in the model, and because it is the preferred method to test for mediation (Baron & Kenny, 1986; Jöreskog & Sörbom, 1993). In SEM, the parameters of hypothesized models are estimated based on the observed sample covariance matrices (the study used maximum likelihood estimation), and the covariance matrices implied by hypothesized models can be compared to the observed covariances to determine the fit of the model to the data.

The model (Figure 2)\(^4\) examined the relationships among five latent variables: career goal autonomy (CGA), career goal intrinsic content (CGIC), vocational well-being (VWB), positive well-being (PWB), and negative well-being (NWB). CGA and CGIC were assessed by one indicator each. To control for measurement error for these single-indicator latent variables, Hayduk’s (1987) method of setting measurement error of the single indicators was employed based on the alpha coefficient reliabilities observed from the sample. As discussed in the Literature Review, VWB was defined by career choice commitment, vocational identity, and career indecision (Figure 3). PWB was defined by self-actualization and vitality (Figure 4), and NWB was defined by depression and

\(^4\) The model shown in Figure 2 is represented as a structural model only because of the difficulty of visually representing the full model (i.e., the measurement and structural model).
anxiety (Figure 5).

For each of the three multiple-indicator latent variables, a confirmatory factor analysis (CFA; Anderson & Gerbing, 1988) was employed, so that the latent variable represented the single latent factor that accounts for the maximum amount of variance in all three measures. As discussed above, one of the advantages of SEM is that, by using Hayduk's (1987) technique for estimating single-indicator latent variables and CFA for multiple-indicator latent variables, SEM allows the correlations between latent variables (i.e., correlations in the structural model) to be disattenuated. This is because the error associated with each indicator is represented in the measurement models (Jöreskog & Sörbom, 1993, p. 112).
Figure 3

*Measurement Model for Vocational Well-Being*

- e ➔ My Vocational Situation Scale ➔ Vocational Well-Being
- e ➔ Voc. Exploration & Commitment ➔ Vocational Well-Being
- e ➔ Career Decision Scale ➔ Vocational Well-Being

Figure 4

*Measurement Model for Positive Well-Being*

- e ➔ Self-Actualization ➔ Positive Well-Being
- e ➔ Vitality ➔ Positive Well-Being

Figure 5

*Measurement Model for Negative Well-Being*

- e ➔ C.E.S. Depression Inventory ➔ Negative Well-Being
- e ➔ State-Trait Anxiety Inventory ➔ Negative Well-Being
Participants

Arnett (2000) suggested that most people are likely to make enduring career choices by 25 years of age (the end of emerging adulthood), therefore, only college students under the age of 26 were included in the study. Additionally, because career choice and commitment are developmental tasks typically focused on by more advanced undergraduate students, the study was conducted with college juniors and seniors. Finally, because Lent et al. (2005) hypothesized that the connection between domain level and general well-being would be stronger for salient life domains, only full time students (i.e., enrolled in 12 or more credits) were included in the study. The participants were informed that the purpose of this study is to “understand college students’ career development.”

The demographic characteristics of the final sample are displayed in
Table 1. The final sample consisted of 265 participants, composed of 193 (73%) females, 68 (26%) males, and 4 (2%) transgender students. The racial and ethnic identifications of students included 25 (9%) African American/Black/African origin, 15 (6%) Asian American/Asian Origin/Pacific Islander, 17 (6%) Latino(a)/Hispanic, 1 Native American, 189 (70%) White/European origin, 10 (4%) Biracial/multiracial, and 8 (3%) who identified with another racial/ethnic group. Ages of participants ranged from 18 to 25 years old, and the median age was 20.97 ($SD = 1.11$), roughly what one would expect from college juniors and seniors. Due to inclusion criteria, all participants were full time students, and participants were either juniors ($n = 115, 43\%$) or seniors ($n = 150, 56\%$). Most participants ($n = 238, 90\%$) attended the University of Albany, SUNY, but 27 (10\%) participants (due to Facebook recruiting) hailed from a variety of other US colleges, such as Arizona State University, Brown University, the College of Idaho, and Harvard University. Nearly all participants ($n = 260, 98\%$) had chosen a major. One hundred and thirty seven participants (52\%) indicated that they had sought career counseling at some point to help them with a career decision.
### Table 1

*Demographic Characteristics of the Sample (N = 265)*

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<td>73%</td>
</tr>
<tr>
<td>Male</td>
<td>68</td>
<td>26%</td>
</tr>
<tr>
<td>Transgender</td>
<td>4</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Racial/Ethnic Group Identification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American/Black/African origin</td>
<td>25</td>
<td>9%</td>
</tr>
<tr>
<td>Asian American/Asian Origin/Pacific Islander</td>
<td>15</td>
<td>6%</td>
</tr>
<tr>
<td>Latino(a)/Hispanic</td>
<td>17</td>
<td>6%</td>
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<tr>
<td>Native American</td>
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<tr>
<td>White/European origin</td>
<td>189</td>
<td>70%</td>
</tr>
<tr>
<td>Biracial/multiracial</td>
<td>10</td>
<td>4%</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
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</tr>
<tr>
<td>18</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>19</td>
<td>14</td>
<td>5%</td>
</tr>
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<td>20</td>
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<td>22</td>
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<td>20%</td>
</tr>
<tr>
<td>23</td>
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<td>4%</td>
</tr>
<tr>
<td>24</td>
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<td>2%</td>
</tr>
<tr>
<td>25</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td><strong>College Class Standing</strong></td>
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<td></td>
</tr>
<tr>
<td>Junior</td>
<td>115</td>
<td>43%</td>
</tr>
<tr>
<td>Senior</td>
<td>150</td>
<td>56%</td>
</tr>
</tbody>
</table>
Demographic Characteristics of the Sample (N = 265) (continued)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>College/University Attended</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University at Albany, SUNY</td>
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<td>90%</td>
</tr>
<tr>
<td>Other</td>
<td>27</td>
<td>10%</td>
</tr>
<tr>
<td>Major Chosen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>260</td>
<td>98%</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Sought Career Counseling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>137</td>
<td>52%</td>
</tr>
<tr>
<td>No</td>
<td>128</td>
<td>48%</td>
</tr>
</tbody>
</table>
Procedure

A web-based survey was created that contained all of the measures for the current study. Career Services at the University of Albany, SUNY petitioned the school to grant this researcher access to student contact information for students who were juniors or seniors between 18 and 25. This researcher received a random sample of 2924 student names. These students were sent three emails over a period of three weeks asking them to participate in the study and giving them the link to the study, and 168 students responded, yielding a 5.7% response rate.

This researcher also sought permission to solicit participants from instructors of large classes composed primarily of juniors and seniors. Many instructors granted permission, and this researcher petitioned participants from a variety of large classes, such as Sociology of Gender, Operations and Business Process Management, and Introduction to Spanish Literature. This researcher went into class, explained the study, and asked students to place their emails on a sign-up sheet. Students who had provided their emails were then solicited via an email. Finally, some participants were solicited via an advertisement on the website www.facebook.com that contained an explanation of the study and a link to the online survey. Due to ambiguities in class solicitation and Facebook advertising, the response rate for these two methods of gathering participants is unknown. In addition, due to participant anonymity, it was not possible to compute exactly how many participants came from in-class versus Facebook recruiting procedures. It is estimated, however, that roughly 200 students responded to the in-class solicitation, and roughly 40 students responded to the Facebook advertisement.

Regardless of method of recruiting, all participants were offered the opportunity to enter
a raffle to win a $150 Visa gift card.

Instruments

**Career goal autonomy.** In order to assess CGA and CGIC, it was first necessary for participants to generate career goals using a procedure adapted from Dik et al. (2008). The career goal elicitation procedure used in the present study (see Appendix A) is reproduced verbatim from Dik et al. (2008), except for the deletion of five sentences, which appeared to be instructing participants not to write introjected career goals. 5 Participants were asked to rate the reasons they were pursuing each goal on a 1 (not at all) to 9 (very much) scale in order to assess CGA (see Appendix B). The four items participants were asked to complete for each goal (listed in order) were: “because you really believe that it's an important goal to have...” (Identified Motivation), “because of the enjoyment or stimulation which this goal provides you ...” (Intrinsic Motivation), “because somebody else wants you to, or because the situation seems to compel it...” (Externally Controlled Motivation), and “because you would feel ashamed, guilty, or anxious if you didn't [strive for this goal]...” (Introjected Motivation). A score representing the relative degree of goal autonomy associated with all of the participants’ career goals was computed by adding the participants’ ratings for Identified and Intrinsic Motivation and subtracting the ratings for Externally Controlled and Introjected Motivation across all five goals. Thus, the score on CGA can range from -80 to 80, with higher scores reflecting more autonomous motives underlying career goals. This composite was used as an indicator of the relative strength of autonomous motivation for pursuing career goals.

5 As it was necessary in this study for participants to rate the degree to which their goals were introjected, it was important not to discourage participants from generating introjected goals.
This method of deriving ratings of goals' autonomy was originally developed by Sheldon and Kasser (1995), who related college students' goal autonomy to various indices of GWB, such as self-actualization, vitality, openness, empathy, and positive mood. This method of assessing goal autonomy has also been used to predict motivational outcomes (such as sustained goal effort and goal attainment; Sheldon & Elliot, 1999), and changes in GWB over the following year (Sheldon et al., 2004). The ten-week test-retest reliability observed by Sheldon and Kasser (1995) was .67. The alpha coefficient observed by Sheldon et al. (2004) was .76. The alpha coefficient observed in the current study was .81.

**Career goal intrinsic content.** The method for assessing the participants' CGIC was the procedure used in Sheldon et al. (2004). Participants rated, on a 1 (no help) to 9 (very much help) scale, how much each goal listed previously may help to bring about six “possible futures,” (see Appendix C). Three possible futures represent intrinsic goal contents: “Having many close and caring relationships with others” (Emotional Intimacy), “Being fulfilled and having a very meaningful life” (Personal Growth), and “Helping to make the world a better place” (Community Contribution). Three possible futures represent extrinsic goal contents: “Being known and/or admired by many people” (Fame/Popularity), “Looking good and appearing attractive to others” (Attractive Image), and “Getting a job that pays very well and having a lot of nice possessions” (Financial Success). The order in which the six goals were presented, based on Sheldon et al. was: Emotional Intimacy, Fame/Popularity, Attractive Image, Personal Growth, Financial Success, and Community Contribution. Similar to Sheldon et al. (2004) and past research (Sheldon & Kasser, 1995, 2001), a relative Intrinsic Content score was computed by
summing the three intrinsic ratings and then subtracting the summed extrinsic ratings across all five goals. This Intrinsic Content composite score, ranging from -120 to 120, represents the extent to which a participant’s career goals have intrinsic rather than extrinsic content.

This method of assessing goal intrinsic content was developed by Sheldon and Kasser (1995), who demonstrated with college students that more intrinsic goal content was related to more self-actualization, positive affect, openness, and empathy. Sheldon and Kasser (1998) related progress on college students’ goals with more intrinsic content to increases in life satisfaction and positive affect, and decreases in depression, and Sheldon et al. (2004) demonstrated that goal intrinsic content was related to changes in well-being over the following year. Sheldon et al. reported a coefficient alpha of .77. The alpha coefficient observed in the current study was .93.

**Vocational Exploration and Commitment.** The Vocational Exploration and Commitment (VEC) subscale of the Commitment to Career Choice scale (CCCS, Blustein et al., 1989) measures how committed an individual is to a career choice (see Appendix D). The subscale consists of 19 items, each rated on a scale of 1 (never true about me) to 7 (always true about me). Possible scores range from 19 to 133, with higher scores indicating less progress on the commitment to career choice process. An example item is, “I am not very certain about the kind of work I would like to do.” With college students Blustein et al. (1989) found an alpha coefficient of .92, and a 4-week test retest reliability of .92. The alpha coefficient observed in the current study was .94. Additionally, research (e.g., Betz & Serling, 1993) has shown that the VEC is associated with various indices of vocational indecision, such as the Fear of Commitment Scale.
(Serling & Betz, 1990). Recently, Wang et al. (2006) demonstrated that the VEC had an alpha coefficient of .86 with college students, and was associated with career indecision (Osipow et al., 1976) and vocational identity (Holland et al., 1980).

**Career Decision Scale.** The career decision scale (CDS; Osipow et al., 1976) measures career indecision based on a theorized process of career decision making (see Appendix E; Jordaan & Super, 1974; Super, 1957). Individuals are said to move from uncommitted, to committed, to decided. An example CDS item is “I know I will have to go to work eventually but none of the careers I know about appeal to me.” The CDS has 16 items, each of which is rated from 1 (not at all like me) to 4 (exactly like me). Scores on this measure range from 16-64. Osipow et al. (1976) demonstrated a two-week test-retest reliability of .90 and .82 with two samples of undergraduate students, and Wang et al. (2006) reported an alpha coefficient of .91 with undergraduates. The alpha coefficient observed in the current study was .91. The CDS is positively associated with other measures that tap problems making vocational choices, such as the VEC subscale of the CCCS (Blustein et al., 1989), and the Fear of Commitment Scale (Serling & Betz, 1990).

**My Vocational Situation Scale.** The My Vocational Situation Scale (MVS; Holland et al., 1980) taps an individual’s vocational identity, defined as the ability to specify and bring to bear one’s interests, personality and goals on a career choice (see Appendix F). The MVS contains 18 true or false items with a response of “true” counting as 2 points and a response of “false” counting as 1 point. A sample MVS item is “Making up my mind about a career has been a long and difficult problem for me.” Scores range from 18 to 36, with higher scores representing a stronger vocational identity. Holland et al. (1980) reported alpha coefficients ranging from .86 to .89, and Wang et al. (2006)
reported an alpha level of .85 with college students. The alpha coefficient observed in the current study was .90. Studies have shown that the MVS scores of seniors are significantly higher than freshmen, sophomores, and juniors (Toporek & Pope-Davis, 2001), and that the MVS is related to career indecision, as measured by the CDS (Serling & Betz, 1990), and commitment to career choice, as measured by the VEC subscale of the CCC (Wang et al., 2006).

**Self-Actualization.** Self-Actualization (SA; Jones & Crandall, 1986) is a shortened form of the 150-item Personal Orientation Inventory (POI; Shostrom, 1964), which is based on Maslow’s (1954) conception of the highest level of well-being. SA is comprised of 15 items (see Appendix G). Some of the concepts that SA is designed to tap are an efficient perception of reality and a sense of social interest. A sample item is, “I am loved because I give love.” The possible responses for each item range from 1 (disagree) to 4 (agree), and the total score ranges from 15 to 60, with higher scores representing greater self-actualization. Jones and Crandall (1986) reported the coefficient alpha to be .65, and the 12-day test-retest reliability to be .69. The alpha coefficient observed in the current study was .70. Convergent and divergent validity was also demonstrated by Jones and Crandall (1986), who showed that scores on SA correlated positively with Rosenberg’s Self-Esteem Scale (Rosenberg, 1965) and negatively with Neuroticism on Eysenck’s Personality Inventory (Eysenck & Eysenck, 1968). More recently, Thrash, Elliot, Maruskin and Cassidy (2010) found a coefficient alpha of .65 for this scale, and demonstrated that SA was related positively to the frequency and intensity of inspiration, while Gebaur, Riketta, Broemer, and Maio (2008) found that SA was related positively to pleasure based prosocial motivation.
**Vitality.** Vitality (Ryan & Frederick, 1997) is a self-report measure that was originally developed to tap the experience of aliveness and vigor that is said to accompany well-being (see Appendix H). An example item is, “I feel alive and vital.” Although this measure was developed with seven items, subsequent research (Bostic, Rubio, & Hood, 2000) has demonstrated that a six-item version of the measure has better psychometric properties. Thus, the measure used in the study had 6 items rated on a 7-point scale from 1 (not at all true) to 7 (very true). Possible scores range from 6 to 42, with higher scores representing more subjective vitality. The alpha coefficient reliability has been found to be .83 (Kasser & Ryan, 1993) with college undergraduates, and Ryan and Frederick reported that Vitality correlated positively with Global Self-Esteem (O’Brien & Epstein, 1987) and negatively with psychopathology (as measured by the RAND Health Insurance Mental Health Questionnaire; Brook et. al., 1979). Huta and Hawley (2010) found Vitality to have an alpha coefficient of .92 and to be related positively to a number of psychological strengths, such as enthusiasm, humor, gratitude, and spirituality. The alpha coefficient observed in the current study was .91.

**Center for Epidemiological Studies-Depression Inventory.** The Center for Epidemiological Studies-Depression Inventory (CES-D; Radloff, 1977) was used in the study because it was associated with OC life goals in Kasser and Ryan (1993, 1996). The CES-D is a 20-item measure developed to assess the severity of depressive symptoms in the general population (see Appendix I). Symptoms that have occurred in the past week are rated from 1 (rarely) to 4 (most of the time). A sample item is “I felt that everything I did was an effort.” Scores range from 20 to 80, with higher scores representing greater reported depression. Shean and Baldwin (2008) recently assessed the adequacy of the
CES-D for detecting depression among college students. The authors found a coefficient alpha of .89, and found that the CES-D was highly correlated with the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) and with the results of clinical interview based on DSM IV depression criteria. Additionally, CFA has confirmed the hypothesized four factor structure of the measure across different age groups (Johnson, McLeod, Sharpe, & Johnston, 2008). The alpha coefficient observed in the current study was .92.

**State-Trait Anxiety Inventory.** The trait version of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lusene, 1970) measures anxiety as a stable personality trait, and was used in the study because it was associated with OC life goals in Kasser and Ryan (1993). The items consist of symptoms of anxiety, and are rated based on the degree to which they are generally experienced (see Appendix J). Possible responses range from 1 (almost never) to 4 (almost always). With a college student population, Paolini, Yanez, and Kelly (2006) reported an alpha level of .91, and demonstrated that the STAI was correlated positively with worry and negatively with life satisfaction. Creamer, Foran and Bell (1995) also used the STAI with a college student population, and found an alpha level of .94, a seven-week test-retest reliability of .84, and a strong relationship between the STAI and the Beck Anxiety Inventory (Beck, Epstein, Brown & Steer, 1988). The alpha coefficient observed in the current study was .93.

**Demographic questionnaire.** A demographic questionnaire included questions assessing participants’ age, college class standing, status as a student (full time or part time), gender, racial/ethnic group identification, whether a major had been declared, college major, whether they have sought career counseling in the past, and career salience
Data Analyses

Hypothesis testing using maximum likelihood estimation in SEM is vulnerable to violations of independence and distributional assumptions (Hu, Bentler & Kano, 1992). Therefore, a series of preliminary analyses were conducted based on suggestions outlined in Tabachnick and Fidell (2007). First, the reliability of the indicators was assessed using Cronbach's (1951) alpha. Univariate distributions were visually inspected for skewness, kurtosis, and outliers. Outliers with centered leverage values greater than 2k/n or standardized residuals of ±2 were considered for deletion based on their distance from the remaining data set (Cohen, Cohen, West, & Aiken, 2003). Bivariate scatterplots between all variables were also visually inspected for linearity.

Measurement models. The fit of the full model, containing both structural and measurement components, can be affected by poorly fitting measurement models (Martens, 2005); therefore, the fit of the measurement models was assessed before the hypotheses are examined. There are three latent variables assessed by multiple indicators: VWB, defined as career choice commitment, vocational identity, and career indecision (Figure 3); PWB, operationalized using self-actualization and vitality (Figure 4); and NWB, defined as depression and anxiety (Figure 5). The fit of these three measurement models was assessed using CFA (Anderson & Gerbing, 1988), and the factor loadings were examined to assess whether they are significantly differently from zero and in the hypothesized direction. In addition, the overall fit for each CFA was evaluated as described below.

Although chi-squared tests have traditionally been used to assess the fit of a SEM
and CFA models to the data, the chi-squared test has been criticized as being too sensitive to sample size, leading to adequate models being rejected (Bentler, 1990; Tabachnick & Fidell, 2007). Therefore, multiple alternative indices of fit have been developed, and the two that were used in this study were the root mean squared error of approximation (RMSEA; Browne & Cudeck, 1993), and the comparative fit index (CFI; Bentler, 1990), because of their robustness to distortions due to sample size (Fan, Thompson, and Wang, 1999), their accuracy at rejecting misspecified models (Martens, 2005), and their widespread use in the literature (McDonald & Ho, 2002).

The RMSEA, based on the non-centrality parameter, estimates the model's lack of fit compared to a perfect (saturated) model, with higher values representing worse fit. RMSEA values below .06 indicate good fitting models, while RMSEA values between .06 and .10 indicate models with acceptable fit (Browne & Cudeck, 1993). The CFI, also based on the non-centrality parameter, compares the model of interest to the worst possible model (i.e., the independence model). CFI ranges from 0-1, with higher values indicating a better fit to the data. CFI values above .95 are indicative of good fit (Hu & Bentler, 1999), while values between .90 and .95 are considered by convention to be minimally acceptable (e.g., Marsh & Hau, 1996). Thus, the overall fit of the measurement models was evaluated using these ranges.

**Full model.** After the assumptions of SEM are assessed, and the measurement models had been checked to ensure that the latent variables were appropriately operationalized by their indicators, the fit of the full model to the data was assessed. Similar to assessing the fit of the measurement models, fit was determined by examining the RMSEA and CFI. RMSEA scores below .06 indicate good model fit to the data, while
scores between .06 and .10 were considered an acceptable fit (Browne & Cudeck, 1993). CFI scores above .95 were considered a good fit (Hu & Bentler, 1999), while CFI scores between .90 and .95 were considered an acceptable fit (Marsh & Hau, 1996).

**Primary analyses.** The four hypotheses in this study are similar in that they each predicted that the effect of one of the goal OC variables (i.e., CGA or CGIC) on one of the GWB variables (i.e., PWB or NWB) would be mediated by VWB. As suggested by Baron and Kenny (1986), these mediations were assessed using a series of statistical tests. For each mediational hypothesis, the necessary preconditions of mediation were first assessed using \( t \)-tests on the zero-order correlations among the three latent variables involved in the mediation. If these preconditions were met, mediation was assessed using Sobel's (1987) test of the indirect (i.e., mediated) effect of the predictor variable on the criterion variable. For each hypothesis to be supported, all three of the associated meditational preconditions, as well as Sobel's test, had to be significant. These analyses will be described below in more detail.

Baron and Kenny (1986) define mediation as a causal chain wherein a predictor variable effects a criterion variable through a mediating variable. Full mediation takes place when all of the predictor variable's effect on the criterion variable is through the mediating variable, while partial mediation takes place when the predictor variable has at least some effect on the criterion variable through the mediating variable. In order to establish that mediation could be taking place, Baron and Kenny (1986) discuss three necessary preconditions for mediation. First (except in rare circumstances)\(^6\), there must

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\(^6\) Suppression, which occurs when the sign of the indirect (mediated) effect on the criterion variable is opposite of the sign of the direct (unmediated) effect, can lead to a case where mediation exists despite there being no zero-order correlation between the predictor and criterion variables. It was not hypothesized, however, that suppression would take place in any of the mediated effects examined in
be some relationship between the predictor and criterion variable. Second, the predictor must be related to the mediator, and third, the mediator must be related to the criterion variable. Without these three preconditions, mediation cannot take place. Therefore, these three preconditions were assessed for each hypothesized mediational relationship by observing the zero-order relationships between the three variables involved in the hypothesized mediation.

For example, for Hypothesis 1 (i.e., the effect of CGA on PWB would be mediated through VWB), the zero order Pearson's product moment correlation coefficients between CGA and PWB, between CGA and VWB, and between VWB and PWB was generated. These correlations were examined for significance using $t$-tests. Because of the large number of $t$-tests for the preconditions of mediation for all four hypotheses (i.e., 8)\textsuperscript{7}, a Bonferroni correction was made to the alpha levels of all precondition tests so that the cumulative alpha level of all eight tests was .05. This means that the alpha level of each $t$-test was set at $0.05/8 = 0.00625$.

Although the mediation precondition tests discussed above establish that mediation is a logical possibility, establishing that mediation is taking place requires demonstrating that the predictor is effecting the criterion through the mediating variable (Shrout & Bolger, 2002). One common way of assessing whether this is taking place is by using Sobel's (1987) test of indirect effects. Sobel's test involves dividing the product of the two unstandardized path coefficients involved in the mediated effect (i.e., the path

\textsuperscript{7} Although it may appear prima facie that there would be 12 separate $t$-tests (i.e., because 3 mediational preconditions are being tested for 4 hypothesis), there are in fact only 8 separate $t$-tests because some tests can serve as precondition tests for multiple hypotheses. For example, establishing that the zero-order correlation between CGA and VWB is significant served as a precondition test for both Hypothesis 1 (VWB mediates the relationship between CGA and PWB, and Hypothesis 2 (VWB mediates the relationship between CGA and NWB).
from the predictor to the mediator, and the path from the mediator to the criterion) by the product of the paths' standard errors. The value of this ratio, which is asymptotically a $t$-test statistic, is then compared to a $t$-table to determine whether the indirect (mediated) effect of the predictor on the criterion is significantly different from zero. For each hypothesis where the preconditions were met, Sobel's tests (with an alpha level of .05) were calculated to determine whether the mediated effects were significantly different from zero.

In summary, each hypothesis in the study had four associated statistical tests: three $t$-tests on the zero-order correlations between the three latent variables hypothesized to be involved in the mediation (to establish that mediation was logically possible), and (if all three tests were significant), one (Sobel's) $t$-test of the significance of the effect of the predictor variable on the criterion variable through the hypothesized mediator variable (to establish that mediation was, in fact, taking place). A hypothesis was considered to be supported only if all three of the mediation precondition tests and Sobel's test of indirect effects was significant.

**A-Priori Power Analyses**

Hypotheses 1, 2, 3, and 4 were evaluated based on the results from a series of $t$-tests. In order to test these hypotheses, it was necessary to gather enough participants to adequately protect against a Type II error (i.e., the failure to reject the null hypothesis when the null hypothesis is, in fact, false), as well as enough participants to ensure the stability of the input covariance matrices (Kline, 2005). Power, defined as one minus the probability of committing a Type II error, is a function of the sample size, the effect size, and the alpha level (Murphy & Myors, 1998). The desired power for the study was .80,
and the desired sample size was based on the amount of participants necessary to achieve a power of at least .80 for each t-test in the study. Effect sizes between the latent variables were predicted by using LISREL 8.8 (Jöreskog & Sörbom, 1993) to generate a SEM model based on a correlation matrix derived from the associations between the studied indicators in previous research (see Appendix L). Because some indicators in the study had not been measured in previous literature (such as CGA), and because the correlation between some indicators was not readily available in previous research (such as the correlation between the Self-Actualization Scale and the Career Decision Scale), some of the correlations in this correlation matrix were estimated.

Table 2 lists each of the statistical tests for the study, along with the predicted effect size for the test, the alpha level for the test, and the power of the test at three different sample sizes (200, 250, and 310) using equations from Cohen (1988). The weakest effect size was predicted to be associated with Sobel's test on the significance of the indirect effect of CGIC on NWB (this row is bolded in Table 2). As a result, this statistical test was predicted to have the least power of the tests in the study, and required 310 participants to achieve the desired power of .80. Therefore, 310 participants were sought in the study to achieve a power of .80 for all statistical tests.

In SEM, in addition having adequate power to avoid a Type II error, it is also necessary to gather enough participants to ensure the stability of the input covariance matrixes. Martens (2005) and Kline (2005) suggested at least 200 participants for this purpose. Kline (2005) and Bentler and Chou (1987) additionally recommended gathering ten participants for each parameter of the model under investigation. The model in the study has 25 parameters, suggesting that 250 participants would be appropriate by these
In summary, two factors determined the desired number of participants for the study: adequate participants necessary to achieve a power of at least .80 for all $t$-tests in the study, and adequate participants to ensure stability of the input covariance matrices. The power analysis suggested that 310 participants would be ideal, and recommendations for ensuring the stability of the input covariance matrices suggested that from 200 to 250 participants should be adequate. Therefore, the study sought to gather 310 participants.

After the data were screened, the final count for participants was 265. This number of participants was adequate to achieve model stability based on the guidelines discussed above. The number of participants gathered was also adequate to achieve the desired power of .80 for all statistical tests except the Sobel tests involving CGIC. Sobel tests involving CGIC, however, were not conducted due to CGIC failing to satisfy the Baron and Kenny (1986) preconditions for mediation. In other words, CGIC did not have a significant bivariate relationship with PWB or NWB, so there was no effect that VWB could mediate. Therefore, the number of participants used in the current study achieved a power of .80 on all statistical tests conducted, and was adequate.
Table 2

**Hypotheses and the Estimated Power of Associated Statistical Tests**

<table>
<thead>
<tr>
<th>Hypothesis and associated statistical tests</th>
<th>Est. ( r )</th>
<th>Alpha level</th>
<th>Power ( n = 200 )</th>
<th>Power ( n = 250 )</th>
<th>Power ( n = 310 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1: CGA's effect on PWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGA is related to PWB</td>
<td>.32</td>
<td>.00625</td>
<td>.98</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>2. CGA is related to VWB</td>
<td>.36</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>3. VWB is related to PWB</td>
<td>.48</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>4. Sobel's test of CGA's indirect effect on PWB</td>
<td>.20</td>
<td>.05</td>
<td>.83</td>
<td>.90</td>
<td>.95</td>
</tr>
<tr>
<td><strong>H2: CGA's effect on NWB is mediated through VWB</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>1. CGA is related to NWB</td>
<td>-.43</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>2. CGA is related to VWB</td>
<td>.36</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>3. VWB is related to NWB</td>
<td>-.47</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>4. Sobel's test of CGA's indirect effect on NWB</td>
<td>-.19</td>
<td>.05</td>
<td>.78</td>
<td>.86</td>
<td>.92</td>
</tr>
<tr>
<td><strong>H3: CGIC's effect on PWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGIC is related to PWB</td>
<td>.34</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>2. CGIC is related to VWB</td>
<td>.28</td>
<td>.00625</td>
<td>.91</td>
<td>.97</td>
<td>.99</td>
</tr>
<tr>
<td>3. VWB is related to PWB</td>
<td>.48</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>4. Sobel's test of CIC's indirect effect on PWB</td>
<td>.16</td>
<td>.05</td>
<td>.66</td>
<td>.75</td>
<td>.84</td>
</tr>
<tr>
<td><strong>H4: CGIC's effect on NWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGIC is related to NWB</td>
<td>-.40</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td>2. CGIC is related to VWB</td>
<td>.28</td>
<td>.00625</td>
<td>.91</td>
<td>.97</td>
<td>.99</td>
</tr>
<tr>
<td>3. VWB is related to NWB</td>
<td>-.47</td>
<td>.00625</td>
<td>.99</td>
<td>.99</td>
<td>.99</td>
</tr>
<tr>
<td><strong>4. Sobel's test of CGIC's indirect effect on NWB</strong></td>
<td>-.15</td>
<td>.05</td>
<td>.62</td>
<td>.71</td>
<td>.80</td>
</tr>
</tbody>
</table>

*Note.* Because of the great number of statistical tests necessary to demonstrate the logical possibility of mediation (Baron & Kenny, 1986), a Bonferroni correction was applied to the mediation precondition tests (i.e., tests 1, 2, and 3 of all hypotheses) so that the alpha level for all tests was cumulatively equal to .05.
Chapter 4

Results

Overview of Analyses

The results of analyses proposed earlier are presented in this chapter. First, preliminary analyses will be discussed. The methods of screening the data for missing data and for statistical anomalies are discussed, the reliabilities and distributional assumptions of each of the variables are explored, and the relationship between demographic variables and the variables in the study are outlined. Second, the measurement models for VWB, PWB, and NWB are evaluated. Third, the fit of the structural model will be evaluated. Finally, after the satisfactoriness of the structural model is established, the hypotheses are tested.

Preliminary Analyses

Data screening. As of May 2, 2011, 395 participants had followed the link to the online questionnaire used to gather data in this study and answered at least one item. The first step in the data screening process was to include only those participants that met the inclusion criteria: being between the ages of 18 and 25 years old, being a college junior or senior, and being a full time college student. Based on the demographic questions on the survey, of the 395 initial participants, 9 participants indicated they did not meet the age criteria, 30 participants indicated that they were not college juniors or seniors, and 5 participants indicated they were not full time students. Thus, of the original 395 participants, 351 participants remained after applying the inclusion criteria.

Data were next screened for missing data points. Of the remaining 351 participants, 63 left at least one of the surveys incomplete at the end of the questionnaire.
The large percentage of participants who did not complete the survey (18% of participants who met the inclusion criteria) may be due to the length of the survey (estimated to be between 35 and 45 minutes) and represents a limitation of this study.

Next, the number of career goals generated by the remaining 288 participants was examined. Participants in this study were instructed to generate five goals, which were then referenced when participants completed measures of their CGA and CGIC. Some participants in the study, however, generated less than five goals yet filled out all CGA and CGIC items for the goals they generated. Participants in this study were instructed to generate five goals based on life goal studies, such as Sheldon et al. (2004). Some studies that focus on domain specific goals, however, have gleaned valid measures of goal characteristics from as little as one goal per domain (e.g., Lent et al, 2005). Therefore, it was decided that of the 288 remaining participants, the data of the 22 participants in this study who generated three or four career goals was included in the final analysis, while the data of the 18 participants who generated only one or two career goals was discarded, leaving 270 participants remaining. The career development of the 22 retained participants who generated less than five goals was compared with the career development of participants who generated less than five goals (see below).

To insure that all retained participants had a valid score on each scale, the final screening procedure was for participants who were missing more than 20% of the data points on any scale. Of the remaining 270 participants, five participants were discarded for failing to fill out more than 20% of a scale. The final sample used in all subsequent

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8 The CGA and CGIC scores for participants who generated less than five goals was derived by multiplying CGA and CGIC scores by 5/3 for participants who generated three goals, and by 5/4 for participants who generated 4 goals.
analyses, therefore, was 265 participants.

After the data were screened, the data set was examined for missing data points. Missing values accounted for roughly 0.3% of the total data points, with an average of less than one missing data point per participant. A visual inspection was unable to ascertain any pattern to the missing data, and the missing data were treated as random. Various methods of data imputation do not significantly differ when missing data accounts for less than 5% of the data set (Tabachnick & Fidell, 2007), so the group mean for each scale was used to fill in the missing data using SPSS 18.

After data screening was complete, one final precaution was taken to rule out the possibility that participants who generated less than five career goals did so because they lacked career commitment. Three $t$-tests were used to compare the VEC, CDS, and MVS scores of the 22 participants who generated three or four goals to the VEC, CDS, and MVS scores of the 243 participants who generated five goals. The $t$-tests revealed that there was no significant difference in the VEC, $t(263) = -.175, p = 0.861$, CDS, $t(263) = -.261, p = 0.795$, or MVS, $t(263) = .017, p = 0.986$, between these groups, suggesting that career maturity and commitment was not related to the number of goals participants were able to generate.

**Distributional assumptions of measured variables.** The mean, standard deviation, skewness, kurtosis, and coefficient alpha level of each indicator variable for the study are depicted in Table 3 below. All statistics are based on a sample size of 265. The standard error for skewness with $N = 265$ is .150, and the standard error for kurtosis for $N = 265$ is .298. Conventionally, skewness values above three times the standard error of skewness are considered significantly non-normal. In the data set, the skewness values
for CES-D and STAI were significant. To examine the non-normality of these variables, the histograms and p-p plots of all significantly skewed variables are presented below in Figure 6. In addition, due to CGIC’s high value on the kurtosis test, CGIC’s histogram is also presented below.

Table 3

**Descriptive Statistics of Measured Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGA</td>
<td>25.70</td>
<td>26.70</td>
<td>.37</td>
<td>-.59</td>
<td>.81</td>
</tr>
<tr>
<td>CGIC</td>
<td>17.56</td>
<td>18.53</td>
<td>.37</td>
<td>2.49</td>
<td>.93</td>
</tr>
<tr>
<td>VEC</td>
<td>63.60</td>
<td>23.65</td>
<td>.16</td>
<td>-.70</td>
<td>.94</td>
</tr>
<tr>
<td>CDS</td>
<td>32.39</td>
<td>10.44</td>
<td>.22</td>
<td>-.94</td>
<td>.91</td>
</tr>
<tr>
<td>MVS</td>
<td>25.00</td>
<td>5.19</td>
<td>.38</td>
<td>-.96</td>
<td>.90</td>
</tr>
<tr>
<td>SA</td>
<td>32.11</td>
<td>6.03</td>
<td>.02</td>
<td>-.28</td>
<td>.70</td>
</tr>
<tr>
<td>Vit</td>
<td>29.62</td>
<td>7.78</td>
<td>-.45</td>
<td>-.16</td>
<td>.91</td>
</tr>
<tr>
<td>CES-D</td>
<td>37.11</td>
<td>11.53</td>
<td>.93</td>
<td>.27</td>
<td>.92</td>
</tr>
<tr>
<td>STAI</td>
<td>41.62</td>
<td>11.37</td>
<td>.45</td>
<td>-.03</td>
<td>.93</td>
</tr>
</tbody>
</table>

*Note. SE = .150 for skewness, .298 for kurtosis. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; VEC = Vocational Exploration and Commitment; CDS = Career Decision Scale; MVS = My Vocational Situation; SA = Self Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trail Anxiety Inventory.*
Figure 6

Histograms and P-P Plots
These histograms and p-p plots demonstrate that while the CGIC’s level of kurtosis appears to be unproblematic, the non-normality in CES-D and STAI is apparent\(^9\). To assess the degree to which CES-D and STAI’s negative skew may introduce error into further analyses, these variables were rank transformed (Conover & Iman, 1982) and the correlations between the skewed variables and other variables were observed for significant changes. Table 4 displays the correlations between CES-D and STAI and other variables, while Table 5 displays the correlations between rank-ordered CES-D and Rank-ordered STAI and other variables. Upon comparing the differences between the two tables, it appears that rank-ordering the two variables does not significantly change their relationship with the other indicators in the study. Therefore, as it did not appear that subsequent analyses were adversely affected by the non-normality of CESD and STAI, and subsequent analyses were conducted using the non-rank-ordered variables.

\(^9\) It is likely that CES-D and STAI are negatively skewed because they are measures of pathology (depression and anxiety) being used in a non-pathological population (college juniors and seniors).
### Table 4

**Correlation Matrix of the Indicator Variables**

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA</td>
<td></td>
<td></td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CGIC</td>
<td>-.38**</td>
<td></td>
<td></td>
<td>-.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. VEC</td>
<td></td>
<td>-.35**</td>
<td>-.16**</td>
<td></td>
<td>.81**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. CDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. MVS</td>
<td>.36**</td>
<td>.05</td>
<td>-.78**</td>
<td>-.82**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SA</td>
<td>.38**</td>
<td>.13*</td>
<td>-.47**</td>
<td>-.40**</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Vit</td>
<td>.32**</td>
<td>-.02</td>
<td>-.37**</td>
<td>-.29**</td>
<td>.40**</td>
<td>.47**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. CES-D</td>
<td>-.30**</td>
<td>.01</td>
<td>.33**</td>
<td>.39**</td>
<td>-.47**</td>
<td>-.55**</td>
<td>-.54**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. STAI</td>
<td>-.27**</td>
<td>.07</td>
<td>.43**</td>
<td>.37**</td>
<td>-.52**</td>
<td>-.62**</td>
<td>-.59**</td>
<td>.84**</td>
<td></td>
</tr>
</tbody>
</table>

*Note.* *p* < .05, **p** < .01. N = 265. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trait Anxiety Scale, trait version.
Table 5

Correlation Matrix of the Indicator Variables-CESD & STAI Rank Transformed

<table>
<thead>
<tr>
<th>Measure</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CGIC</td>
<td>.08</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. VEC</td>
<td>-.38**</td>
<td>-.10</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. CDS</td>
<td>-.35**</td>
<td>-.16**</td>
<td>.81**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. MVS</td>
<td>.36**</td>
<td>.05</td>
<td>-.78**</td>
<td>-.82**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. SA</td>
<td>.38**</td>
<td>.13*</td>
<td>-.47**</td>
<td>-.40**</td>
<td>.47**</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Vit</td>
<td>.32**</td>
<td>-.02</td>
<td>-.37**</td>
<td>-.29**</td>
<td>.40**</td>
<td>.47**</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. RCES-D</td>
<td>-.34**</td>
<td>.00</td>
<td>.39**</td>
<td>.41**</td>
<td>-.49**</td>
<td>-.54**</td>
<td>-.54**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>9. RSTAI</td>
<td>-.27**</td>
<td>.05</td>
<td>.44**</td>
<td>.39**</td>
<td>-.53**</td>
<td>-.60**</td>
<td>-.57**</td>
<td>.84**</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. *p < .05, **p < .01. N = 265. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; RCES-D = The rank-ordered Center for Epidemiological Studies-Depression Inventory; RSTAI = The rank-ordered State Trait Anxiety Scale, trait version.

Reliabilities of measured variables. The reliabilities of the measured variables used in this study were all above .80 except for SA, which had a reliability of .70. Other research using SA, however, has reported similar reliabilities. For example, the creators of the measure reported an alpha coefficient of .65 (Jones & Crandall, 1986), and a more recent use of the measure with college students also found an alpha coefficient of .65 (Thrash et al., 2010). Therefore, the measure of SA used in the study exhibited acceptable reliability.

Correlations between measured variables. The correlations among the measured variables in this study are presented in Table 4. Upon comparing the pattern of
observed correlations (Table 4) to the predicted pattern used for the power analysis (Appendix L), a couple of notable discrepancies become apparent. First, CGIC had a weaker relationship to other measured variables than expected. Although CGIC was hypothesized to have a bivariate relationship to the other measured variables in the range of $r = \pm .20$ to $\pm .32$, the observed relationships were much smaller, with the strongest bivariate relationship being $- .16$. CGIC was only significantly related to CDS ($r = -.16, p < .01$) and SA ($r = .13, p < .05$). Second, the outcome variables (SA, Vit, CES-D, and STAI) had a somewhat stronger relationship to the predictor and mediator variables than predicted. In line with the hypotheses, however, all significant relationships were in the predicted direction.

**Demographic variables.** The demographic variables of age, college class standing, gender, racial/ethnic group identification, whether a major had been declared, whether career counseling has been sought in the past, and career salience were examined with respect to the measured variables in Table 6. As can be seen in Table 6, career salience is consistently related to the measured variables in a theoretically consistent direction, except for CGIC. In the case of CGIC, it appeared that career salience is related to having more extrinsic career goals. Although career salience was assessed informally by means of a single item (“How important is your career to you?”), this result of individuals with more extrinsic career goals rating career as more important is interesting, and warrants a more thorough investigation in future research.

Two other relationships of interest are between Vit and age, and between CGA and class standing. It is not surprising that subjective vitality was found to be somewhat negatively related to age (i.e., older students had less of a feeling of energy and vitality),
and this is consistent with the theoretical underpinnings of this variable (Ryan & Frederick, 1997). CGA’s negative relationship with Class Standing, however, is somewhat unexpected, as it suggests that college seniors were slightly less autonomous than juniors. It may be that seniors were reacting to their impending graduation by adopting a more controlled motivational style. Overall, the demographic variables did not represent any significant confounds, and were therefore not included in the model.

Table 6

Correlations of Demographic Variables with Measured Variables

<table>
<thead>
<tr>
<th>Measure</th>
<th>Age</th>
<th>Gender</th>
<th>Race/Ethnicity</th>
<th>Class Standing</th>
<th>Major Declared</th>
<th>Career Counsel</th>
<th>Salience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA</td>
<td>-.09</td>
<td>.00</td>
<td>.19</td>
<td>-.16**</td>
<td>.03</td>
<td>.10</td>
<td>.18**</td>
</tr>
<tr>
<td>2. CGIC</td>
<td>.00</td>
<td>-.03</td>
<td>.17</td>
<td>.04</td>
<td>-.01</td>
<td>.01</td>
<td>-.15*</td>
</tr>
<tr>
<td>3. VEC</td>
<td>.07</td>
<td>.07</td>
<td>.21</td>
<td>.08</td>
<td>.09</td>
<td>.07</td>
<td>-.27**</td>
</tr>
<tr>
<td>4. CDS</td>
<td>-.01</td>
<td>.11</td>
<td>.14</td>
<td>.03</td>
<td>.09</td>
<td>.02</td>
<td>-.19**</td>
</tr>
<tr>
<td>5. MVS</td>
<td>-.02</td>
<td>-.03</td>
<td>.15</td>
<td>-.03</td>
<td>-.11</td>
<td>.02</td>
<td>.17**</td>
</tr>
<tr>
<td>6. SA</td>
<td>.02</td>
<td>.00</td>
<td>.19</td>
<td>.06</td>
<td>-.12</td>
<td>.08</td>
<td>.13*</td>
</tr>
<tr>
<td>7. Vit</td>
<td>-.16*</td>
<td>-.02</td>
<td>.19</td>
<td>-.07</td>
<td>-.01</td>
<td>-.05</td>
<td>.19**</td>
</tr>
<tr>
<td>8. CES-D</td>
<td>-.02</td>
<td>.01</td>
<td>.18</td>
<td>-.03</td>
<td>.05</td>
<td>-.13*</td>
<td>-.13*</td>
</tr>
<tr>
<td>9. STAI</td>
<td>.00</td>
<td>-.05</td>
<td>.15</td>
<td>-.03</td>
<td>.05</td>
<td>-.11</td>
<td>-.16*</td>
</tr>
</tbody>
</table>

Note. * p < .05, ** p < .01. N = 259 due to listwise deletion. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trait Anxiety Scale, trait version.

Testing the Measurement Models

Although SEM can simultaneously test the fit of the measurement and structural model, some authors (Martens, 2005) have suggested testing the measurement model first
to insure that the fit of the measurement model is adequate before the fit of the structural model is tested. The measurement models of VWB, PWN, and NWB were therefore tested. Table 7 below represents the loading of each indicator variable on the predicted latent variable, along with the amount of error observed in this relationship. In general, a significant loading of .70 and above is considered adequate. All indicator variables loaded on their respective latent variable above .70 except Vit, which loaded on PWB at .65.

Table 7

*Indicator Variables Loading on Their Latent Variables*

<table>
<thead>
<tr>
<th>Indicator Variable</th>
<th>Loading</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA on CGA</td>
<td>.90**</td>
<td>19%†</td>
</tr>
<tr>
<td>2. CGIC on CGIC</td>
<td>.96**</td>
<td>7%†</td>
</tr>
<tr>
<td>3. VEC on VWB</td>
<td>-.88**</td>
<td>23%</td>
</tr>
<tr>
<td>4. CDS on VWB</td>
<td>-.91**</td>
<td>18%</td>
</tr>
<tr>
<td>5. MVS on VWB</td>
<td>.90**</td>
<td>18%</td>
</tr>
<tr>
<td>6. SA on PWB</td>
<td>.73**</td>
<td>47%</td>
</tr>
<tr>
<td>7. Vit on PWB</td>
<td>.65**</td>
<td>58%</td>
</tr>
<tr>
<td>8. CES-D on NWB</td>
<td>-.86**</td>
<td>26%</td>
</tr>
<tr>
<td>9. STAI on NWB</td>
<td>-.97**</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Note.* *p < .05, **p < .01. N = 265. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trait Anxiety Scale, trait version. VWB = Vocational Well-Being; PWB = Positive Well-Being; NWB = Negative Well-Being. † The errors of CGA and CGIC were set by prior evidence (reliability coefficients) and not estimated from the data.

In addition to the loadings of the indicator variables on their latent variables, it was also important to explore the overall fit of the measurement models. The fit of the
measurement models is represented below in Table 8. The measurement model of VWB (see Figure 3) yielded excellent fit indices\(^\text{10}\). The chi squared was non-significant, and the RMSEA and CFI were both ideal. The measurement models of PWB and NWB (see Figure 4 and Figure 5) were tested simultaneously, because testing them individually yielded under-identified models. The fit indices of the PWB and NWB models were also excellent, yielding a non-significant chi squared value, and an ideal RMSEA and CFI. The fit indices of the two single indicator latent variables were not tested because the loadings for these models were artificially obtained by fixing the error variance based on the observed reliability of the measures (Hayduk, 1987). Thus, the measurement models exhibited adequate factor loadings and global fit indices.

Table 8

**Measurement Model Fit Indices**

<table>
<thead>
<tr>
<th>Model</th>
<th>Chi Squared</th>
<th>RMSEA</th>
<th>CFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational Well-Being</td>
<td>1.03, (df = 1, p = .31)</td>
<td>0.01</td>
<td>1.00</td>
</tr>
<tr>
<td>Positive Well-Being &amp; Negative Well-Being</td>
<td>.07, (df = 1, p = .80)</td>
<td>0.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The final step in testing the measurement models was to test the bivariate correlations in the latent variables (observed in Table 9). In order for CGA’s and CGIC’s relationship with PWB and NWB to be mediated by VWB, it should be the case that the bivariate relationship between the predictor variables and the outcome variables is significant. It must also be the case that the mediator, VWB, have a significant bivariate relationship with the outcome variables. As can be seen in Table 9 below, CGA and VWB

\(^{10}\) The error variance of MVS was fixed to one minus its alpha reliability times the total variance of MVS, yielding an error variance of 6.19. This was necessary to produce an over-identified model capable of yielding fit indices.
have significant bivariate relationships with both PWB and NWB, thus meeting the preconditions for the effect of CGA on PWB and NWB being mediated through VWB. CGIC, however, does not have a significant bivariate relationship with PWB, NWB, or VWB. Therefore, CGIC does not meet the preconditions for mediation.

Table 9

*Correlation Matrix of the Latent Variables*

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. CGIC</td>
<td>.09</td>
<td>—</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. VWB</td>
<td>.45**</td>
<td>.12</td>
<td>—</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. PWB</td>
<td>.58**</td>
<td>.10</td>
<td>.65**</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>5. NWB</td>
<td>-.32**</td>
<td>.07</td>
<td>-.51**</td>
<td>-.90**</td>
<td>—</td>
</tr>
</tbody>
</table>

*Note.* *p* < .05, **p** < .01, N = 265. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VWB = Vocational Well-Being; PWB = Positive Well-Being; NWB = Negative Well-Being.

### Testing the Structural Model

The full structural model with standardized path coefficients is presented in Figure 7. The significance of each path coefficient was evaluated by a *t*-test, and path coefficients that were significant at *p* < .05 are signified by an asterisk. CGA has a significant effect on VWB, and VWB has a significant effect on PWB and on NWB. In addition, CGA has a significant direct effect on PWB (*r* = .35), but no significant direct effect on NWB. CGIC does not have a significant effect on VWB or on PWB. CGIC did, however, have a significant direct effect on NWB (*r* = .44).

The goodness of fit for the full model was evaluated by the method of maximum likelihood in LISREL 8.8. The chi-squared test was highly significant ($\chi^2_{(19)} = 70.02$, *p* <
.001), although this test is not typically used as a measure of goodness of fit due to its sensitivity to sample size. The RMSEA is .10, which is considered acceptable, and the CFI is .97, which is considered good. Therefore, the model appeared to adequately fit the data.
Figure 7

Full Model

Note. *p < .05. N = 265. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trait Anxiety Scale, trait version. The residuals of the latent variables are given in % figures and are equal to $1 - R_{LV}^2$. 

![Diagram](image-url)
Testing the Hypotheses

There were four hypotheses to be tested. Hypothesis 1 was that VWB mediated the relationship between CGA and PWB. Hypothesis 2 was that VWB mediated the relationship between CGA and NWB. Hypothesis 3 was that VWB mediated the relationship between CGIC and PWB. Hypothesis 4 was that VWB mediated the relationship between CGIC and NWB. In order to assess these hypotheses, each hypothesis was evaluated in a two-stage process. First, all of Baron and Kenny’s (1986) mediation preconditions were evaluated, and second, Sobel’s (1987) test of indirect effects was applied.

Table 10 displays the necessary information to evaluate Baron and Kenny’s (1986) mediational pre-conditions for each hypothesis. The table reveals that the preconditions were met for the association between CGA and PWB, and for CGA and NWB, suggesting that mediation may be taking place among these variables. The preconditions for the association between CGIC and PWB and CGIC and NWB were not met however, suggesting that Hypothesis 3 and 4 may not be supported. Because some authors dispute the claim that Baron and Kenny’s mediational pre-conditions are necessary for mediation (e.g., MacKinnon, Lockwood, Hoffman, West & Sheets, 2002), further discussion of mediation will take place when interpreting the results of the Sobel’s (1987) test of indirect effects.
Table 10

Hypotheses and Associated Mediation Pre-Condition Tests

<table>
<thead>
<tr>
<th>Hypothesis and associated statistical tests</th>
<th>$r$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>H1: CGA’s effect on PWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGA is related to PWB</td>
<td>.58</td>
<td>11.55</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2. CGA is related to VWB</td>
<td>.45</td>
<td>8.17</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3. VWB is related to PWB</td>
<td>.65</td>
<td>13.87</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td><strong>H2: CGA's effect on NWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGA is related to NWB</td>
<td>-.32</td>
<td>-5.48</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>2. CGA is related to VWB</td>
<td>.45</td>
<td>8.17</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>3. VWB is related to NWB</td>
<td>-.51</td>
<td>-9.62</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td><strong>H3: CGIC's effect on PWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGIC is related to PWB</td>
<td>.10</td>
<td>1.63</td>
<td>.0522</td>
</tr>
<tr>
<td>2. CGIC is related to VWB</td>
<td>.12</td>
<td>1.96</td>
<td>.0255</td>
</tr>
<tr>
<td>3. VWB is related to PWB</td>
<td>.65</td>
<td>13.87</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td><strong>H4: CGIC's effect on NWB is mediated through VWB</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. CGIC is related to NWB</td>
<td>.07</td>
<td>1.14</td>
<td>.1281</td>
</tr>
<tr>
<td>2. CGIC is related to VWB</td>
<td>.12</td>
<td>1.96</td>
<td>.0255</td>
</tr>
<tr>
<td>3. VWB is related to NWB</td>
<td>-.51</td>
<td>-9.62</td>
<td>&lt;.0001</td>
</tr>
</tbody>
</table>

*Note. $\alpha = .00625$. n = 265. Significant hypotheses are bolded. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; PWB = Positive Well-Being; NWB = Negative Well-Being.*

Table 11 displays the total, direct, and indirect effects of CGA on PWB and NWB, along with Sobel’s (1987) test of indirect effects. CGA has a significant total effect on PWB ($r = .57$), and thirty nine percent of CGA’s total effect on PWB is indirectly exercised through VWB. The magnitude of CGA’s indirect effect on PWB is significant at $r = .22$, which is the product of PWB’s effect on VWB ($r = .44$) and VWB’s effect on PWB ($r = .49$), thus supporting Hypothesis 1. CGA also has a significant total effect on NWB ($r = -.33$), and sixty four percent of CGA’s effect on NWB is indirectly exercised through VWB. The magnitude of this mediated effect is significant at $r = -.21$, which is
the product of PWB’s effect on VWB ($r = .44$) and VWB’s effect on PWB ($r = -.46$), thus supporting Hypothesis 2. Therefore, Hypothesis 1 and 2 were supported: CGA’s relationship with PWB is partially mediated through VWB, while CGA’s effect on NWB is fully mediated through VWB. CGIC did not have a significant total effect on PWB or NWB. CGIC’s indirect effects on PWB and NWB were also not significant, thus rejecting Hypothesis 3 and 4.

Table 11

*Test of Direct and Indirect Effects*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Direct</th>
<th>Indirect (via VWB)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CGA on PWB</td>
<td>.35**  (61%)</td>
<td>.22**  (39%)</td>
<td>.57**</td>
</tr>
<tr>
<td>2. CGA on NWB</td>
<td>-.13 (36%)</td>
<td>-.21** (64%)</td>
<td>-.33**</td>
</tr>
<tr>
<td>3. CGIC on PWB</td>
<td>.01 (20%)</td>
<td>.04 (80%)</td>
<td>.05</td>
</tr>
<tr>
<td>4. CGIC on NWB</td>
<td>.13*11 (78%)</td>
<td>-.04 (22%)</td>
<td>.10</td>
</tr>
</tbody>
</table>

Note. * $p < .05$, ** $p < .01$. N = 265. Significant hypotheses are bolded. CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; PWB = Positive Well-Being; NWB = Negative Well-Being.

**Summary of Analyses**

The role played by CGA in the analyses was roughly as expected, however CGIC deviated from expectations in a number of ways. CGA’s effect on PWB was partially mediated by VWB, while CGA’s effect on NWB was fully mediated by VWB. These results suggest that VWB mediates the relationship between CGA and NWB in a somewhat different manner than how it mediates the relationship between CGA and PWB. CGIC did not have a significant bivariate relationship with any of the other latent

---

11 CGIC had a direct effect on NWB in the absence of a bivariate relationship between CGIC and NWB due to CGIC’s indirect effect on NWB being in the opposite direction of its direct effect. CGIC’s indirect effect on NWB was not statistically significant, but was still strong enough to suppress CGIC’s association with NWB.
variables in the study, thus leading to a rejection of hypotheses 3 and 4. The path model, however, reveals that CGIC has a significant direct effect on NWB that was not apparent from the bivariate correlations due to CGIC’s (non-significant) negative indirect effect on NWB suppressing CGIC’s positive relationship with NWB. In addition, CGIC’s effect on NWB was in the opposite direction as predicted: CGIC was predicted to be negatively related to NWB, however CGIC was positively related to NWB.
Chapter 5
Discussion

Review of the Rationale

Self-determination theory (SDT; Deci & Ryan, 2000) hypothesizes that humans have an innate need for autonomy, competence, and relatedness, and that the degree to which these needs are met determines individuals’ well-being. The primary way that adults attempt to enhance their well-being is through the pursuit and achievement of need-congruent goals. Goals with autonomous motives and goals with intrinsic content have been shown to help adults meet their needs, and have each been shown to have a unique effect on well-being (Sheldon et al., 2004). Thus, adults should be able to increase their well-being by pursuing and achieving goals that have autonomous motives and intrinsic contents.

In addition to predicting global well-being, the degree to which an individual’s needs are met within a domain has also been hypothesized to lead to well-being within that domain (Vallerand & Ratelle, 2002) and increased well-being in an important life domain is predicted to increase global well-being (Lent et al., 2005). In other words, feeling autonomous, competent, and related within a life domain should predict higher well-being (e.g., functioning, confidence, positive affect) within that domain. One life domain that is particularly important for individuals’ overall well-being is the career domain (Blustein & Spengler, 1995), and a time of particular importance for goals in the career domain is college (Hull-Blanks et al., 2005). The effect of college students’ need-congruent career goals on their well-being, however, has not been studied. Therefore, this study sought to test the degree to which the autonomous motives and intrinsic contents of
career goals were associated with vocational and global well-being.

Based on the rationale outlined above, the model tested in this study predicted that career goal autonomy (CGA) and career goal intrinsic content (CGIC) would each have a unique effect on vocational well-being (VWB; defined as college students’ ability to commit to a career choice), and that VWB would in turn effect global well-being. However, previous research (Niemiec et al, 2009) and the predicted correlations between the measured variables (Appendix K) indicated that global well-being is better thought of as two separate (yet related) latent variables: positive well-being (PWB) and negative well-being (NWB). Therefore, the model proposed in this study predicted that VWB would affect PWB and NWB.

The four hypotheses for this study were designed to capture the basic predictions of SDT regarding the effect of vocational goal properties on PWB and NWB. Hypotheses 1 and 2 predicted that CGA’s effect on PWB and NWB would be mediated through VWB. Hypotheses 3 and 4 predicted that CGIC’s effect on PWB and NWB would be mediated through VWB.

**Findings and Interpretations**

As hypothesized, career goal autonomy was found to drive positive well-being and negative well-being through its effect on vocational well-being. Thus, a college junior or senior who expresses more autonomous career goals will be more committed to a career choice, and as a result will be more self-actualized and vital and less anxious and depressed. Interestingly, although career goal autonomy was related to both positive and negative well-being, career goal autonomy was found to be more helpful for increasing positive functioning than it was for decreasing dysfunction.
Contrary to hypotheses, however, career goal intrinsic content did not influence vocational well-being, and so could not influence positive well-being or negative well-being through vocational well-being. Unexpectedly, career goal intrinsic content was positively related to negative well-being. That is, a college junior or senior who expresses more intrinsic career goals will not be more committed to a career choice or more self-actualized or vital as a result. Instead, college juniors and seniors with more career goal intrinsic content may be more depressed and anxious as a result. Details about the study’s findings will be explored in more depth below.

**Career goal autonomy.** Greater levels of autonomous goals were found to be related to experiencing greater commitment to a career choice, and this increased career choice commitment was in turn related to greater self-actualization and feelings of vitality, and less anxiety and depression. In other words, greater career goal autonomy led to greater vocational well-being, which in turn led to greater positive well-being and less negative well-being. This cascade of effects is consistent with Lent’s (2004) model of domain level goals and global well-being, which suggested that domain level goal properties would affect global well-being by first affecting domain level well-being. The findings in this study are also consistent with Vallerand’s (1997) domain level derivation of SDT, which predicted that the effects of domain level need fulfillment would directly affect domain level well-being, and would indirectly affect global well-being.

Interestingly, vocational well-being’s effect on positive and negative well-being was found to be equivalent. In other words, vocational well-being appears to be as important for promoting college juniors’ and seniors’ flourishing as it is for protecting against maladjustment. This finding is in line with research that highlights the importance
of vocational functioning for promoting optimal functioning as well as protecting against mental health problems (e.g., Blustein & Spengler, 1995). Vocational well-being’s equivalent effect on both positive well-being and negative well-being also means that the strength of career goal autonomy’s mediated effect on both positive and negative well-being is also equivalent. This finding of the equivalence of career goal autonomy’s mediated effects appears to fit with the theories of domain level well-being discussed above (i.e., Lent, 2004 & Vallerand, 1995), which suggest that domain level goal properties and need fulfillment are important for indices of both positive and negative well-being.

Interestingly, while all of career goal autonomy’s effect on negative well-being was mediated by vocational well-being, the majority (i.e., 61%) of career goal autonomy’s effect on positive well-being was found to be independent of vocational well-being. Career goal autonomy’s direct effect on positive well-being is somewhat harder to explain than career goal autonomy’s mediated effects using the domain level models of goals and well-being discussed above. For example, Lent’s (2004) model predicts that the effect of domain level constructs on global well-being should be mediated by domain level well-being. In addition, the self-determination theory based explanation for the mediated findings is that career goal autonomy leads to need fulfillment in the career domain, which in turn leads to greater overall need fulfillment. Therefore, alternative explanations are needed to explain why the majority of career goal autonomy’s effects on positive well-being are not mediated by vocational well-being.

One explanation for career goal autonomy’s unmediated effect on positive well-being is that the conceptualization of vocational well-being used in the present study is
not rich enough to fully capture the beneficial effects of career goal autonomy on career functioning. In other words, a fuller conception of vocational well-being would mediate the relationship between career goal autonomy and positive well-being. Although the measures used in the present study represent a traditional conception of ideal vocational functioning for college students (i.e., a steady commitment to a career choice), more recent vocational theorists have argued that the inclusion of other factors is necessary to more fully capture college students’ vocational functioning. Of note, Dik and Duffy (2009) proposed that the presence of a sense of calling was an important aspect of vocational functioning for college students that has been overlooked by traditional career theories. It may be that a conceptualization of vocational well-being that includes a sense of calling would fully explain the relationship between career goal autonomy and positive well-being.

Another possibility is that other variables account for the apparent direct effect of career goal autonomy on positive well-being. This third variable would have to be associated with career goal autonomy and positive well-being, but not vocational well-being or negative well-being. One candidate for this third variable is generalized autonomy orientation, defined as a general motivational orientation to experience choice when regulating one’s behavior (Deci & Ryan, 1985). Research has demonstrated that generalized autonomy orientation drives goal autonomy (Sheldon & Kasser, 1995), and positive well-being (such as ego-development and self-esteem), but is less reliably associated with negative well-being (Deci & Ryan, 1985). Therefore, it may be the case that college juniors and seniors who approach most situations autonomously have higher positive well-being and career goal autonomy, but not because there is a causal
relationship between the two variables. If this is the case, this general orientation for autonomy must be accounted for in order to get a more detailed account of the causal relationship between career goal autonomy and positive well-being.

In summary, career goal autonomy effects positive and negative well-being through vocational well-being, thus supporting this study’s hypotheses regarding career goal autonomy. Career goal autonomy’s mediated effects on positive and negative well-being were equivalent, yet the majority of career goal autonomy’s effect on positive well-being was not mediated by vocational well-being. One explanation for career goal autonomy’s apparent direct effect on positive well-being was that the conceptualization of vocational well-being used in the current study does not fully capture the aspects of vocational well-being associated with positive well-being. Another explanation was that the direct effect between career goal autonomy and positive well-being is specious, and is accounted for by the presence of a third variable (such as generalized autonomy orientation).

**Career goal intrinsic content.** Career goal intrinsic content did not have an effect on vocational well-being. Therefore, career goal intrinsic content could not influence positive well being or negative well-being through vocational well-being, and the present study’s mediational hypotheses about career goal intrinsic content were not supported. In addition, career goal intrinsic content had an unexpected positive effect on negative well-being, suggesting that more intrinsic career goals led to more anxiety and depression. Prima facie, these results suggest that instead of being beneficial, intrinsic career goals may actually be detrimental to well-being. Another possibility, however, is that the beneficial effects of intrinsic career goals are only apparent longitudinally. This
possibility is explored in more detail below.

Self-determination theory hypothesizes that when individuals achieve goals that fulfill their psychological needs of autonomy, competence, and relatedness, their well-being is increased as a result (Kasser & Ryan, 1996). In line with this proposition, Sheldon et al. (2004) demonstrated that the pursuit of life goals that prioritize self-growth, close relationships with others, and helping the community over financial success, social recognition, and an appealing appearance, i.e., intrinsic goals, are associated with greater well-being. The present study, which in many ways replicated Sheldon et al. with career goals, found the opposite effect: More intrinsic career goals decreased well-being. One reason for the different findings may be that need fulfillment due to college students’ intrinsic career goals may not occur until after college, while need fulfillment due to college students’ goals in many other life domains (such as social and romantic goals) may be more immediate.

In other words, forming gratifying friendships is likely to help college students meet their psychological needs and increase their well-being now, while pursuing a gratifying career is likely to meet college students’ needs and increase their well-being later. Thus, while increased well-being due to college students’ intrinsic life goals (which primarily seek connections with others; Schmuck, Kasser & Ryan, 2000) is evident cross-sectionally (as it was in Sheldon et al., 2004), increased well-being due to college students’ intrinsic career goals may only be evident longitudinally. Abele and Spurk (2009) lent some support to this interpretation when they demonstrated that college students with more intrinsic career goals at graduation were more satisfied with their careers (i.e., had more vocational well-being) seven years later.
In summary, career goal intrinsic content was not related to vocational well-being, negative well-being, or positive well-being as hypothesized in the current study. One explanation for these unexpected results is that intrinsic career goals do not increase college students’ well-being during college because college students have not yet had the opportunity to achieve their career goals. Self-determination theory predicts, however, that once college students enter the world of work and begin to achieve their career goals, those individuals driven by more intrinsic goals will experience greater need satisfaction, and greater well-being as a result.

Implications for Theory and Research

This study has a number of implications for theory and research. These implications derive from the present study's use of SDT variables in the vocational domain, the relationship between career goal autonomy and vocational functioning, this study’s domain-relevant definition of VWB, and the methods used to assess vocational autonomy. In addition, the unexpected relationships between career goal intrinsic content and vocational and general well-being warrant further investigation.

One of this study’s primary theoretical contributions is by demonstrating how variables typically researched in the context of SDT (such as goal autonomy) can contribute to vocational theory. SDT theorists have long argued that setting and pursuing autonomous goals leads to well-being in life domains, as well as generally (Deci & Ryan, 2000). The present study, however, is one of a handful of studies (e.g., Blustein, 1988; Guay, et al., 2003) to test the predictions of SDT in career development, and is one of the few studies to investigate the domain and global well-being implications of college students’ career goals (e.g., Lent et al., 2005).
Future research should continue to elucidate the relationship between career goal autonomy and vocational functioning. For example, Flum and Blustein (2000) proposed career exploration as the link between autonomy in the career domain and vocational well-being by arguing that individuals who operate more autonomously in the career domain conduct more effective career exploration, leading to greater career commitment (also see Blustein, 1988). To more fully flesh out the mechanism by which career goal autonomy drives vocational well-being, future research could assess parts of an overarching model where students’ career autonomy leads to career exploration, which leads to vocational need satisfaction, which leads to vocational well-being, which leads to positive well-being and negative well-being.

Another unique contribution of this study is the specificity and relevance of this study’s definition of well-being in the vocational domain. Although Ryan and Deci (2001) define well-being as the extent to which an individual is “fully functioning” (p. 141), domain level well-being is often defined using “one size fits all” indicators of well-being. For example, in a large study assessing the relationship between autonomous motivation and well-being in multiple life domains, Milyavskaya and Koestner (2011), assessed domain level well-being by asking participants to rate how vital they felt and how often they experienced various affective states in each domain. To fully assess an individual’s level of functioning in a domain, however, it is necessary to go beyond how often participants experience pleasant affect and energy, and get at what positive functioning looks like in that specific domain. One contribution of the present study is that it draws on decades of research in vocational development to propose a definition of vocational well-being unique to the vocational needs of college juniors and seniors: their
readiness to commit to a career choice. Based on the discussion above, future research could also assess whether seeing one’s career as a calling would be a worthwhile addition to the definition of vocational well-being used in the present study.

Another contribution is that the present study developed and began to validate a new way to assess autonomy in the career domain. Previous research has often assessed career autonomy by using Guay’s (2005) Career Decision-Making Autonomy Scale (CDMAS; e.g., Guay et al., 2006). The CDMAS assesses college students’ autonomy in relation to eight typical college career development activities (such as seeking information on careers and seeking information on school programs; Guay, 2005). CGA may be more flexible, however, because it allows participants to rate their autonomy on career goals that are relevant to them, rather than relying on a static list of career activities. For example, seeking information on school programs may not be relevant for a college senior entering the world of work. Future research could explore the incremental validity and utility of CGA over CDMAS for assessing career autonomy in research, and in practice.

Finally, the present study was one of the first studies to assess the effect of intrinsic goal contents in a specific life domain. Previous research into intrinsic goal content has been largely restricted to studies of global functioning (e.g. Kasser, 2002; Kasser & Ryan, 2001; Sheldon et al., 2004), and little previous theory or research has investigated the importance of goal contents in specific life domains. The present study suggested that goal intrinsic content is not universally related to increased well-being across life domains (at least, crosssectionally). Further theorizing and research should be conducted to elucidate the relationship between intrinsic goal content and well-being in
Implications for Practice

The implications of this study are primarily theoretical, however this study has some tentative practical implications. One practical, but not novel, finding of this study is the strong relationship between vocational functioning and overall well-being (e.g., Blustein & Spengler, 1995). The connection between vocational and global functioning is important to emphasize in a time when college career development centers are increasingly disconnected from college counseling centers (Cooper, Resnick, Rodolfa & Douce, 2008), and the discipline of counseling psychology (long the flag bearer for vocational development within psychology) is losing its focus on vocational psychology (Scheel et al., 2011). This study joins other studies that demonstrate that vocational well-being plays an important role in not only protecting college students against depression and anxiety, but in contributing to their personal growth during the college years. In short, that vocational well-being drives over 20% of the variance in positive and negative well-being is an important message to communicate to college administrators and the larger mental health field.

Further practical implications of this study derive from the effect that career goal autonomy has on vocational well-being and global well-being. Career autonomy is not specifically mentioned in traditional personal or career counseling theories, and therefore may not be attended to in many counseling interventions with college students. This study suggests, however, that assessing college juniors and seniors’ career goal autonomy as part of personal and vocational interventions should help clinicians gain a greater understanding of their clients’ vocational and general functioning. Because career goal
autonomy’s relationship with positive well-being was particularly strong, assessing career
goal autonomy may be especially important when intervening with the aim of enhancing
college students’ positive functioning.

Focusing on career goal autonomy may also be especially important in brief
career counseling, where the goal is often to help participants quickly choose a career
goal and begin making progress towards it (e.g., Miller, 2004). This study suggests that
students who approach career development in a non-autonomous manner may experience
difficulty fully committing to a career goal, and their overall well-being may suffer as a
result. Therefore, in brief career counseling, it may be helpful to be alert for clients
unaware of their values or interests who nevertheless endorse externally controlled or
introjected career goals.

Limitations

This study had several limitations. First, the data were cross-sectional, and no
variables were manipulated. Therefore, future experimental or longitudinal studies would
strengthen the causal inferences derived in the present study. Likewise, the ex post facto
design cannot rule out alternative models, such as the possibility that the causal pathways
in the model run opposite of the direction hypothesized. For example, the alternative
hypotheses that PWB and NWB drive the variance in VWB, which in turn drives the
variance in CGA and CGIC, cannot be ruled out by the study. Another alternative model,
that VWB, PWB, and NWB are all correlated outcome variables and that mediation does
not take place, is also statistically indistinguishable from the hypothesized model. Finally,
all of the measures are self-report, so the extent to which common method variance may
inflate Type I or II error rates is unknown.
The sample was comprised of full-time college juniors and seniors between 18 and 25 years of age, most of whom were attending a four-year college in the Northeast United States. Consequently, these findings may not generalize to populations significantly different from the sample. Specifically, results may not generalize to college students in other areas of the country or to students in different types of colleges, such as two-year colleges. Additionally, the results may not generalize to college students who fall outside of the age range in this sample, or who are not in their junior or senior year. Finally, as all participants were attending college full time, the findings may not generalize to 18-25 year olds who are not attending college, or to those who are attending part time.

The sample is non-random and the participants are self-selected, which may have influenced the results. For example, career may have been more salient for college students choosing to take place in a study to “understand college students' career development” than for college students in general, which could have inflated the associations between VWB and global well-being. Additionally, there were not enough participants to have adequate power to compare the fit of the model between participants of different racial or ethnic groups. Therefore, the extent to which these results can be generalized to members of racial or ethnic groups that make up a minority of the sample is unclear.
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Appendix A

Career Goal Elicitation Procedure

Please now consider the activities you are currently engaging in to help you build a successful career. We are interested in the things that you are currently trying to do in your career development. We might call these types of activities “career development strivings.” Here are some examples of career development strivings:

“I am trying to talk to my parents about what they think I’d be good at.”
“I am trying to network with people in my chosen field.”
“I am trying to avoid information that might cause me to doubt my choice.”
“I am trying to take tests or assessments to help me understand myself.”
“I am trying to get help from a career counselor.”
“I am trying to avoid people who pressure me to enter a certain career.”
“I am trying to pray about or reflect on what I should do with my career.”
“I am trying to locate internships/jobs to apply for.”

*Note that these strivings are phrased in terms of what people are currently “trying” to do, regardless of whether they are actually successful. For example, a person may be trying to get information about types of careers without being successful.

*These strivings may be fairly broad, such as “trying to get information about careers” or more specific, such as “trying to get information about summer internships.”

*They can also be positive or negative. For example, you might be currently “trying to surf the Internet for career information,” or you might be “trying to avoid people who pressure me to enter a certain career.”

Please write down what you currently consider to be the five most important
career development strivings in your life. As you do so, please do not include any identifying information.

(Goal 1) At this point in my career development, I am trying to . . .

(Goal 2) At this point in my career development, I am trying to . . .

(Goal 3) At this point in my career development, I am trying to . . .

(Goal 4) At this point in my career development, I am trying to . . .

(Goal 5) At this point in my career development, I am trying to . . .
Appendix B

Career Goal Autonomy Questionnaire

Reasons for goals. Past research suggests that people may be motivated to do something for many different reasons. In this task, we would like you to rate each of your 5 goals in terms of each of the following four reasons, using the following scale:

Not at all 1 2 3 4 5 6 7 8 9 Very much

REASON I. You strive for this goal because somebody else wants you to, or because the situation seems to compel it. Stated differently, you probably wouldn't have this goal if you didn't get some kind of reward, praise, or approval for it, or if you didn't avoid something negative by pursuing it. For example, you might try to "go to church more regularly" because your parents would criticize you if you didn't.

Goal 1 Goal 2 Goal 3 Goal 4 Goal 5

REASON II. You strive for this goal because you would feel ashamed, guilty, or anxious if you didn't. Rather than having this goal because someone else thinks you ought to, you feel that you "ought" to strive for that something. For example, you might try to "go to church more regularly" because you would feel bad about yourself if you didn't.

Goal 1 Goal 2 Goal 3 Goal 4 Goal 5

REASON III. You pursue this goal because you really believe that it's an important goal to have. Although this goal may once have been taught to you by others, now you endorse it freely and value it wholeheartedly. For example, you might try to "go to church more regularly" because you genuinely feel this is the right thing to do.

Goal 1 Goal 2 Goal 3 Goal 4 Goal 5

REASON IV. You strive for this goal because of the enjoyment or stimulation which this goal provides you. While there may be many good reasons for the goal, the primary "reason" is simply your interest in the experience itself. For example, you might try to "go to church more regularly" because the experience of being at church is simply interesting and enjoyable to you.

Goal 1 Goal 2 Goal 3 Goal 4 Goal 5
Appendix C

Career Goal Intrinsic Content Questionnaire

Goal/"Possible future" linkages

Below are descriptions of six "possible futures" which many people aspire to attain down the road. Please consider how success at each goal might affect each "possible future." Would success tend to take you closer to that future, or is it unrelated? For example, successfully completing the goal "lose 15 pounds" would probably have a strong relationship to being attractive in the future, but successfully "helping my roommate feel better about herself" would probably not help bring about the "physical attractiveness" possible future.

In rating each of your 5 goals in terms of how helpful it will be in reaching each possible future, use the following scale:

<table>
<thead>
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<th>1</th>
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<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No help</td>
<td>Slight help</td>
<td>Moderate help</td>
<td>Much help</td>
<td>Very much help</td>
<td></td>
<td></td>
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</tbody>
</table>

Possible Future I. Intimacy/Friendship: Having many close and caring relationships with others.

Goal 1  Goal 2  Goal 3  Goal 4  Goal 5

Possible Future II. Popularity/recognition: Being known and/or admired by many people.

Goal 1  Goal 2  Goal 3  Goal 4  Goal 5

Possible Future III. Physical appearance: Looking good and appearing attractive to others.

Goal 1  Goal 2  Goal 3  Goal 4  Goal 5

Possible Future IV. Self acceptance/Personal growth: Being fulfilled and having a very meaningful life.

Goal 1  Goal 2  Goal 3  Goal 4  Goal 5

Possible Future V. Financial success: Getting a job that pays very well and having a lot of nice possessions.

Goal 1  Goal 2  Goal 3  Goal 4  Goal 5

Possible Future VI. Societal contribution: Helping to make the world a better place.
Appendix D

Vocational Exploration and Commitment Questionnaire

In the items that follow, please indicate the appropriate number using the scale below that most accurately reflects the extent to which you agree or disagree with the statement. If you do not currently have a specific career goal, respond to the following items in a way that would reflect your behavior and attitudes if you did have an occupational preference.

<table>
<thead>
<tr>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never true</td>
<td>Almost never true</td>
<td>Usually not true</td>
<td>Not sure</td>
<td>Usually true</td>
<td>Almost always true</td>
<td>Always true</td>
<td></td>
</tr>
<tr>
<td>about me</td>
<td>about me</td>
<td>about me</td>
<td>me</td>
<td>about me</td>
<td>about me</td>
<td>about me</td>
<td></td>
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</tbody>
</table>

Place the appropriate number next to the item in the space provided.

____ 1. The chances are excellent that I will actually end up doing the kind of work that I most want to do.
____ 2. I may need to learn more about myself (i.e., my interests, abilities, values, etc.) before making a commitment to a specific occupation.
____ 3. It is hard for me to decide on a career goal because it seems that there are too many possibilities.
____ 4. I have a good deal of information about the occupational fields that are most interesting to me.
____ 5. I have thought about how to get around the obstacles that may exist in the occupational field that I am considering.
____ 6. While I am aware of my educational and career options, I do not feel comfortable committing myself to a specific occupation.
____ 7. I feel uneasy about committing myself to a specific occupation because I am not aware of alternative options in related fields.
____ 8. I find myself changing academic majors often because I cannot focus on one specific career goal.
____ 9. I do not know enough about myself (i.e., my interests, abilities, and values) to make a commitment to a specific occupation.
____ 10. It is hard to commit myself to a specific career goal because I am unsure about what the future holds for me.
____ 11. I find it difficult to commit myself to important life decisions.
____ 12. I feel uneasy in committing myself to a career goal because I do not have as much information about the fields that I am considering as I probably should.
____ 13. I have difficulty making decisions when faced with a variety of options.
____ 14. I feel confident in my ability to achieve my career goals.
____ 15. I feel uneasy in committing myself to a specific career plan.
____ 16. I think that I know enough about the occupations that I am considering to be able to commit myself firmly to a specific career goal.
____ 17. I worry about my ability to make effective educational and career decisions.
____ 18. I am not very certain about the kind of work I would like to do.
19. I would change my career plans if the field I am considering became more competitive and less accessible due to a decline in available openings.
Appendix E

Career Decision Scale Questionnaire

1   2   3   4
(Not at all like me)                                                                             (Exactly like me)

1. If I had the skills or the opportunity I know I would be a ______________ but this choice is really not possible for me. I haven't given much consideration to any other alternatives, however.
2. Several careers have equal appeal to me. I'm having a difficult time deciding among them.
3. I know I will have to go to work eventually but none of the careers I know about appeal to me.
4. I'd like to be a but I'd be going against the wishes of someone who is important to me if I did so. Because of this, it's difficult for me to make a career decision right now. I hope I can find a way to please them and myself.
5. Until now, I haven't given much thought to choosing a career. I feel lost when I think about it because I haven't had many experiences in making decisions on my own and I don't have enough information to make a career decision right now.
6. I feel discouraged because everything about choosing a career seems so "ify" and uncertain; I feel discouraged, so much so that I'd like to put off making a decision for the time being.
7. I thought I knew what I wanted for a career, but recently I found out that it wouldn't be possible for me to pursue it. Now, I've got to start looking for other possible careers.
8. I want to be absolutely certain that my career choice is the "right" one, but none of the careers I know about seem ideal for me.
9. Having to make a career decision bothers me. I'd like to make a decision quickly and get it over with. I wish I could take a test that would tell me what kind of career I should pursue.
10. I know what I'd like to major in but I don't know what careers it can lead to that would satisfy me.
11. I can't make a career choice right now because I don't know what my abilities are.
12. I don't know what my interests are. A few things "turn me on" but I'm not certain that they are related in any way to my career possibilities.
13. So many things interest me and I know I have the ability to do well regardless of what career I choose. It's hard for me to find just one thing that I would want as a career.
14. I have decided on a career but I'm not certain how to go about implementing my choice. What do I need to do to become a ______________ anyway?
15. I need more information about what different occupations are like before I can make a career decision.
16. I think I know what I want to major in but feel I need some additional support for it as a choice for myself.
Appendix F

My Vocational Situation Questionnaire

Try to answer the following statements as mostly TRUE or mostly FALSE. Circle the answer that best represents your present opinion.

In thinking about your present job or planning for an occupation or career:

1. I need reassurance that I’ve made the right choice of occupation.
2. I’m concerned that my present interests may change over the years.
3. I am uncertain about the occupations I could perform well.
4. I don’t know what my major strengths and weaknesses are.
5. The jobs I can do may not pay enough to live the kind of life I want.
6. If I had to make an occupational choice right now, I’m afraid I would make a bad choice.
7. I need to find out what kind of career I should follow.
8. Making up my mind about a career has been a long and difficult problem for me.
9. I am confused about the whole problem of deciding on a career.
10. I am not sure that my present occupational choice or job is right for me.
11. I don’t know enough about what workers do in various occupations.
12. No single occupation appeals strongly to me.
13. I am uncertain about which occupation I would enjoy.
14. I would like to increase the number of occupations I could consider.
15. My estimates of my abilities and talents vary a lot from year to year.
16. I am not sure of myself in many areas of life.
17. I have known what occupation I want to follow for less than one year.
18. I can’t understand how some people can be so set about what they want to do.
Appendix G

Self-Actualization Questionnaire

1. I do not feel ashamed of any of my emotions.
2. I feel I must do what others expect me to do.
3. I believe that people are essentially good and can be trusted.
4. I feel free to be angry at those I love.
5. It is always necessary that others approve of what I do.
6. I don’t accept my own weaknesses.
7. I can like people without having to approve of them.
8. I fear failure.
9. I avoid attempts to analyze and simplify complex domains.
10. It is better to be yourself than to be popular.
11. I have no mission in life to which I feel especially dedicated.
12. I can express my feelings even when they may result in undesirable consequences.
13. I do not feel responsible to help anybody.
14. I am bothered by fears of being inadequate.
15. I am loved because I give love.
Appendix H

Vitality Questionnaire

Please respond to each of the following statements by indicating the degree to which the statement is true for you in general in your life. Use the following scale:

1  2  3  4  5  6  7
not at all true somewhat true very true

1. I feel alive and vital.
2. Sometimes I feel so alive I just want to burst.
3. I have energy and spirit.
4. I look forward to each new day.
5. I nearly always feel alert and awake.
6. I feel energized.
Appendix I

Center for Epidemiological Studies-Depression Questionnaire

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

1- Rarely or None of the Time (Less than 1 Day)
2- Some or a Little of the Time (1-2 Days)
3- Occasionally or a Moderate Amount of Time (3-4 Days)
4- Most or All of the Time (5-7 Days)

During the past week:

1. I was bothered by things that usually don't bother me
2. I did not feel like eating; my appetite was poor
3. I felt that I could not shake off the blues even with help from my family or friends
4. I felt that I was just as good as other people
5. I had trouble keeping my mind on what I was doing
6. I felt depressed
7. I felt that everything I did was an effort
8. I felt hopeful about the future
9. I thought my life had been a failure
10. I felt fearful
11. My sleep was restless
12. I was happy
13. I talked less than usual
14. I felt lonely
15. People were unfriendly
16. I enjoyed life
17. I had crying spells
18. I felt sad
19. I felt that people dislike me
20. I could not get “going”
Appendix J

State Trait Anxiety Questionnaire

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate value to the right of the statement to indicate how you generally feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

1   2   3   4
Almost Never Sometimes Often Almost Always

1. I feel pleasant
2. I feel nervous and restless
3. I feel satisfied with myself
4. I wish I could be as happy as others seem to be
5. I feel like a failure
6. I feel rested
7. I am “calm, cool, and collected”
8. I feel that difficulties are piling up so that I cannot overcome them
9. I worry too much over something that really doesn't matter
10. I am happy
11. I have disturbing thoughts
12. I lack self-confidence
13. I feel secure
14. I make decisions easily
15. I feel inadequate
16. I am content
17. Some unimportant thought runs through my mind and bothers me
18. I take disappointments so keenly that I can't put them out of my mind
19. I am a steady person
20. I get in a state of tension or turmoil as I think over my recent concerns and interests.
Appendix K

Demographic Questionnaire

What is your age?

What is your gender?
   a. Male
   b. Female
   c. Other

What is your race/ethnicity?
   a. African American/ Black/ African Origin
   b. Asian American/ Asian Origin/ Pacific Islander
   c. Latino (a)/ Hispanic
   d. Native American
   e. European Origin/ White
   f. Biracial/ Multiracial
   g. Other (please specify ____________)

Have you chosen a college major?
   a. Yes, and it is _________________
   b. No

What is your college class standing?
   a. Freshmen
   b. Sophomore
   c. Junior
   d. Senior
   e. Masters student
   f. Doctoral student
   g. Non-student

What is your status as a student?
   a. Full-time (enrolled in 12 or more credits)
   b. Part-time (enrolled in 1-11 credits)
   c. Non-student (not enrolled in any credits)

Have you ever sought counseling to help you with a career decision?
   a. Yes (approximately how long were you in counseling? _______ weeks)
   b. No

How important is your career to you?
   a. Not important
   b. A little important
   c. Moderately important
   d. Important
   e. Very important
## Appendix L

Correlation Matrix Used for Power Analysis

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<td>1. CGA</td>
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<td>2. CGIC</td>
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<td>3. VEC</td>
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<td>-.25</td>
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<td>4. CDS</td>
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<td>5. MVS</td>
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<td>6. SA</td>
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<td>7. Vit</td>
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<td>-.30</td>
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<td>8. CES-D</td>
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<td>-.32</td>
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<td>-.30</td>
<td>-.44</td>
<td>—</td>
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<tr>
<td>9. STAI</td>
<td>-.20</td>
<td>-.22</td>
<td>.21</td>
<td>.28</td>
<td>-.37</td>
<td>-.30</td>
<td>-.38</td>
<td>.48</td>
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*Note.* CGA = Career Goal Autonomy; CGIC = Career Goal Intrinsic Content; CDS = Career Decision Scale; VEC = Vocational Exploration and commitment subscale of the Commitment to Career Choice Scale; MVS = My Vocational Situation; SA = Self-Actualization; Vit = Vitality; CES-D = Center for Epidemiological Studies-Depression Inventory; STAI = State Trait Anxiety Scale, trait version.