

# **Career Preparation during the Transition from High School**

by

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## Abstract

Preparing for an adult career through careful planning, choosing a career, and gaining confidence to achieve career goals is a primary task during adolescence and early adulthood (Erikson, 1968; Skorikov, 2007b). The theory of career construction (Savickas, 2005) suggests that career adaptability is a mechanism through which career identity is developed. Career adaptability consists of an exploration and commitment component. The commitment component has been defined as career preparation and includes career planning, career decision-making, and career confidence. We know that youth are preparing for their adult careers and that career preparation dimensions are associated with adjustment cross-sectionally and longitudinally during high school and six months after high school (Skorikov, 2006b). However, we do not know how each career preparation dimension changes over time during the transition from high school to post-secondary education and/or employment, and we do not know how growth in each dimension predicts adjustment after leaving high school. In other words, are high school graduates becoming more decided about their careers, engaging in increased career planning, and becoming more confident about achieving their career goals? And, are these tasks predictive of adjustment during the early twenties?

The current project addressed these questions in two studies. In the first study parallel process models that tested associations among the slopes and intercepts of each career preparation dimension with the other dimensions were examined. For the second study, models were constructed that tested the effect of each career preparation dimension's growth on adjustment 4.5 years post-high school. Results of the first study

showed that the career preparation dimensions were not developing similarly over time, although each dimension was associated cross-sectionally and longitudinally with the other dimensions. Results also suggested that career planning and decision-making precede career confidence. The second study showed that increases in career planning and career confidence and decreases in career indecision were predictive of adjustment, defined for the current study as positive aspects of mental health, 4.5 years after high school, controlling for initial adjustment during 12<sup>th</sup> grade. Overall, results support and extend extant theory and empirical research that suggests career planning, decision-making, and confidence are interrelated dimensions that are associated with adjustment.

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## List of Abbreviations and Symbols

CFI	Comparative fit index
FIML	Full information maximum likelihood
LGCA	Latent growth curve analysis
RMSEA	Root mean square error of approximation
TLI	Tucker-Lewis index
$\gamma$	Gamma
$\zeta$	Zeta
$\varepsilon$	Epsilon

## I. GENERAL INTRODUCTION

Identity formation, especially in the career domain, is a primary developmental task of late adolescence/early adulthood (Erikson, 1968). Erikson theorized that individuals go through developmental stages that must be negotiated in order to have success in the next stage. He identified the time of adolescence as the time when individuals' primary task is figuring out who they are in relation to the world around them. Arnett (2000) went further to include young adults in this stage of development. Adolescents and young adults are managing a number of different domains of life that contribute to their overall sense of self. One salient domain during early adulthood is the career domain (Arnett; Erikson). Preparing for an adult career is addressed by several theories as an important component of career and identity development, including: the psychosocial theory of development (Erikson); the theory of career construction (Savickas, 2005); the life-span, life-space theory (Super, 1957); and the self-realization through a vocational career perspective (Vondracek, 1995). These theories and additional conceptual frameworks (e.g., Luyckx, Goossens & Soenens, 2006a; Savickas) suggest that preparation for an adult career is multifaceted and consists of interrelated dimensions.

Skorikov (2007b) went further than previous theories and conceptual frameworks to identify the term career preparation, which includes planning, decision-making, and confidence to achieve career goals and will be the focus of the current project. Skorikov asserted that career preparation is an important component of career identity

commitment. Erikson (1968) included career in his identity theory and asserted that without successful preparation for an adult occupational career, adjustment will be affected negatively (Erikson). Empirical work addressing the time when individuals are preparing for adult careers (high school and the transition out of high school into post-secondary education and/or employment) is limited in its examination of the tenets of these theories and conceptual frameworks. Only one study (Skorikov) has assessed all three dimensions of career preparation and their association with adjustment; however, this study did not examine the dimensions' longitudinal associations with each other or their associations with adjustment when youth are in their early twenties. The theory of career construction also does not specify the directional associations among the career preparation dimensions. In order to understand the process by which youth become prepared to assume their adult careers, it is important to understand the developmental associations among the career preparation dimensions. Therefore, the overall aims of the following papers were to assess the pattern of change in each career preparation dimension from senior year in high school to 4.5 years post-high school and to test the associations among the dimensions with each other, as well as with adjustment over time.

Addressing these goals informs our understanding of how the dimensions of career preparation are associated over time and any directional effects among the development of the dimensions, which was not addressed by the theory of career construction or Skorikov's (2007b) work. Given that career preparation during this time period has been found to be especially critical for adjustment (Skorikov), the current study examined the influence of each dimension of career preparation on adjustment during the transition from high school to work and/or post-secondary education.

The following two papers were guided by several related theoretical perspectives. First, the theory of career construction (Savickas, 2005) provides the primary theoretical model. It is an extension of Super's (1957) life-span, life-space career development theory. Super's (1980) life-span, life-space theory of career development identifies the period from adolescence through young adulthood as a time of career exploration (i.e., exploration stage) in which adolescents and emerging adults explore themselves and career and educational opportunities and then make decisions about career and education based on their exploration. After one chooses and settles into a job, one is thought to enter the career establishment stage of career development. Finally, after establishment, one enters disengagement when individuals become ready to leave their current places of employment or make career changes. Savickas specified that individuals go through life trying to fit their career identities with real world opportunities and constraints. In order to deal with the realities that life presents, optimal career development throughout the life cycle consists of possessing career adaptability, which is comprised of career exploration in breadth, planning, decision-making, and confidence to reach career goals. As individuals make school-to-work and other work transitions, they go through "mini-cycles" of Super's career development stages. If not retiring, this means that an individual experiences disengagement and then enters exploration and establishment again when a career change is made. Therefore, as youth make the transition from high school to work, college, or both, they are primarily in the exploration stage of career development (Super), when career adaptability, and therefore, career preparation is critical in order to enter establishment.

Because Savickas (2005) did not specify the nature of the associations among the dimensions of career preparation, in order to understand associations between career preparation and its interface with psychosocial development, it is helpful to

incorporate the identity process model of Luyckx and colleagues (Luyckx, Goossens, Soenens, Beyers, & Vansteenkiste, 2005; Luyckx, Goossens, & Soenens, 2006a; 2006b). Influenced by Erikson (1968), Marcia (1966), and other identity scholars (see Waterman, 1990 and Bosma, 1985), Luyckx et al. proposed an identity development process model. This model can be used in different domains of identity development and includes two interrelated cycles: identity commitment formation and identity commitment evaluation. In turn, each of these cycles has two phases. The first, identity commitment formation begins with exploration in breadth and ends with tentative commitment making. The second cycle includes exploration in depth and concludes with a growing identification with commitment, or perhaps a return to the first cycle if the commitment appears to be a poor fit for the individual.

This extension of Erikson's (1968) psychosocial development theory, similar to the Skorikov (2007b) and the Porfeli and Skorikov (2010) elaboration of the theory of career construction, posits that general (including career) identity development consists of a less commitment-focused exploration in breadth and more commitment-focused dimensions, which include exploration in depth, commitment making, and identification with commitment. Exploration in breadth is information seeking among a wide array of options; whereas exploration in depth (similar to planning) is a focused exploration of a chosen option. Commitment making (similar to decision-making) is choosing an option, or making a decision about a salient identity issue (e.g., career path); and identification with commitment (similar to career confidence) is increased decidedness about a choice through internalization of the commitment into one's sense of self. Exploration in depth, commitment making, and identification with commitment represent the more focused, decision-oriented dimensions of identity development. Luyckx and colleagues' conceptual framework appears to present a clear parallel to the current study of career

development. Since it posits that commitment making and exploration in depth precede identification with commitment, I argue that career decision-making and planning may precede career confidence, which would suggest that in order to increase confidence to achieve career goals, one must first successfully plan for and choose a career.

In a university sample in the Netherlands, Luyckx et al. (2006a) found that commitment making and exploration in breadth were negatively associated. Identification with commitment, exploration in depth, and commitment making were positively associated. The dimensions' slopes and intercepts also were associated over time. These results suggest that making a commitment (career decidedness), exploration of a choice in depth (career planning), and identifying with a commitment (career confidence) may be behaviors that represent a process in which one becomes more prepared to establish an identity in a specific domain, such as career. Individuals are theorized to go through cycles of exploration and commitment, evaluating and internalizing their identity commitments. Luyckx and colleagues did not specifically assess the career domain, and therefore, the parallels presented are tentative.

The identity processes proposed by Luyckx and colleagues (2006a) are similar to the theory of career construction in which individuals go through cycles of broad exploration, making tentative decisions, and then evaluate them in accordance with their identities, and as identity commitments may change, they go through the cycles again. In the conceptual work of both Savickas (2005) and Luyckx et al., there is a commitment component. The current investigation will focus on the commitment aspect of career identity development. Specifically, decision-making, planning, and confidence represent the focused, commitment-driven aspects of career identity development. These commitment-focused dimensions represent career preparation, which occurs as individuals make tentative career choices (Skorikov, 2007b). Career preparation is the

process by which individuals become committed to their career choices. The theory of career construction (Savickas) posits that career decision-making, career planning, and career confidence are occurring together over time to enhance one's ability to fit his or her career identity into real world constraints. Skorikov's work supports this assertion by showing that all three dimensions load well together over time to represent one latent factor from 11<sup>th</sup> grade in high school to six months post-high school. However, we do not know how development of each dimension of career preparation from 12<sup>th</sup> grade into early adulthood affects subsequent adjustment. This is important to study because youth are continuing to prepare for their adult careers well into their twenties (Mortimer, Zimmerman-Gemback, Holmes, & Shanahan, 2002). Although Luyckx and colleagues offer a process-oriented model of identity development, their research has focused solely on college students in the Netherlands and combined two domains to represent overall identity. Combining domains may be problematic because individuals are not necessarily doing the same identity "work" in one domain as they are in another. The current project addressed these gaps by utilizing a sample of youth who took very diverse educational and employment pathways and focused solely on the career domain.

One final framework, Vondracek's (1995) perspective on self-realization through a vocational career perspective, proposes that making career decisions through careful planning and decision-making that are consistent with one's abilities and talents leads to the experience of self-actualization through one's career. Successful career identity development can, therefore, lead to self-fulfillment through individuals' occupational roles. Vondracek's theoretical perspective provides the reasoning for why studying career identity development is important for adjustment. Together, the set of theoretical

perspectives reviewed offer guidance for how career identity is developed and why studying career identity development is important.

Career identity development is assumed to be a lifelong process that goes through developmental transformations as individuals make the transition into and out of work and school (Super, 1980). A critical transitional time period is when youth are leaving high school and entering post-secondary education and/or employment. In order to navigate this transition successfully, career preparation should increase over time (i.e., career confidence and planning increase, and career indecision decreases). Although both the identity (Luyckx et al., 2006a; Marcia, 1966) and career development (Savickas, 2005; Skorikov, 2007b) literatures address dimensions of exploration and commitment, we know very little about the developmental associations among the dimensions representative of commitment and how their development affects adjustment. In order to address these shortcomings, two studies were conducted. The first study examined the individual trajectories of each career preparation dimension over the course of five years from 12<sup>th</sup> grade to 4.5 years post-high school. Associations among the dimensions of career preparation also were examined in a parallel process, or multi-associative, model of career preparation development. The second study examined growth in each career preparation dimension's association with adjustment at 4.5 years post-high school graduation, controlling for the effect of adjustment during the 12<sup>th</sup> grade on later adjustment.



## II. PAPER 1

### **Introduction**

During the transition from adolescence to early adulthood, youth are developing their identities in a number of different domains, including career, world views, and relationships (Arnett, 2000; Erikson, 1968). According to Erikson, forming an identity is the primary developmental task of this time period. Career identity is defined as the sense of self derived from one's development of an occupational career and is an important component of one's overall identity. Erikson posited that without satisfying work, or a positive career identity, adjustment may be negatively affected. Much identity research has focused on exploration and commitment processes (e.g., Luyckx, Goossens, & Soenens, 2006a; 2006b; 2005; Kunnen, Sappa, van Geert, & Bonica, 2008); however, we know very little about how the commitment processes of career identity develop during the transition from high school to one's occupational career. This period of time is important because it is when youth are making decisions that affect their immediate and future career opportunities.

Extant literature suggests that career preparation may be a mechanism through which career identity develops because it represents a process by which career commitments develop (Skorikov, 2007b). Career preparation consists of three dimensions: career decision-making (making a decision about which career to pursue), career planning (using active strategies for achieving career goals), and career confidence (belief in achieving one's career goals) (Skorikov). The aims of the current study are to assess the formation of career identity in terms of preparation for an adult

career by examining how each dimension of career preparation develops over time and the interrelations among dimensions of career preparation from 12<sup>th</sup> grade in high school to 4.5 years post-high school.

### **Career Preparation**

The theory of career construction (Savickas, 2005) served as the primary theoretical framework for the current study. Career construction theory asserts that successful career construction, or career identity development, is driven by career adaptability. Career adaptability is essentially readiness to cope with real world constraints on career goals and consists of planning, decision-making, problem solving/confidence, and exploration. Exploration represents a less focused dimension and involves exploring possible career choices without necessarily making commitments. Planning, decision-making, and confidence represent more focused efforts indicative of career identity commitment. Skorikov (2007b) defined these three the commitment-focused dimensions of career adaptability as career preparation.

Empirical attention to the process of career construction has been given primarily to the assessment of predictors and outcomes of the decision-making and planning dimensions of career preparation and the cross-sectional associations among these two dimensions (e.g., Creed & Patton, 2001; Creed, Patton, & Prideaux, 2006; Creed, Prideaux, & Patton, 2005; Hirschi & Läge, 2008). Very few studies, however, have assessed career preparation longitudinally, and only one study (Skorikov, 2007b, described below) has examined all three dimensions of career preparation. Past research primarily has studied associations among decision-making (or career decision self-efficacy) and career planning and their associations with family processes, such as parental support and family functioning (see Alliman-Brissett, Turner, & Skovholt, 2004;

Berrios-Allison, 2005; Constantine, Wallace, & Kindaichi, 2005; Leal-Muniz & Constantine, 2005).

Skorikov's (2007b) study is the only one that has focused on all three career preparation dimensions over time (11<sup>th</sup> grade to six months after high school, every six months for a total of five time points). In his study, career preparation was assessed as a latent variable (i.e., career indecision, planning, and confidence as indicators of career preparation) and was found to predict adjustment at six months after high school, controlling for previous adjustment. He did not, however, assess each dimension's trajectory over time. This is important because each dimension may not have the same pattern of change over time. However, cross-sectional and longitudinal studies during high school and college have shown moderate to high correlations among preparation dimensions (Creed et al., 2006; Hirschi & Läge, 2008; Skorikov).

Although findings of Skorikov's (2007b) study do provide information about how each career preparation dimension changes over time, he did find that from 11<sup>th</sup> grade to six months after high school, career confidence showed approximately equal increment increases every six months. This suggests that career confidence would continue to increase linearly as individuals continue to pursue their career goals. Career indecision showed larger decreases from 11<sup>th</sup> grade to 12<sup>th</sup> grade than 12<sup>th</sup> grade to six months post-high school. Thus, it was expected that career indecision would continue to decrease and stabilize as individuals chose their adult careers. Career planning, however, showed a slight increase, followed by a slight decrease after 12<sup>th</sup> grade to six months post-high school. This finding suggests that planning may continue to decrease; however, given the developmental period, it may be that career planning increases the years before a transition and then decreases once individuals make the transition. Because the current study followed youth until 4.5 years post-high school graduation,

which is a time when youth are in many different combinations of school and work and are still planning because most probably are not established in their careers by age 22, and given Skorikov's findings of a slight decrease in planning from 12<sup>th</sup> grade to six months after high school completion, it was expected that career planning would show an initial decrease, followed by a linear increase. This decrease may occur because youth are engaging in intensive career planning that centers on what kind of college major and/or job they should go into after high school, and then immediately after high school, they may reduce their planning efforts as they enter college or their first jobs. As they begin to work toward college completion and need to determine the next steps in their career paths, career planning may increase. Empirical work has not established patterns of career decision-making, planning, and confidence from age 17 to 22. Therefore, it is important to assess the growth and change in each dimension of career preparation from six months after high school and beyond.

Only a few studies have investigated one or more career preparation dimensions in high school and college student samples (see Skorikov, 2007a; Skorikov & Vondracek, 2007), but even fewer studies have examined career preparation longitudinally during the time when it is most salient for youth. To the author's knowledge, only three published studies since the 1990's have examined any of the dimensions of career preparation longitudinally, and these studies found evidence that career indecision decreased over time during high school (Creed et al., 2006; Skorikov, 2007b; Vondracek, Hostetler, Schulenberg, & Shimizu, 1990). These studies, however, mainly focused on high school-aged youth and did not follow youth into their early twenties, when career decisions become especially salient (Mortimer et al., 2002). In addition, a cross-sectional cohort study of career decision-making suggested that career decidedness increases (i.e., career indecision decreases) as individuals progress

through secondary grade levels (Patton & Creed, 2001). No studies have examined these dimensions over time or their longitudinal associations with each other.

Literature addressing the process of identity formation (Luyckx et al., 2006a; 2006b) informed the hypotheses of the current study. Luyckx and colleagues' extension of Erikson's (1968) psychosocial development theory posits that identity development across all domains, including career identity, consists of multiple levels of exploration and commitment. Specifically, Luyckx et al. identified two dimensions of exploration: (a) exploration in breadth and (b) exploration in depth, and two dimensions of commitment: (a) commitment making, and (b) identification with commitment. Exploration in breadth is information seeking among a wide array of options, whereas exploration in depth is a focused exploration of a chosen option. Commitment making is choosing an option, perhaps tentatively, or making an initial decision about a salient identity issue (e.g., career path); and identification with commitment involves increased decidedness about that initial choice through internalization of the commitment into one's sense of self. Commitment making, exploration in depth, and identification with commitment represent the more focused, decision-oriented dimensions of career identity development and can be linked conceptually to the three career preparation dimensions. Commitment making is much like career decision-making, both indicative of making a decision; exploration in depth is much like career planning, both indicative of seeking information about one's choice; and identification with commitment is much like career confidence, both indicative of a sense of sureness in one's career decisions.

Luyckx and colleagues (2006a) examined "student" identity development in a sample of first year college students. Over the course of four time points in two years, changes in decision-making, exploration in depth, and identification with the student role were positively associated. Directional effects also were found. Initial levels of

commitment making and initial levels of exploration in depth were negatively correlated with the slope of identification with commitment. The negative correlation may be explained by the fact that the youth in the sample were going to be transitioning out of their college student roles, and as a result, their identification with being a student may have been decreasing if they had already made student identity commitments during their first year. However, these findings informed the predictions of the current study, which occurs over the course of 4.5 years, rather than two years after high school. Because the dimensions of identity development are similar to dimensions of career preparation, these findings suggest that career planning and career decision-making may precede career confidence in the process of career preparation, and career decision-making and career planning may be co-occurring. Another shortcoming of the Luyckx et al. study is that it only focused on college students and did not include the career domain. College is thought of as a time of an institutionalized moratorium when youth are engaging in exploration in a number of domains and delaying decision-making (Côté, & Levine, 1988; Danielson, Lorem, & Kroger, 2005). Therefore, the findings of the Luyckx et al. study may be representative only of college students in their first two years. The current study addresses these short-comings by including youth with diverse educational pathways over the course of 4.5 years post-high school and focusing on the career domain (unlike the student domain), which is developing beyond when youth are in school.

### **Rationale and Hypotheses**

Career identity development is assumed to be a lifelong process that goes through developmental transformations (Super, 1980); one such transformation occurs during the transition from school to work, post-secondary education, or both when making career commitments. Therefore, career preparation (i.e., making career

commitments by choosing and planning for a career and becoming confident about achieving career goals; Skorikov, 2007b) becomes critical. In order to successfully navigate the transition from high school to employment and/or post-secondary education, career preparation should increase over time during this transition. Given that we do not know the functional form of each career preparation dimension over time or the associative patterns of career preparation dimensions over time, the current study aimed to fill this gap by examining career preparation dimensions from senior year in high school to 4.5 years after high school graduation in a sample of youth who took diverse paths after high school. Career indecision was expected to show quadratic growth, decreasing, then stabilizing after individuals made initial career decisions while working and/or in college, and confidence was expected to show linear increasing growth. Career planning was expected to show an initial decrease (given the findings of Skorikov, 2007b), followed by a linear increase as individuals continue planning for the next phase of their career development, career establishment.

Only two studies (Hirschi, 2009; Skorikov, 2007b) have addressed the tenets of the theory of career construction (Savickas, 2005), which asserts that career preparation consists of three interrelated processes that co-occur before career establishment. However, these studies have not provided information about the directional relationships among these dimensions. Previous research has demonstrated that career identity commitment is multi-faceted and does not simply consist of making a decision about one's career. It also is indicated by making plans and having confidence to carry out those plans (Savickas; Skorikov). Given the findings that suggested commitment making and exploration in depth predict identification with commitment (Luyckx et al., 2006a), it was anticipated that initial levels of career indecision and career planning would predict career confidence. Also examined was how career preparation changes after high

school and what the nature of the association is between the three career preparation dimensions during the time that young adults are in post-secondary education and/or employed. Therefore, the proposed study tested the following hypotheses:

1. Career confidence will show an increasing linear pattern (1a); career planning will show an initial decrease, followed by a linear increase (1b); career indecision will show a decreasing quadratic pattern (1c).
2. Career planning and career confidence will be positively associated over time (2a); career planning and career confidence will be negatively associated with career indecision over time (2b).
3. Career planning and career indecision will predict growth in career confidence (3a), and career planning and career indecision will not predict growth in each other (3b).

## **Method**

### **Sample and Procedure**

To achieve the goals of the current study, data from a longitudinal study of adolescent and young adult development collected originally in six high schools in Hawaii were used. The original study was funded by NIH (GM08073) and was conducted by Vladimir Skorikov, Ph.D. Data were collected every six months from the middle of 11<sup>th</sup> grade through the end of 12<sup>th</sup> grade. Six months after grade 12, participants completed assessments yearly for four years. The current study used data from Time 2 (beginning of 12<sup>th</sup> grade) and Times 4 (6 months after high school graduation) through 8 (4.5 years after high school graduation). These times were selected because a significant number of participants were added to the study at Time 2, and Time 3 was collected six months after Time 2. Time points for the current study were separated by approximately one year (total time span is five years). Time points



used for the proposed study will herein be referred to as Times 1 (beginning of senior year in high school) through 6 (4.5 years post-high school graduation).

The current study employed an initial sample of 454 young adults who were in the 12<sup>th</sup> grade, and the average age was 17.2 years. At Time 1, the sample was 40.1% male and 59.9% female. The sample was very diverse in their parents' educational background (fathers: 40.1% high school diploma, 17.4% community college/vocational school, 18.7% college degree, 5.7% Master's degree, 4.6% Ph.D.; mothers: 38.5% high school diploma, 21.4% community college/vocational school, 24.2% college degree, 7.7% Master's degree, 0.9% Ph.D.), occupational rank (fathers: 34% lower level jobs, 41.3% mid-level jobs, 10.3% high level jobs; mothers: 39.2% lower level jobs, 57.2% mid-level jobs, 5.1% high level jobs), and ethnicity (26.4% Asian, 14.8% Caucasian, 15.9% Hawaiian and Pacific Islander, 6.8% Filipino, 0.2% American Indian, 2.0% Portuguese, 0.9% African, 2.6% Hispanic, and 29.1% Multi-ethnic). Of the sample at Time 2, 18.3% were not students; 7.9% were enrolled part-time in school; 1.1% were full-time in vocational school; 9.3% were full-time in a two-year school; 42.7% were full-time in a four-year school; 20.3% did not report school status. At Time 2, 37.7% were not working; 18.5% were working less than half-time; 19.8% were working half-time; 10.6% were working thirty hours per week; 7.3% were working full-time; 6.2% did not report employment status.

## **Measures**

*Career preparation dimensions* were assessed using measures of career indecision, career confidence, and career planning. Career indecision was assessed using the Career Decision Scale (CDS; Osipow, Carney, & Barak, 1976), which measures certainty of career choice. Items that are asked in a positive direction are traditionally reverse scored to indicate uncertainty. In their review of career decision-

making measures, Kelly and Lee (2002) concluded that “the CDS is unique in reflecting the identity problems that impede career exploration and decision-making (p. 323).” An example item from the CDS is as follows: “I can’t make a career choice right now because I don’t know what my abilities are.” The CDS is a 16-item measure. Items are rated on a 4-point Likert-type scale and are rated from 1 (not at all like me) to 4 (exactly like me), in which higher scores indicate greater career indecision. Internal consistency has been good (.89; Patton & Creed, 2001), and test-retest reliability ranged from .82 to .90 for two college samples (Osipow et al.). Construct validity has been established in studies that showed the CDS was correlated positively with vocational identity ( $r = .69$ ; Marco et al., 2003; also see Osipow et al). Career confidence and career planning were assessed using a measure developed for the course of the Skorikov NIH study (Skorikov, 2007b). The career planning subscale assesses the degree to which one has strategies for securing a desired occupation and reaching career goals, and the career confidence subscale assesses the extent to which one is sure that he or she will achieve his or her career goals. The career confidence subscale and career planning subscale items were rated on a 7-point Likert-type scale ranging from “completely agree” to “completely disagree”; higher scores indicate greater career confidence and planning. The career planning scale consisted of five items (e.g., “I have a plan for where I want to be in my career ten years from now”), and the career confidence scale consisted of eight items (e.g., “I feel that my occupational plans may be impossible to accomplish”). Using the same sample, Skorikov found that the internal consistency was good (.85 for career planning and .82 for confidence), and construct validity was demonstrated by showing that career confidence and planning were correlated negatively with career indecision and that career planning and career confidence were positively associated with identity

achievement and negatively associated with identity diffusion (Skorikov, 2007b). Each of these three subscales represented three separate composite scores.

### **Data Management and Analysis**

**Power analysis.** Determining power a priori, or sample size, is important in order to increase the probability of not making a Type II error. There is no consensus on how to determine sample size adequacy for SEM. Different researchers and statisticians suggest different rules for determining sample size. Kline (1998) suggests 10 to 20 times as many cases as variables; Stevens (1996) suggests 15 cases per measured variable, and Bentler & Chou (1987) suggest at least 5 cases per variable. In the proposed study, there are never more than 18 measured variables. Therefore, using the 15 case rule, 180 cases were needed. The total sample size for the current study is 454. A post-hoc power analysis was conducted using G\*Power 3.0.1 (Faul, 1992-2008). Given that the maximum degrees of freedom were 33, the power to detect an effect size of .30 at  $p < .05$  was .97 in a sample of 454.

**Missing data.** From Time 1 to Time 6, 123 youth dropped out of the study. At Time 6, 35.9% of the sample was male. Males dropped out more than females; however, the ethnic makeup of the sample remained consistent. At Time 8, 383 (84%) of the sample were retained at Time 6 (includes those missing one or more waves of data), and 331 (73%) had complete data for all time points. Twenty-three percent of participants had missing data for at least one time point. Participants with missing data did not differ on demographic variables (i.e., parents' occupational rank and educational attainment, age, and ethnicity), except that males had more missing data than females did. Therefore, sex was controlled in the initial models tested, predicting the slope and intercept of each dimension of career preparation. However, sex was not a significant predictor in the models tested and, therefore, was not included in the final models.

Data that were missing at random for the independent variables were managed using Full Information Maximum Likelihood (FIML; Muthén & Muthén, 1998-2009). FIML is a powerful tool that creates a pattern matrix showing every pattern of missing data. It calculates the model for every pattern using the data that are available, and it then combines the multiple solutions into a single maximum likelihood solution with robust standard errors. A concern about using missing data is that standard errors may be underestimated. FIML does not impute values for missing data; it estimates the model with those who are missing data using all available data and estimates of standard errors using the observed information matrix.

**Analytic procedure.** The study's hypotheses were examined using latent growth curve analysis (LGCA) in a structural equation modeling framework with Mplus 5.21 (Muthén & Muthén, 1998-2009). LGCA is a powerful method for longitudinal analysis that reduces error by estimating growth parameters and their effects all at once in one model rather than first estimating the slopes and intercepts for each individual and then using the estimates as predictors in a regression model (Willett & Bub, 2005). Latent growth modeling is especially pertinent to the study's goals given its ability to model change over time and build models that examine associations among intercepts and slopes. For the current study, six observations nested within individuals were observed indicators of two latent constructs, an intercept (the average starting point for the sample) and a slope (the rate of change across the 6 waves). Growth models of developmental change use true time scores as loadings for the latent slope to capture the gradual changes in development. Slope factor loadings were set appropriate for the functional forms of the career preparation dimensions (e.g., 0, 1, 2, 3, 4, 5 for linear, 0, 1, 4, 9, 16, 25 for quadratic).

For the current study, a piecewise growth model was used given the hypothesis (1b) predicting a reduction in career planning, followed by linear growth. Piecewise growth modeling allows for the estimation of “pieces,” or parts of a slope when there appears to be more than one type of change over time or different developmental stages within a period of time and is particularly useful when examining transitions (Chou, Yang, Pentz, & Hser, 2004). For a piecewise growth model, time is specified in “pieces” while each indicator of the intercept remains specified at “1”. For example, a decrease for two time points, followed by an increase for three time points would be specified as “0, 1, 1, 1, 1” for the first “piece” or “slope”, and time would be specified as “0, 0, 1, 2, 3” for the second “piece” or “slope” (Muthén & Muthén, 1998-2009). It is important to note that when piecewise models were tested where one piece contained two time-points, the model could not be identified because a slope, by definition, contains at least three time points of measurement. A commonly used solution is to set the covariance between the intercept and the change from Time 1 to Time 2 to zero (Muthén, 2010). This method was used for the current study because it was not expected that there would be significant variance around the mean in the correlation between the intercept and the change from Time 1 and Time 2 because the change from Time 1 to Time 2 contains the intercept.

Goodness of fit was examined using indices of model fit: chi-square statistic (Satorra & Bentler, 1994), root mean square error of approximation (RMSEA), comparative fit index (CFI), and Tucker-Lewis Index (TLI). The chi-square tests that the null hypothesis that the model does not fit the data is true, and it should not be significant (Tabacknick & Fidell, 2001). The RMSEA estimates the lack of fit in the model compared to a saturated model (i.e., all possible parameters are freely estimated). An RMSEA < .08 indicates an acceptable fit; good fit is indicated by an RMSEA < .05

(Byrne, 2001). The CFI compares the model fit to the independence model (i.e., the worst fitting model in which all variables are uncorrelated) (Bentler, 1990). For the CFI, values between .90 and .95 reflect acceptable fit, and values greater than .95 reflect good fit (Bentler). The TLI is a relative fit index that compares the hypothesized model to a null model, or the independence model (i.e., there are no relationships between the variables in the model). It is computed by using the ratios of the hypothesized model chi-square, the null model chi-square, and the degrees of freedom (Bollen, 1989). Bollen showed that the TLI is relatively unaffected by sample size, unlike the chi-square statistic.

## **Results**

### **Preliminary Analysis**

Preliminary analyses were conducted to examine the distribution of the data, the means and standard deviations, and bivariate correlations. The data for each career preparation dimension at each time point were symmetric. Means (see Table 1) indicated that levels of career confidence were moderate overall, but an increasing pattern was seen from Times 1 to 6. Career planning was moderately high overall, with an initial decrease in career planning from Time 1 to Time 2, followed by small, non-significant annual increases (though not significant) at each subsequent observation. The means for career indecision suggested that, in general, career indecision was decreasing over time, however, there was a larger decrease from Time 1 to Time 2 than from Times 2 through 6. Bivariate correlations (Table 2) showed that, as expected, all measurements of each career preparation dimension at each time point were associated.

Table 1.

*Means and Standard Deviations*

Variable	Mean (SD)	Min	Max	Skew
Career Indecision (T1)	33.18 (8.71)	16.00	59.00	0.28
Career Indecision (T2) <sup>a</sup>	29.13 (8.50)	16.00	56.00	0.41
Career Indecision (T3) <sup>a</sup>	28.60 (8.50)	16.00	53.00	0.47
Career Indecision (T4) <sup>ab</sup>	27.71 (8.57)	16.00	59.00	0.49
Career Indecision (T5) <sup>abcd</sup>	26.38 (8.22)	16.00	53.00	0.62
Career Indecision (T6) <sup>abcd</sup>	25.95 (8.04)	16.00	55.00	0.76
Career Planning (T1)	10.49 (8.22)	-11.00	24.00	-0.33
Career Planning (T2)	9.90 (8.40)	-15.00	24.00	-0.41
Career Planning (T3)	10.33 (8.63)	-21.00	24.00	-0.40
Career Planning (T4)	10.61 (8.28)	-13.00	24.00	-0.32
Career Planning (T5)	10.97 (8.50)	-17.00	24.00	-0.53
Career Planning (T6) <sup>b</sup>	11.41 (8.32)	-16.00	24.00	-0.43
Career Confidence (T1)	0.75 (5.79)	-15.00	15.00	0.13
Career Confidence (T2) <sup>a</sup>	1.58 (6.38)	-15.00	15.00	-0.09
Career Confidence (T3) <sup>a</sup>	1.68 (6.28)	-15.00	15.00	0.10
Career Confidence (T4) <sup>a</sup>	2.22 (6.24)	-14.00	15.00	0.04
Career Confidence (T5) <sup>abc</sup>	3.08 (6.21)	-13.00	15.00	-0.05
Career Confidence (T6) <sup>abc</sup>	3.20 (6.21)	-12.00	15.00	-0.05

<sup>a</sup> significantly different from T1 of variable

<sup>b</sup> significantly different from T2 of variable

<sup>c</sup> significantly different from T3 of variable

<sup>d</sup> significantly different from T4 of variable

<sup>e</sup> significantly different from T5 of variable.

*Note:* All significance values are  $p < .01$  using one sample t-tests.

Table 2.

*Correlations for Career Preparation Dimensions*

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Indecision 1	1																		
2. Indecision 2	.56***	1																	
3. Indecision 3	.51***	.64***	1																
4. Indecision 4	.42***	.53***	.67***	1															
5. Indecision 5	.43***	.48***	.60***	-.69***	1														
6. Indecision 6	.34***	.40***	.55***	.52***	.68***	1													
7. Planning 1	-.48***	-.41***	-.31***	-.27***	-.28***	-.49***	1												
8. Planning 2	-.35***	-.53***	-.35***	-.31***	-.36***	-.21***	.61***	1											
9. Planning 3	-.24***	-.38***	-.52***	-.38***	-.39***	-.28***	.50***	.60***	1										
10. Planning 4	-.25***	-.31***	-.42***	-.50***	-.48***	-.35***	.41***	.48***	.63***	1									
11. Planning 5	-.28***	-.29***	-.34***	-.37***	-.54***	-.36***	.40***	.45***	.58***	.66***	1								
12. Planning 6	-.21***	-.24***	-.27***	-.24***	-.38***	-.46***	.33***	.38***	.51***	.52***	.62***	1							
13. Confidence 1	-.53***	-.44***	-.36***	-.35***	-.33***	-.23***	.48***	.34***	.25***	.23***	.19***	.15***	1						
14. Confidence 2	-.40***	-.67***	-.49***	-.42***	-.40***	-.32***	.44***	.60***	.41***	.28***	.29***	.26***	.52***	1					
15. Confidence 3	-.40***	-.49***	-.61***	-.53***	-.46***	-.39***	.33***	.35***	.56***	.48***	.34***	.33***	.46***	.56***	1				



Table 2 (continued)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
16. Confidence 4	-.30***	-.37***	-.43***	-.61***	-.51***	-.39***	.28***	.34***	.43***	.63***	.45***	.30***	.39***	.45***	.65***	.65***	.65***	.65***
17. Confidence 5	-.38***	-.40***	-.48***	-.54***	-.64***	-.49***	.34***	.36***	.41***	.50***	.65***	.47***	.36***	.46***	.56***	.58***	.58***	.58***
18. Confidence 6	-.29***	-.36***	-.44***	-.46***	-.54***	-.60***	.26***	.33***	.42***	.42***	.48***	.60***	.29***	.46***	.56***	.56***	.63***	.63***

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Functional Forms of the Career Preparation Dimensions

The functional form of each career preparation dimension was first examined. An unconditional means model verified that the intercept was significant for each career preparation dimension. Next, unconditional linear growth models were fit for each dimension. The error term for each observed variable was associated with the previous time point of that variable (e.g., the error of career planning at Time 2 was associated with the error of career planning at Time 1). Residual correlations were specified because it was expected that the error in measurement of career confidence, for example, at one time would be associated with the error in measurement of career confidence one year later.

**Career confidence** (see Figure 1). Examination of the means and prototypical plots indicated that career confidence was linear. The unconditional linear growth model was fitted, represented by the following equation:  $Y_{ij} = \gamma_{00} + \gamma_{10} (\text{Time}) + \zeta_{1i} (\text{Time}) + \zeta_{0i} + \varepsilon_{ij}$  where  $\gamma_{00}$  is the intercept;  $\gamma_{10}$  is the slope, which is multiplied by time, and  $\zeta_{1i}$  and  $\zeta_{0i}$  represent the “deviations of the growth parameters from their population averages” (Singer & Willett, 2003, p. 62);  $\varepsilon_{ij}$  represents unexplained variance for an individual’s amount of the outcome unexplained at each time point (Singer & Willett). The indicators of the intercept were set to one, and the specification for time for the linear slope was 0, 1, 2, 3, 4, 5, to represent one year between each observation. The linear model fit the data well. The chi-square was not significant ( $p = .18$ ), and all relative fit indices indicated that the model fit the data well (see Table 3). Career confidence was increasing linearly over time, which supported hypothesis 1a.

**Career planning** (see Figure 2). A linear model was fitted for career planning; as expected, it did not fit the data well because the means for career planning at each time point indicated that career planning had a slight decrease from Time 1 to Time 2,

followed by a linear increase from Times 2 through 6 (in contrast to hypothesis 1a). Therefore, a piecewise growth model was fitted. The following equation represents this model:  $Y_{ij} = \gamma_{00} + \gamma_{10} (\text{Time}) + \gamma_{20} (\text{Time}) + \zeta_{1i} (\text{Time}) + \zeta_{2i} (\text{Time}) + \zeta_{0i} + \varepsilon_{ij}$  where  $y_{00}$  is the intercept;  $\gamma_{10}$  is the “first slope,” which is multiplied by time (T1-T2);  $\gamma_{20}$  is the second slope, which is multiplied by time (T2-T6), and  $\zeta_{1i} + \zeta_{2i} + \zeta_{0i} + \varepsilon_{ij}$  represent unexplained, or residual variance. The indicators for the intercept were set to one, and the time specification for the “first slope” from Time 1 to Time 2 was 0, 1, 1, 1, 1, 1, to construct a change parameter using only Times 1 and 2. It should be noted that the “first slope” (T1-T2) is not technically a slope because it contains two time points. The specification for time for the second slope was 0, 0, 1, 2, 3, 4, to fit a linear slope from Times 2 through 6, ignoring the first time point. The chi-square was nonsignificant ( $p = .55$ ). This model fit the data well (see Table 3) and showed that the change in career planning between Times 1 and 2 was non-significant; however the slope between Times 2 and 6 was significant and increasing linearly. The slope from Time 2 to Time 6 will be herein referred to as the second slope. Overall, career planning showed stability from 12<sup>th</sup> grade to six months post-high school (in contrast to the hypothesized decrease (1b)), followed by a linear increase (in support of hypothesis 1b).

**Career indecision** (see Figure 3). As expected, the unconditional linear growth model for career indecision did not fit the data well because means indicated an initial drop in career indecision from Times 1 to 2, followed by a less steep decrease from Times 2 through 6. A quadratic model was tested; however, this model did not fit the data well either. Therefore, a piecewise model was fitted. Means showed an initial drop in career indecision. The following equation represents the functional form of career indecision:  $Y_{ij} = \gamma_{00} + \gamma_{10} (\text{Time}) + \gamma_{20} (\text{Time}) + \zeta_{1i} (\text{Time}) + \zeta_{2i} (\text{Time}) + \zeta_{0i} + \varepsilon_{ij}$  where  $y_{00}$  is

the intercept;  $\gamma_{10}$  is the “first slope,” which is multiplied by time;  $\gamma_{20}$  is the second slope, which is multiplied by time, and  $\zeta_{1i} + \zeta_{2i} + \zeta_{0i} + \varepsilon_{ij}$  represent unexplained, or residual variance. The indicators of the intercept were set to one, and the time specification for the “from Time 1 to Time 2” was 0, 1, 1, 1, 1, 1. The time specification for the second slope was 0, 0, 1, 2, 3, 4. The chi-square was nonsignificant ( $p = .29$ ). This model fit the data well (see Table 3) and showed that the career indecision was decreasing more rapidly between Times 1 and 2 than it was between Times 2 and 6. This finding somewhat supports the hypothesis (1c) that career indecision would decrease and then stabilize in that career indecision decreased rapidly from Time 1 to Time 2 and then showed a less steep decline from Times 2 through 6.

Figure 1. Career confidence unconditional growth

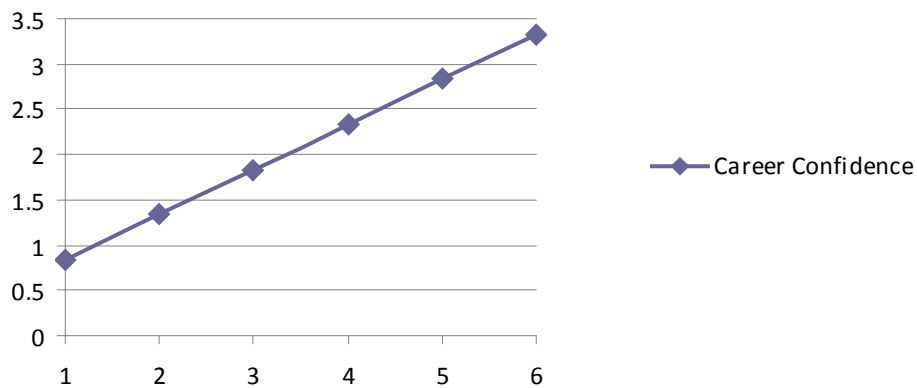


Figure 2. Career planning unconditional growth

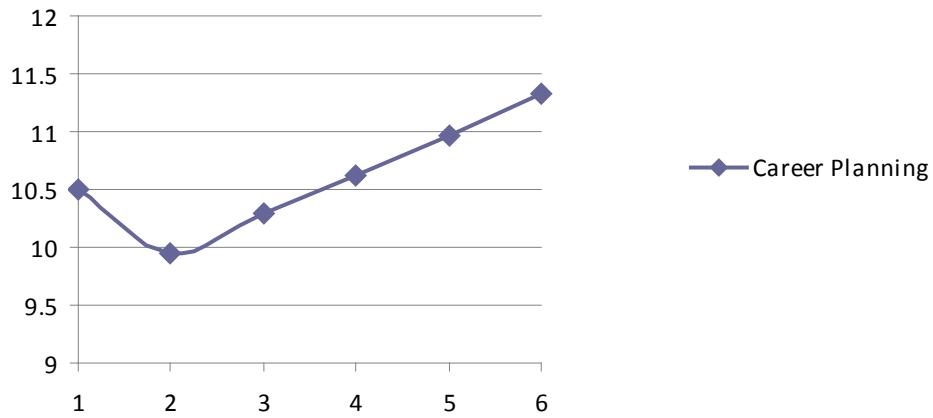
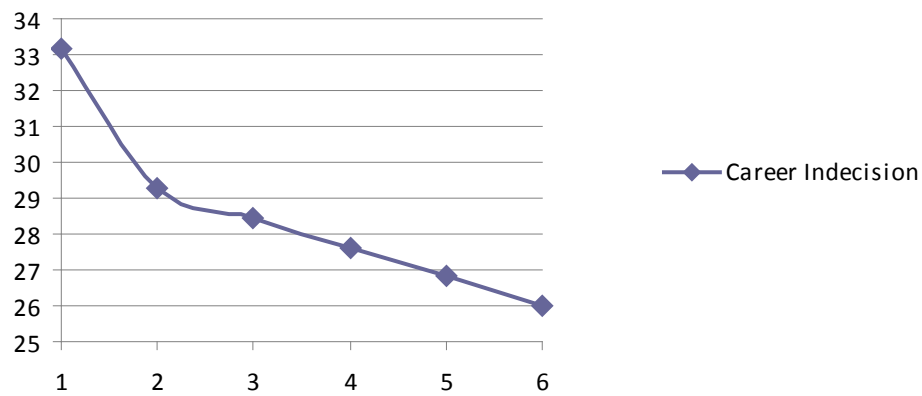


Figure 3. Career indecision unconditional growth



### Hypothesis Testing

The current study's main goal was to test a model in which the three career preparation dimension trajectories were associated with each other over time. In other words, all slopes and intercepts were associated. This model could not be identified. In structural equation modeling, a model is unidentified when there are less known parameter values than unknown parameter values. Identification did not occur because the first piece of the career planning and career indecision piecewise models (i.e., career

planning from Time 1 to Time 2; career indecision from Time 1 to Time 2) did not allow for identification of the usual slope growth parameters (three or more time points are required to estimate a true slope). In other words, parameters could not be estimated for associations involving the first pieces of career indecision and career planning. The solution was to set the variance of the first piece (from Time 1 to Time 2) growth factor to zero, which did not allow for the first pieces of career indecision and career planning to be associated with other parameters (Muthén, 2010). In order to examine the Time 1 to Time 2 change's association with other parameters in the models, three parallel process models with two career preparation dimensions at a time (rather than three) were tested. Three separate models were fitted (i.e., career confidence with career planning; career confidence with career indecision; and career planning with career indecision). It is important to note that for each model, an associative model was fit, in which the paths that were not significant in the directional models were correlated. None of these models showed additional significant correlations; therefore, the directional models were retained.

**Career confidence and career planning** (Model A; see Figure 4). A model was fitted in which the intercepts and slopes of career confidence and career planning were associated with each other. The chi-square was nonsignificant ( $p = .55$ ), and the model fit the data well (see Table 4). The change in career planning from Time 1 to Time 2 was not associated with the intercepts or slopes in the model and, therefore, is not shown in Figure 4. Results showed that the intercepts of career planning and career confidence were positively associated (higher career planning was associated with higher career confidence). The slope of career confidence was positively associated with the second slope (T2-T6) of career planning, which indicates that increases in career confidence were associated with increases in career planning (T2-T6) and supports hypothesis 2a.

The intercepts of career confidence and career planning were negatively associated with their corresponding slopes (second slope only for career planning), which indicates that low levels of career planning and career confidence were associated with more positive growth in career planning and career confidence over time, respectively. The intercept of career planning was positively associated with the slope of career confidence.

Therefore, greater career planning at Time 1 was predictive of greater increases in career confidence over time. Model A supported the hypothesis (3a) that initial levels of career planning would predict growth in career confidence.

**Career confidence and career indecision** (Model B; see Figure 5). A model was fitted in which the intercepts and slopes of career confidence and career indecision were associated. The chi-square was nonsignificant ( $p = .25$ ), and the model fit the data well (see Table 4). The initial change (T1-T2) in career indecision was not associated with the intercepts or slopes in the model and, therefore, is not shown in Figure 5. Results showed that the intercepts of career indecision and career confidence were negatively associated (i.e., higher indecision was associated with lower confidence). The slope of career confidence was negatively associated with the second slope (T2-T6) of career indecision, which indicated that greater increases in career confidence were associated with greater decreases in career indecision (supported hypothesis 2b; see Appendix 3, Figure 1 for a plot of this relationship). The intercept of career confidence was negatively associated with its slope, and the intercept of career indecision was negatively associated with its slope (T2-T6). This means that high career confidence at Time 1 was associated with smaller increases in career confidence over time, and high initial levels of career indecision were associated with greater declines in career indecision over time. The intercept of career indecision was negatively associated with the slope of career confidence. Therefore, lower levels of career indecision at Time 1

were predictive of greater increases in career confidence. This model supported the current study's hypothesis (3a) that career indecision would predict career confidence.

**Career indecision and career planning** (Model C; see Figure 6). Finally, a model was fitted in which the intercepts and slopes of career indecision and career planning were associated with each other. The chi-square was nonsignificant ( $p = .079$ ), and the relative fit indices indicated that the model fit the data well (see Table 4). The intercepts of career indecision and planning were marginally ( $p = .06$ ) negatively associated (i.e., greater indecision was associated with less planning). The second slopes (T2-T6) of career indecision and career planning were negatively associated. This means that greater increases in career planning were associated with greater decreases in career indecision, which supported hypothesis 2b (see Appendix 3, Figure 2 for a plot of this relationship). The intercepts of career planning and career indecision were negatively associated with their corresponding second slopes. This indicates that greater career planning at Time 1 was associated with slower increases in career planning from Times 2 through 6, and greater career indecision at Time 1 was associated with greater declines in career indecision from Times 2 through 6. The career planning intercept was negatively associated with the initial change in career indecision (T1-T2), which indicates that high initial levels of career planning were associated with faster declines in career indecision from Time 1 to Time 2. The intercept of career indecision negatively predicted the initial change (T1-T2) in career planning, showing that high initial levels of career indecision were predictive of smaller increases in career planning from Times 1 to 2. Model C partially supported the hypothesis (3b) that career planning and career indecision co-occur, rather than career indecision predicting career planning and vice versa. This can be concluded because the regression of the change from Time 1 to Time 2 on the initial statuses mirrored each other for career planning and



career indecision. The initial status of career planning was associated with the second slope of career planning and the change from Time 1 to Time 2 of career indecision. The initial status of career indecision was associated with the second slope of career indecision and the change from Time 1 to Time 2 of career planning.

Table 3.

Career Preparation Unconditional Growth Models (Unstandardized)

	Param.	Confidence	Planning	Indecision
<b>Fixed Effects</b>				
Initial Status ( $\pi_{0i}$ )	$\gamma_{00}$	0.832*** (0.255)	10.503*** (0.386)	33.180*** (0.409)
Rate of Change ( $\pi_{1i}$ )	$\gamma_{10}$	0.500*** (0.066)	-0.561 (0.338)	-3.920*** (0.362)
Rate of Change ( $\pi_{12}$ )	$\gamma_{20}$		0.334** (0.113)	-0.811*** (0.106)
<b>Goodness of Fit</b>				
$\chi^2$		14.968	6.884	9.710
Df		11	8	8
CFI		0.996	1.000	0.999
TLI		0.994	1.000	0.997
RMSEA		0.028	0.000	0.022

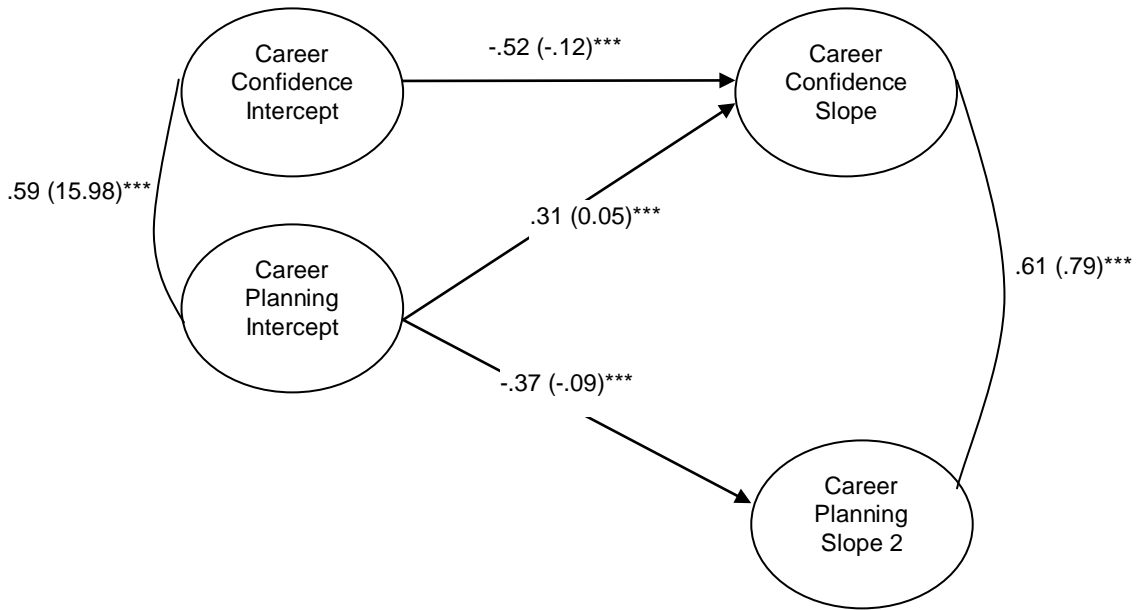
\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 4.

Fit Statistics for Parallel Process Models

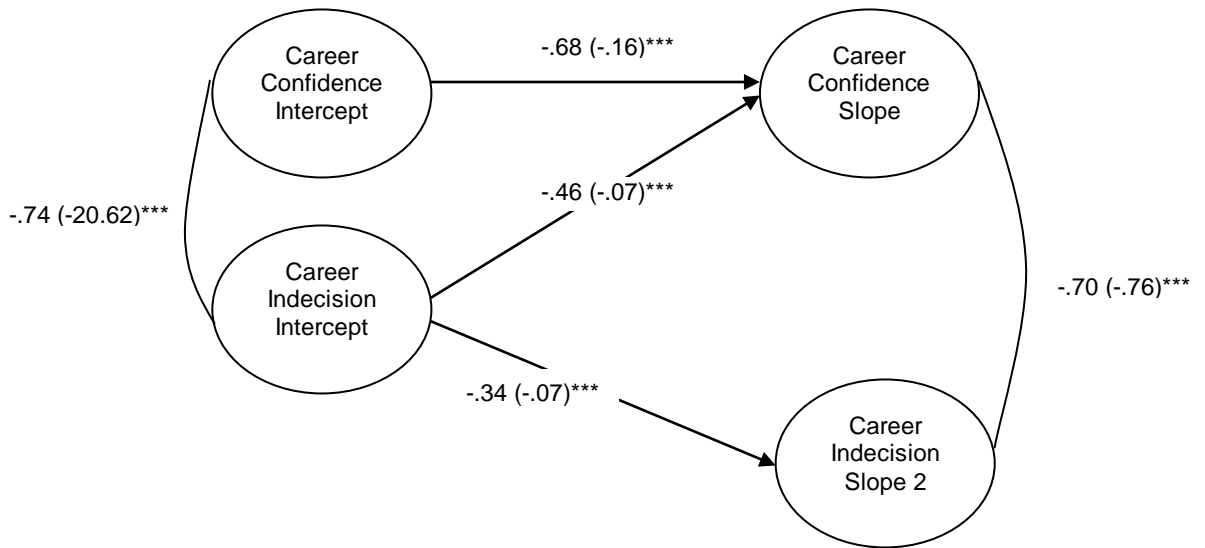
Fit Index	Model A	Model B	Model C
$\chi^2$ (df)	33.229 (33)	39.204 (33)	41.48 (29)
CFI	1.000	0.998	0.996
TLI	1.000	0.996	0.990
RMSEA	0.000	0.018	0.031

Figure 4<sup>a</sup>. Standardized (unstandardized) estimates for Model A



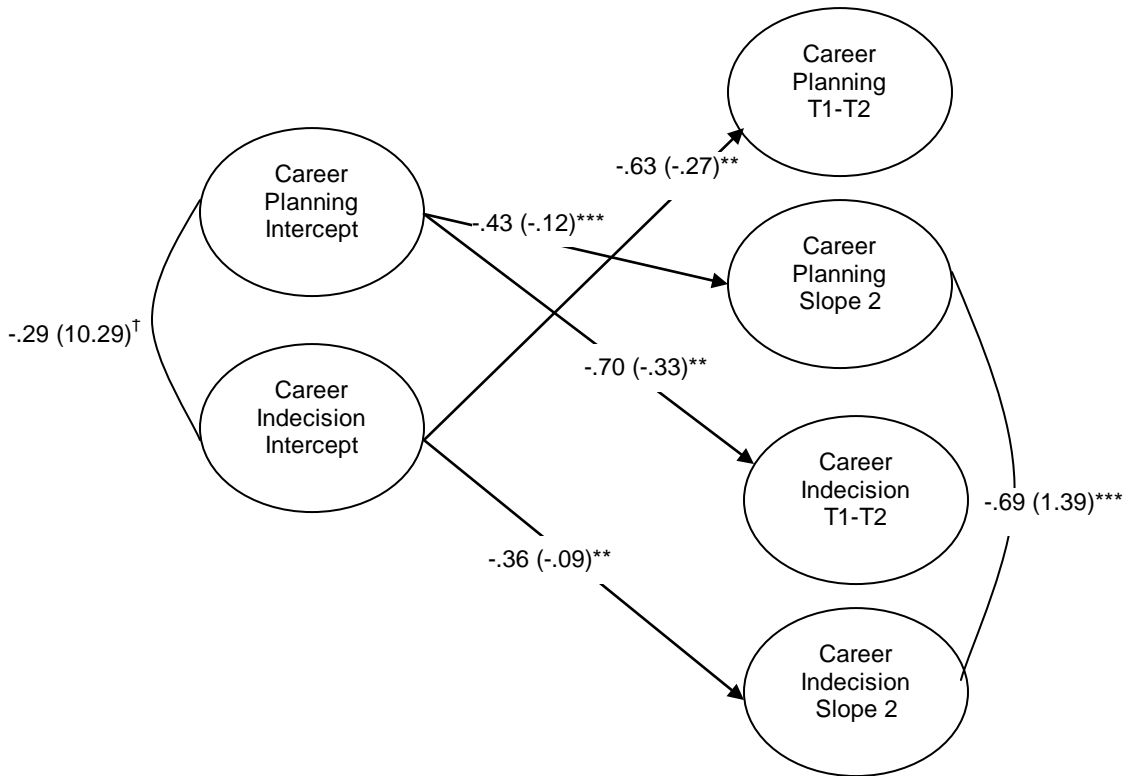
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Figure 5<sup>a</sup>. Standardized (unstandardized) estimates for Model B



\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

Figure 6. Standardized (unstandardized) estimates for Model C



†  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Discussion

As theorized, the results of the current study suggested that the career preparation dimensions are interrelated processes. However, during the transition from high school to employment and/or post-secondary education, the career preparation dimensions did not show similar changes over time.

Overall, results showed that career confidence was increasing linearly over time. This is in line developmentally with Super's (1957) and Savickas' (2005) theories. Young adults are engaging in career exploration prior to career establishment and are gaining confidence in their career choices as they learn how to become adaptable in their career identities (i.e., fit their career expectations within real world constraints). Career planning showed a nonlinear functional form from 12<sup>th</sup> grade to 4.5 years post-high school. The,

the piecewise model showed that the growth from Times 1 to 2 was not significant; whereas the growth from Times 2 to 6 was linear and increasing. This suggests that career planning is not changing during the actual transition point from high school to work and/or post-secondary education. It may be that youth are not sure of their career paths and not planning, or they have chosen them and have slowed the planning until they assume the paths and gain new experiences in different contexts (e.g., college and work). The latter explanation is in line with Super's notion of the cycles of career development. The time in which career planning is increasing is after youth graduate from high school. It may be that much of the career planning for immediate career plans after high school is done prior to high school graduation, and much of the career planning for one's long-term adult career happens after high school graduation. Therefore, there is a stable period during the last part of high school to six months after high school. Skorikov's (2007b) results using the same sample during 11<sup>th</sup> grade to six months post-high school showed slight nonsignificant increases in career planning from grades 11 to 12 and a slight drop (nonsignificant) in career planning from 12<sup>th</sup> grade to six months after high school. In comparison with (and extending) Skorikov's results, the current study suggests that career planning primarily increases during the late teens and early twenties.

The findings of the current study also showed that career indecision was decreasing rapidly during the transition from 12<sup>th</sup> grade to six months after high school and then decreasing, but less rapidly, from six months after high school to 4.5 years post-high school. This also is in line with Super's (1957) and Savickas' (2005) theories, in that young adults are making decisions about their careers over time. The initial rapid decrease is most likely due to youth facing pressure to make initial decisions about their careers before graduating high school (e.g., whether they will go to college, initial college

majors, and initial employment). This conclusion is supported by and expands Skorikov's (2007b) findings with the same sample during 11<sup>th</sup> and 12<sup>th</sup> grades (data collected every six months). Skorikov found evidence to suggest that career indecision was decreasing more quickly from the fall of 12<sup>th</sup> grade to six months post-high school than it was from spring of 11<sup>th</sup> grade to fall of 12<sup>th</sup> grade. Youth quickly decide on their careers from 12<sup>th</sup> grade to six months post-high school but then may enter a period of time when their growth in decidedness slows because they have not entered their adult careers yet.

In summary, young adults are simultaneously making career decisions, developing career plans, and becoming more confident in their career decisions. The results of the current study support the increasing nature of career confidence and career planning and the decreasing nature of career indecision as youth make the transition into college or work.

The associations found among the intercepts and slopes of the career preparation dimensions support the theory of career construction (Savickas, 2005). Overall, the intercepts and slopes, respectively, of career planning and confidence were positively associated with one another, and the intercept and slope of career indecision was negatively associated with the respective intercepts and slopes of career planning and confidence. There was some variability in the associations between the slopes in that the changes in career indecision and planning from Time 1 to Time 2 were not associated with any of the other slopes, and this may be because the initial changes in career planning and career indecision from 12<sup>th</sup> grade to six months post-high school do not affect changes in career planning and career indecision after six months post-high school. During the last year of high school youth are required to plan for and make decisions about their careers because they are developmentally moving from a compulsory educational setting to optional education and/or employment. The

associations found among the second slopes (T2-T6) of career indecision and planning and the slope (T1-T6) of career confidence support study hypotheses and extant literature that has found cross-sectional and short-term longitudinal associations among two or more of the career preparation dimensions (Creed et al., 2006; Hirschi & Läge, 2008; Skorikov, 2007b). These findings also support theory which asserts that the career preparation dimensions are interrelated processes over time (Savickas).

The use of the identity process literature to make predictions about the directional effects of career preparation dimensions was warranted. Luyckx and colleagues (2006a) found that initial levels of commitment making and exploration in depth were negatively associated with the slope of identification with commitment in the student domain. This result can be explained by the fact that the participants in the Luyckx et al. study were leaving their student roles and, therefore, were most likely identifying less with being students. However, what was taken from the Luyckx et al. study to inform the current research was that their results suggested that initial decisions and plans were predictive of confidence in career decisions. Results of the current study supported the findings of Luyckx et al. by not only demonstrating that career confidence (which is similar to identification with commitment) was associated with changes in the career planning (similar to exploration in depth) and career indecision (similar to commitment making), but also that career confidence is a result of career planning and career decision-making. More specifically, initial levels of career planning and career indecision in the 12<sup>th</sup> grade predicted growth in career confidence from 12<sup>th</sup> grade to six months post-high school. Career confidence, however, was not a predictor of career planning or career indecision, and the intercepts of career planning and career indecision showed the same associations with each other's growth from Time 1 to Time 2 but no association with the Time 2 through 6 slopes. These results suggest that in

order to increase career confidence, it is first necessary to increase career planning and decrease career indecision and that career planning and career indecision are simultaneous processes in time. Furthermore, career planning and decision-making appear to have a bidirectional relationship.

### **Limitations and Future Directions**

The current study had some limitations which included the exclusion of those who did not graduate from high school (i.e., those who dropped out of high school), the representativeness of the sample, sample size, and the limitation of the analytic technique used to examine the three dimensions of career preparation. The current study did not include high school dropouts, which limits the representativeness of the sample in reflecting the population of youth who are ages 17-23. However, the current study does represent a diverse group of youth who graduated from high school in Hawaii. Although this sample is very diverse, it is not representative of the African American or Latino populations, which are a large part of the American population. With that said, this study did include many Asian Americans, which are often understudied in American career development literature.

Sample size was a limitation of the current study because there were not enough youth in the sample in order to pick out distinct education and employment pathways over the course of 4.5 years post-high school. Youth take many different career pathways after high school. They often combine school and work for some periods of time, and then only go to school or only work for other periods of time (Skorikov & Urantani, 2008). This makes it difficult to assess distinct educational and employment pathways, which may have an effect on the development of career preparation. For example, youth who transition in and out of school and from job to job do not have a lot of direction in terms of what career they would like to pursue (Mortimer et al.,

2002). These youth may show different developmental trajectories of career indecision, planning, and confidence, and therefore, different associations among the trajectories over time. It will be important for future research to examine the impact of work and school decisions on the development of and associations among career preparation dimensions.

The analytic technique used in the current study did not allow the authors to test all three career preparation dimensions in the same model, which did not allow for the examination of the effect of one dimension on another dimension, controlling for a third dimension (e.g., career indecision on planning, controlling for career confidence). This occurred because the model would not identify without setting the variance of the change in career planning and career indecision from Time 1 to Time 2 to zero (a current limitation of the Mplus program; Muthén, 2010). Setting the variance of the change from Time 1 to Time 2 to zero meant that the change from Time 1 to Time 2 could not covary with any of the other parameters in the model. Therefore, three models were tested examining two dimensions simultaneously (career indecision and career planning; career planning and career confidence, and career indecision and career confidence). Using this method, we were able to test associations with the change in career indecision and career planning from Time 1 to Time 2. And, it was found that the change from Time 1 to Time 2 of these dimensions was predicted by their counterpart's intercept (i.e., the career indecision intercept predicted the change from Time 1 to Time 2 of career planning and the career planning intercept predicted the change from Time 1 to Time 2 in career indecision). It will be important for other techniques using alternative programs to be examined in order to identify whether it is possible to test these associations in a model that contains all three dimensions of career preparation.



Despite its limitations, the current study contributed to extant literature by using a diverse sample that included individuals whose ethnicities were Hawaiian, multi-ethnic, or Asian who took diverse educational and employment pathways. LGCA was used, which reduced error that is made when using regression and repeated measures techniques. The current findings contribute to our understanding of developmental processes underlying youths' preparation for adult occupational careers and suggest that although these processes are related, they are not following the same developmental trajectory. It will be important for future work to assess the contribution of the development of career planning, decision-making, and confidence to important outcomes, such as job satisfaction and life adjustment.

### III. PAPER 2

#### **Introduction**

The transition from adolescence to early adulthood is a time of identity development. Erikson's (1968) theory of psychosocial development asserts that identity development, specifically in the career domain, is the key developmental task of adolescence and that adjustment is affected by success in navigating developmental tasks (Erikson; Havinghurst, 1972). The important developmental task of preparing for an adult career is occurring during the transition from high school to work or college or a combination of both (Erikson; Super, 1957). Career commitments made at this time have consequences for adjustment in early and middle adulthood, including later career satisfaction and opportunities (Lee & Gramotnev, 2007). Identity commitment, which takes places in multiple domains including the career domain, involves cognitive, behavioral, and emotional attachments to a decision and emerges as the result of multiple co-occurring processes (Luyckx, Goossens, & Soenens, 2006a). In the career development literature, these commitment processes have been identified collectively as career preparation (Skorikov, 2007b).

Erikson (1968) posited that without satisfying work, adjustment may be compromised. Consistent with this assertion, research has shown that in adults, career satisfaction is important for adjustment (Perrone, Áegisdóttir, Webb, & Blalock, 2006). However, we know very little about how career identity commitments affect adjustment as youth make the transition from high school to employment and/or post-secondary education. Furthermore, when investigating the effect of career on adjustment, research

primarily has focused on adult populations, the majority of whom are married and/or parents and have assumed their adult careers (see Barnett & Hyde, 2001). What still needs to be investigated is how career preparation affects adjustment during the transition out of high school among youth who are in the process of assuming new work and college roles. This is important because the transition to employment and post-secondary education sets individuals on the path for later career opportunities. The aim of the current study was to address this gap in the literature by assessing dimensions of career preparation over the course of the transition from high school to work and further education and their associations with adjustment in early adulthood.

In addition to Erikson's (1968) psychosocial theory of development, the proposed study was guided by several related theoretical perspectives. First, Vondracek's (1995) self-realization through a vocational career perspective proposes that making career decisions through careful planning and decision-making consistent with abilities and talents, leads to the experience of self-actualization through career. Successful career identity development can result in self-fulfillment through one of the most time consuming domains of individuals' lives. This theoretical perspective provides the reasoning for why studying career identity development is important for adjustment. Second, the theory of career construction (Savickas, 2005) asserts that successful career development consists of planning, decision-making, problem solving/confidence, and exploration. Exploration of career options represents a less focused dimension of career identity development; whereas planning, decision-making, and confidence represent more focused efforts indicative of career identity commitment (Skorikov, 2007b). Together, these theoretical perspectives offer guidance for why studying career identity development is important, how career identity is developed, and the mechanisms through which career identity commitments are made.

## **Career Preparation**

Career preparation is an important component of career identity development and is particularly critical for late adolescents and young adults as they move toward their adult occupational careers (Skorikov, 2007b). For the current study the three dimensions of career adaptability theorized by Savickas (2005) that are commitment-focused represented the concept of career preparation. Career preparation (Skorikov, 2007b) includes behaviors indicative of making an initial commitment through decision-making and further deepening of the commitment through planning and expressing confidence to carry out career decisions. More specifically, career preparation is defined as the process of laying the foundation for establishing one's occupational career and consists of three dimensions indicated theoretically by Savickas and termed career preparation and empirically examined by Skorikov (2007): 1) **career decision-making** (making an informed decision based on knowledge of career options and the self); 2) **career confidence** (having confidence to achieve one's career goals); and 3) **career planning** (having strategies for obtaining one's career goals). These three dimensions represent commitment-focused processes involved in career adaptability, or the ability to fit career goals and plans into real world constraints (Savickas). Most research on career preparation is cross-sectional and has addressed relations among the decision-making, (or career decision self-efficacy) and career planning and their associations with family-related variables, such as parental support and family functioning. Skorikov's study is the only one that has assessed all three career preparation dimensions over time. However, Skorikov did not assess each dimension separately, but rather as a latent variable.

Although multiple studies have addressed one or more career preparation dimensions in high school and college student samples (e.g., Creed, Patton, & Prideaux, 2006; Creed, Prideaux, & Patton, 2005; Skorikov, 2007a; see Skorikov & Vondracek,

2007), very few studies have examined career preparation development over time during the period when it is most salient. Only three published studies to date have examined one or more components of career preparation longitudinally. These studies found evidence to support that career decision-making increased during high school as individuals got older (Creed et al., 2006; Skorikov, 2007b; Vondracek, Hostetler, Schulenberg, & Shimizu, 1990).

### **Adjustment and Career Preparation**

Success in dealing with normative, developmental tasks is associated with personal and social adjustment, happiness, satisfaction, and success with later developmental tasks (Erikson, 1968; Havinghurst, 1972). During the transition to adulthood, preparing for an adult career is a primary focus and important for subsequent adjustment (Arnett, 2000; Erikson, Skorikov, 2007a). Very few studies have examined specifically the association between career preparation and adjustment. Most studies loosely focus on career commitment by examining identity commitment (which includes items that refer to career in combination with items referring to other identity domains). In cross-sectional studies conducted with high school students, college students, and adults, career commitment has been suggested to be important for emotional adjustment, well-being, and career satisfaction (e.g., Creed et al., 2005; Meeus, Iedema, Maassen, & Engels, 2005; Perrone et al., 2006; Skorikov, 2007b). Studies that have linked career preparation with adjustment have primarily focused on career indecision, or career decision-making, as a predictor and/or outcome of adjustment. Common adjustment indicators include negative indicators of mental health, such as depression and anxiety, as well as other indicators, such as life and work satisfaction and well-being. More recently positive mental health indicators of adjustment have been used (Skorikov, 2007b) and were used in the current study to indicate adjustment.

Specifically, adjustment was indicated by the positive mental health variables of emotional stability, social adaptability, and self-actualization. Emotional stability is characterized by being emotionally steady and predictable in a way that allows individuals to meet the demands of everyday life; social adjustment refers to being able to understand social cues and use them to fit in with a larger group; and self-actualization is feelings of realizing one's full potential (Maslow, 1943; Minsel, Becker, & Korchin, 1991).

There is empirical evidence of the developmental importance of identity commitment to work and school. For example, Meeus et al. (2005) found that identity development was most important for adjustment in late adolescence and young adulthood; whereas, in early and middle adolescence, parental support was important for adjustment. Adjustment also affects one's ability to prepare for a career (Creed, Muller, & Patton, 2003; Skorikov, 2007b). For example, Creed et al., in a study with two time points, using a sample of high school students making the transition into work or college, found that well-being at Time 1 was associated with career decision self-efficacy at Time 2. For the current study, it is hypothesized that there will be a reciprocal association between career commitment and adjustment. Therefore, in order to accurately assess the influence of career preparation on adjustment, it will be important to control for previous adjustment.

Overall, career preparation can improve adjustment and lower distress, especially during educational and career transitions (e.g., high school to career) (Skorikov, 2007a; 2007b). It has been established that career preparation is connected to adjustment measures, including social adaptability and emotional stability, for high school students (Skorikov, 2007b). However, no empirical work has assessed whether career preparation dimensions differentially predict adjustment during the transition from

high school as young adults begin post-secondary education or paid employment. Building on the work of Skorikov (2007b), the current study aimed to assess the influence of growth in career preparation dimensions during early adulthood on adjustment. Because the dimensions were not found to have the same developmental trajectory over time (Stringer, 2010) and may differentially predict adjustment, the current study assessed growth in each dimension of career preparation and each dimension's association with adjustment when youth had been out of high school for 4.5 years.

### **Rationale and Hypotheses**

Extant theory and empirical work suggest that the transition from high school to work and/or college is a critical time period for adjustment and preparing for one's adult career (Erikson, 1968; Mortimer, Zimmerman-Gemback, Holmes, & Shanahan, 2002; Skorikov, 2007a). Cross-sectional and short term longitudinal research also has suggested that linkages between adjustment and career preparation exist (Creed et al., 2003; Creed et al., 2005). However, little empirical work has addressed the assumptions of developmental theories that career identity development is a developmental task, and without successful management of this developmental task, adjustment may be affected negatively (Skorikov; Erikson). The current study aimed to assess growth in each career preparation dimension from senior year in high school to 4.5 years post-high school and their associations with adjustment at 4.5 years after high school graduation. It was expected that increases in career planning and confidence and decreases in career indecision would positively predict adjustment at 4.5 years post-high school, controlling for adjustment during the senior year of high school.

## Method

### Sample and Procedure

Data from a longitudinal study of adolescent and young adult development that were collected from six high schools in Hawaii were used to address the aims of the current study. This study was funded by NIH (GM08073) and was conducted by Vladimir Skorikov, Ph.D. Data were collected every six months from the middle of 11<sup>th</sup> grade through the end of 12<sup>th</sup> grade. Six months after grade 12, participants completed assessments yearly for four years.

The current study used a sample of 454 young adults that participated in a longitudinal study of adolescent and young adult development. This study followed high school students at the end of 11<sup>th</sup> grade until 4.5 years after high school graduation. The current study used data from Time 2 (middle of 12<sup>th</sup> grade) and Times 4 (6 months after high school graduation) through 8 (4.5 years after high school graduation). These times were selected because a significant number of participants were added to the study at Time 2, and Time 3 was collected six months after Time 2. Time points are separated by approximately one year (total time span is five years). Time points used for the proposed study will herein be referred to as Times 1 (beginning of senior year in high school) through 6 (4.5 years post-high school graduation). At Time 1, participants' average age was 17.2 years. The sample for the current study was diverse in their parents' educational background (fathers: 40.1% high school diploma, 17.4% community college/vocational school, 18.7% college degree, 5.7% Master's degree, 4.6% Ph.D.; mothers: 38.5% high school diploma, 21.4% community college/vocational school, 24.2% college degree, 7.7% Master's degree, 0.9% Ph.D.), occupational rank (fathers: 34% lower level jobs, 41.3% mid-level jobs, 10.3% high level jobs; mothers: 39.2% lower level jobs, 57.2% mid-level jobs, 5.1% high level jobs), and ethnicity (26.4% Asian,



14.8% Caucasian, 15.9% Hawaiian and Pacific Islander, 6.8% Filipino, 0.2% American Indian, 2.0% Portuguese, 0.9% African, 2.6% Hispanic, and 29.1% Multi-ethnic). At Time 2, 18.3% were not students; 7.9% were enrolled part-time in school; 1.1% were full-time in vocational school; 9.3% were full-time in a two-year school; 42.7% were full-time in a four-year school; 20.3% did not report school status. At Time 2, 37.7% were not working; 18.5% were working less than half-time; 19.8% were working half-time; 10.6% were working thirty hours per week; 7.3% were working full-time; 6.2% did not report employment status.

## **Measures**

*Career preparation* was assessed using measures of career indecision, career confidence, and career planning. Career indecision was assessed using the Career Decision Scale (CDS; Osipow, Carney, & Barak, 1976). The CDS measures an individual's certainty of career choice based on the norms of a young adult population. Kelly and Lee (2002), after a review of other career decision-making measures, asserted that "the CDS is unique in reflecting the identity problems that impede career exploration and decision-making (p. 323)." Example items include "I can't make a career choice right now because I don't know what my abilities are." and "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." The CDS contains 16 items that are rated on a 4-point Likert-type scale and are rated from 1 (not at all like me) to 4 (exactly like me). Higher scores indicate greater indecision. Internal consistency has been .89 (Patton & Creed, 2001). Test-retest reliability ranged from .82 to .90 for two college samples (Osipow et al., 1976). Studies establishing construct validity showed that the CDS was correlated positively with vocational identity ( $r = .69$ ; Marco, Hartung, Newman, & Parr, 2003; also see Osipow, et al., 1976). Career confidence and career planning were assessed using

a measure developed over the course of the Skorikov NIH study (Skorikov, 2007b). The career planning subscale assesses the degree to which one has plans for reaching his or her career goals and obtaining his or her desired occupation, and the career confidence subscale measures the degree to which one believes he or she will obtain his or her career goals. The career confidence subscale and career planning subscale items were rated on a 7-point Likert-type scale ranging from “completely agree” (3) to “completely disagree” (-3) where higher scores indicate greater career confidence and planning. The scores were calculated by summing the scores of all items. The career planning scale included five items (e.g., “I have a plan for where I want to be in my career ten years from now” and “I know what to do in order to accomplish my occupational goals”), and the career confidence scale included eight items (e.g., “I feel confident that I can do well in my chosen occupation in the future” and “I feel that my occupational plans may be impossible to accomplish”). Using the same sample as the current study, Skorikov found that the alpha coefficients for the planning and confidence scales were .85 and .82, respectively. Construct validity has been demonstrated, in that career confidence and planning negatively correlated with career indecision and that career planning and career confidence were positively associated with identity achievement and negatively associated with identity diffusion (Skorikov, 2007b).

*Adjustment* was assessed using the Positive Mental Health Scale (PMHS; Minsel et al., 1991). The PMHS assesses emotional stability (4 items; “I am emotionally very stable; my mood is positive even under stress.”), social adaptation (4 items; “I get along well with literally anyone I want to.”), and self-actualization (5 items; “I live my life to the fullest.”). Items were rated on a 4-point Likert-type scale ranging from “rarely” to “all the time”. Higher scores indicate better adjustment. Cronbach’s alphas were adequate ranging from .72 to .76. Previous work using the same sample showed that the

subscales correlated with each other well. Self-actualization and social adaptation were correlated .64; emotional stability and self-actualization were correlated .39; emotional stability and social adaptation were correlated .46. These three subscales loaded well to indicate an unobserved construct, positive mental health (i.e., adjustment) (Skorikov, 2007b).

### **Analytic Procedure**

The goals of the current study were addressed with latent growth curve analysis (LGCA) in a structural equation modeling framework using Mplus 5.21 (Muthén & Muthén, 1998-2009). Growth modeling is a powerful statistical method for longitudinal analysis (Willett & Bub, 2005). Six observations nested within individuals served as observed indicators of two latent constructs, an intercept (the average starting point for the sample) and a slope (the rate of change across the 6 waves). Growth models of developmental phenomenon use true time units as loadings for the latent slope to capture the gradual change of time-linked development. Slope factor loadings were set accordingly to the functional forms of the career preparation dimensions.

In order to deal with missing data, full information maximum likelihood (FIML) was used in Mplus. This is a powerful estimation tool that uses all available data to estimate values for missing data points (Muthén & Muthén, 1998-2009). Muthén and Muthén point out that FIML does not impute values for missing data points. Of the 454 participants, 84% were retained at Time 6 (including those with one or more missing data points), and 73% had complete data for all time points. Twenty-three percent of participants had missing data at one or more time points. Those with missing data did not differ on age, ethnicity, and parents' educational attainment and occupational rank, except that more males dropped out of the study before its end than did females. For the current study, data were missing more for males, and therefore, sex was controlled in

the hypothesized models. However, the addition of sex to the models did not improve model fit; therefore, sex was not included in the final models.

G\*Power 3.0.1 (Faul, 1992-2008) was used to conduct a post-hoc power analysis to determine if the results of the study were reliable given the effect size, sample size, and alpha level. In a model with 41 degrees of freedom (the max for the models tested) using a sample size of 454 with an effect size of .30 and an alpha of  $p < .05$ , the power was .96.

Several indicators of the fit of the model to the data were used. If the  $\chi^2$  is nonsignificant, this indicates that there is a good fit. Other relative fit indices used were the Tucker-Lewis Index (TLI) and the Comparative Fit Index (CFI). The TLI is a relative fit index that compares the hypothesized model to a “null model,” or the independence model. It is computed by using the ratios of the hypothesized model chi-square, the null model chi-square, and the degrees of freedom (Bollen, 1989). Bollen showed that the TLI is relatively unaffected by sample size. The CFI is a noncentrality based index, in that the usual chi-square fit is based on a test that the null hypothesis is true ( $\chi^2 = 0$ ) (Bentler, 1990). For the TLI and CFI, values between .90 and .95 reflect acceptable fit, and values greater than .95 reflect good fit (Bentler; Bollen). Finally, the root mean square error of approximation (RMSEA) was used to estimate the lack of fit in the model compared to a saturated model. An RMSEA  $< .08$  indicates an acceptable fit; good fit is indicated by an RMSEA  $< .05$  (Byrne, 2001; Browne & Cudeck, 1993). The  $\Delta\chi^2$  test indicates whether a model fits significantly better based on the chi-square statistic and degrees of freedom. If the  $\Delta\chi^2$  is greater than the critical value, the model fit is significantly better.

## Results

### Preliminary Analyses

Exploratory data analysis was conducted before conducting LGCA. Means and standard deviations (Table 1) showed that on average, emotional stability, social adaptation, and self-actualization were moderately high (using the original scale of the measure). Career confidence was moderate overall, but an increasing pattern was seen from Time 1 to Time 6. Career planning was moderately high overall, and a slight decrease from Time 1 to Time 2 was seen, followed by an increasing pattern in the means (though not significant in t-tests from each time point to the next, with the exception of the difference from Time 2 to Time 6) was seen from Time 2 to Time 6. The means for career indecision suggested that, in general, career indecision was decreasing over time, and there was a larger decrease from Time 1 to Time 2 than from Times 2 through 6. Bivariate correlations (Tables 2 through 4) showed that, as expected, all measurements of career confidence, career planning, and career indecision were correlated. Also as expected, all adjustment indicators were positively associated with all times of measurement of career confidence and career planning, except emotional stability at Time 1 was not associated with career planning at Time 5. Career indecision was negatively correlated with all adjustment indicators, except career indecision at Time 6 was not correlated with social adaptation at Time 1, and career indecision at Time 1 was not correlated with self-actualization at Time 6. Lastly, all adjustment indicators were positively associated with each other but were not significantly different from Time 1 to Time 6. Examination of boxplots and histograms indicated that the data were symmetric for all variables.

Table 1.

*Means and Standard Deviations*

Variable	Mean (SD)	Min	Max	Skew
Emotional Stability (T1)	11.66 (2.40)	4.00	16.00	-0.34
Emotional Stability (T6)	12.14 (2.46)	4.00	16.00	-0.57
Social Adaptation (T1)	11.70 (2.34)	4.00	16.00	-0.14
Social Adaptation (T6)	12.26 (2.26)	6.00	16.00	-0.17
Self-Actualization (T1)	11.88 (2.51)	4.00	16.00	-0.42
Self-Actualization (T6)	12.01 (2.49)	5.00	16.00	-0.35
Career Planning (T1)	10.49 (8.22)	-11.00	24.00	-0.33
Career Planning (T2)	9.90 (8.40)	-15.00	24.00	-0.41
Career Planning (T3)	10.33 (8.63)	-21.00	24.00	-0.40
Career Planning (T4)	10.61 (8.28)	-13.00	24.00	-0.32
Career Planning (T5)	10.97 (8.50)	-17.00	24.00	-0.53
Career Planning (T6) <sup>b</sup>	11.41 (8.32)	-16.00	24.00	-0.43
Career Confidence (T1)	0.75 (5.79)	-15.00	15.00	0.13
Career Confidence (T2) <sup>a</sup>	1.58 (6.38)	-15.00	15.00	-0.09
Career Confidence (T3) <sup>a</sup>	1.68 (6.28)	-15.00	15.00	0.10
Career Confidence (T4) <sup>a</sup>	2.22 (6.24)	-14.00	15.00	0.04
Career Confidence (T5) <sup>abc</sup>	3.08 (6.21)	-13.00	15.00	-0.05
Career Confidence (T6) <sup>abc</sup>	3.20 (6.21)	-12.00	15.00	-0.05

<sup>a</sup> significantly different from T1 of variable.

<sup>b</sup> significantly different from T2 of variable.

<sup>c</sup> significantly different from T3 of variable.

<sup>d</sup> significantly different from T4 of variable.

<sup>e</sup> significantly different from T5 of variable.

Note: significance values are  $p < .01$  using one sample t-tests.

Table 2.

*Correlations for Career Confidence and Adjustment*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Confidence 1	1											
2. Confidence 2	.52***	1										
3. Confidence 3	.46***	.56***	1									
4. Confidence 4	.39***	.45***	.65***	1								
5. Confidence 5	.36***	.46***	.56***	.58***	1							
6. Confidence 6	.29***	.46***	.56***	.56***	.63***	1						
7. Emo Stability 1	.29***	.33***	.21***	.20***	.21***	.22***	1					
8. Soc Adapt 1	.32***	.39***	.30***	.23***	.37***	.30***	.41***	1				
9. Self-Act 1	.33***	.35***	.31***	.27***	.31***	.23***	.31***	.63***	1			
10. Emo Stability 6	.31***	.33***	.32***	.32***	.33***	.44***	.44***	.29***	.28***	1		
11. Soc Adapt 6	.24***	.31***	.33***	.31***	.38***	.42***	.27***	.52***	.36***	.49***	1	
12. Self-Act 6	.14**	.27***	.29***	.33***	.34***	.48***	.21***	.38***	.43***	.43***	.64***	1

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 3.

*Correlations for Career Planning and Adjustment*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Planning 1	1											
2. Planning 2	.61***	1										
3. Planning 3	.50***	.60***	1									
4. Planning 4	.41***	.48***	.63***	1								
5. Planning 5	.40***	.45***	.58***	.66***	1							
6. Planning 6	.33***	.38***	.51***	.52***	.62***	1						
7. Emo Stability 1	.20***	.16***	.14***	.12*	.07	.19***	1					
8. Soc Adapt 1	.33***	.25***	.21***	.13*	.17***	.20***	.41***	1				
9. Self-Act 1	.31***	.25***	.24***	.24***	.16**	.21***	.31***	.63***	1			
10. Emo Stability 6	.22***	.21***	.19***	.18***	.14**	.30***	.44***	.29***	.28***	1		
11. Soc Adapt 6	.17***	.20***	.23***	.18***	.20***	.32***	.27***	.52***	.36***	.49***	1	
12. Self-Act 6	.14*	.19***	.24***	.27***	.23***	.41***	.21***	.38***	.43***	.43***	.64***	1

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 4.

*Correlations for Career Indecision and Adjustment*

	1	2	3	4	5	6	7	8	9	10	11	12
1. Indecision 1	1											
2. Indecision 2	.56***	1										
3. Indecision 3	.51***	.64***	1									
4. Indecision 4	.42***	.53***	.67***	1								
5. Indecision 5	.43***	.48***	.60***	-.69***	1							
6. Indecision 6	.34***	.40***	.55***	.52***	.68***	1						
7. Emo Stability 1	-.19***	-.22***	-.13**	-.12*	-.14**	-.12*	1					
8. Soc Adapt 1	-.19***	-.21***	-.17***	-.16**	-.20***	-.10	.41***	1				
9. Self-Act 1	-.22***	-.22***	-.20***	-.20***	-.16**	-.13*	.31***	.63***	1			
10. Emo Stability 6	-.26***	-.27***	-.25***	-.31***	-.30***	-.32***	.44***	.29***	.28***	1		
11. Soc Adapt 6	-.27***	-.17***	-.11*	-.16**	-.22***	-.16**	.27***	.52***	.36***	.49***	1	
12. Self-Act 6	-.05	-.14**	-.10*	-.16**	-.22***	-.26***	.21***	.38***	.43***	.43***	.64***	1

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Hypothesis Testing

In order to test the study's hypotheses, a measurement model was fit first for the latent constructs of adjustment at Time 1 and adjustment at Time 6 (T1 and T6 self-actualization, emotional stability, and social adaptation). The latent constructs for adjustment at Time 1 and adjustment at Time 6 were correlated, and the residuals of the indicators were correlated (see Figure 1). The results showed that the measurement model fit the data well ( $\chi^2(5)=3.221$ ,  $p = 0.666$ ; CFI = 1.000, TLI = 1.000, RMSEA = 0.000). Because previous work (Stringer, 2010) has identified the functional form of each dimension of career preparation using the same dataset, these analyses are not performed here, however a brief description of each dimension's functional form is provided. For all unconditional growth models, the error terms at each measurement point of the observed variable of interest were associated with the previous time point of that variable. The reasoning for this is that it was expected that the error in measurement



of career confidence, for example, at one time would be associated with the error in measurement of career confidence one year later.

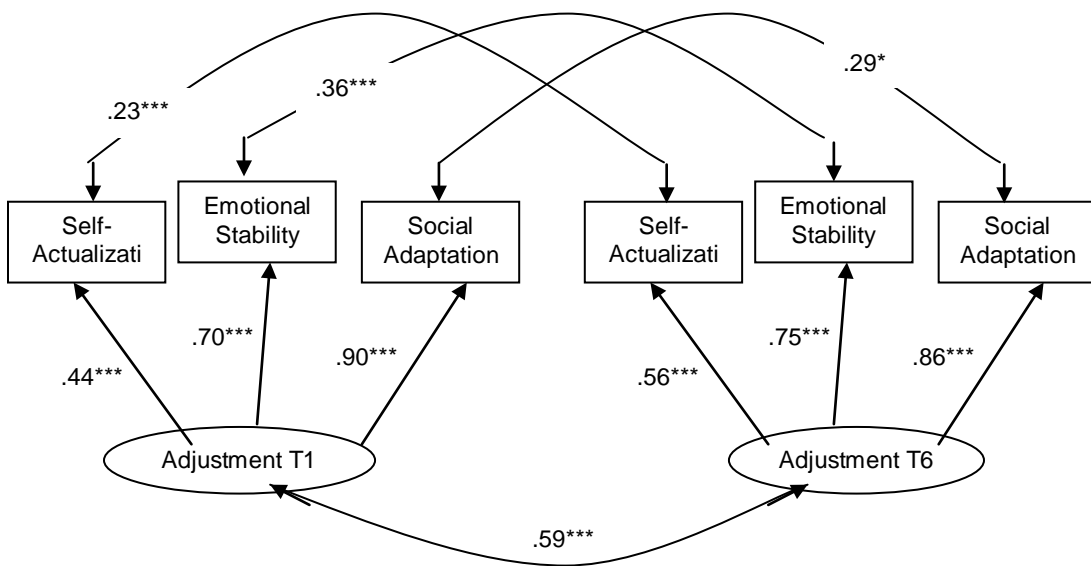
Career confidence was expected to be linear, and the linear model fit the data well. The chi-square was nonsignificant, and the relative fit indices indicated good fit (Stringer, 2010). Career confidence increased linearly over time. This model was used to test the current study's hypothesis. Career planning was expected to be linear; however, it was nonlinear. A piecewise model was fitted to account for the initial reduction in career planning from Times 1 to 2, followed by an increase in career planning from Times 2 through 6. A piecewise model accounts for nonlinear changes in development and offer flexibility that other typically used functional forms do not (e.g., quadratic, cubic, etc.). Piecewise modeling is specifically useful for modeling transitions when development may shift (e.g., an increase and then a decrease or two different slopes in one trajectory), and different "pieces" may have different outcomes and predictors (Chou, Yang, Pentz, & Hser, 2004). This model fit the data well and indicated that the change in career planning between Times 1 and 2 was not significant; however the slope of career planning between Times 2 and 6 was significant and increasing. Career indecision was expected to be quadratic; however, a quadratic model did not fit the data well because there was a larger drop from Time 1 to Time 2 in career indecision than in the following time points. Piecewise growth modeling was used to capture the development of career indecision. This model fit the data well. Both the change from Time 1 to 2 and the change from Time 2 to Time 6 were significant and negative and indicated that the change in career indecision between Times 1 and 2 was steeper than the slope of career indecision between Times 2 and 6. For more information on these models, see Stringer.

Three initial models (one for each dimension of career preparation) were tested in which the intercept and slope of the career preparation dimension predicted adjustment at Time 6, controlling for the effect of adjustment at Time 1 on adjustment at Time 6. The initial models also were tested with a correlation between each dimension of adjustment at Time 1 with the intercept and slope of each dimension of career preparation because research has suggested that adjustment is both an outcome and predictor of career preparation. Only the slope from Time 2 to Time 6 of career indecision was associated adjustment at Time 1; therefore, the correlation between the slopes of career planning and career confidence and Time 1 adjustment were dropped from the models. Unlike the slopes, the intercepts for the dimensions of career preparation were associated with adjustment at Time 1. Thus, each model included a correlation between adjustment at Time 1 and the intercept for each career preparation dimension. The career indecision model did, however, contain an additional path from the slope (T2-T6) of career indecision to adjustment at Time 1. It was important to test a control only model before testing the full model (see Figure 2). The control only model was fitted to examine the effect of adjustment at Time 1 on adjustment at Time 6 in order to serve as a way to identify unique variance in adjustment at Time 6 explained by adjustment at Time 1. This model showed that adjustment at Time 1 explained 42.3% of the variance in adjustment at Time 6. In order to test for the unique variance explained by each career preparation in adjustment at Time 6, the variance explained by the control only model was subtracted from the total variance explained in the models tested below.

**Career confidence and adjustment** (see Figure 3). The model tested whether adjustment at Time 6 was predicted by the intercept and slope of career confidence; adjustment at Time 1 was added as a control variable predicting adjustment at Time 6.

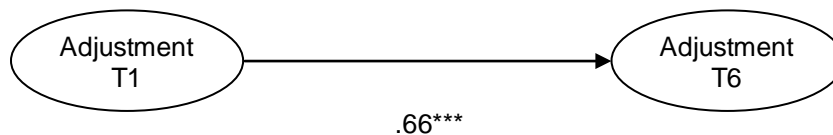
The results for the final model showed that the chi-square was not significant ( $p = .062$ ), and all relative fit indices indicated that the model fit the data well (see Table 5). This model showed that the intercept of career confidence was not associated with adjustment at Time 6; however, the slope of career confidence was positively associated with adjustment at Time 6, controlling for the effect of adjustment at Time 1. The model accounted for 57.0% of the variance in adjustment at Time 6. The unique effect of career preparation on adjustment 4.5 years post-high school was 14.7% (i.e., 57.0% - 42.3%). Overall, linear increases in career confidence over time were predictive of better adjustment 4.5 years post-high school.

Figure 1. Standardized parameters for the measurement model



\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Figure 2. Control only model (standardized solution)



\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Career planning and adjustment** (see Figure 4). The model tested whether adjustment at Time 6 was predicted by the intercept and slopes (i.e., the change from Time 1 to Time 2 and the slope representing Times 2 through 6) of career planning; adjustment at Time 1 was added as a control variable predicting adjustment at Time 6. The final model's results showed that the chi-square was not significant ( $p = .060$ ), and the relative fit indices indicated that the model fit the data well (see Table 5). The intercept of career planning did not significantly predict adjustment at Time 6; however, the stability from Time 1 to Time 2 predicted adjustment at Time 6 in the positive direction, even though this parameter represented a non-significant change in planning. Stability, or no decreases or increases, in career planning from Time 1 to Time 2 were associated with worse adjustment at Time 6. However, the increasing slope of career planning from Time 2 to Time 6 (6 months to 4.5 years post-high school) did positively predict adjustment at Time 6, controlling for the effect of adjustment at Time 1 and the Time 1-to-Time 2 change in planning. The model accounted for 58.7% of the variance in adjustment at Time 6. The unique effect of career planning on adjustment 4.5 years post-high school was 16.4%. The model suggested that a linear increase in career planning from 6 months to 4.5 years post-high school was predictive of better adjustment 4.5 years post-high school.

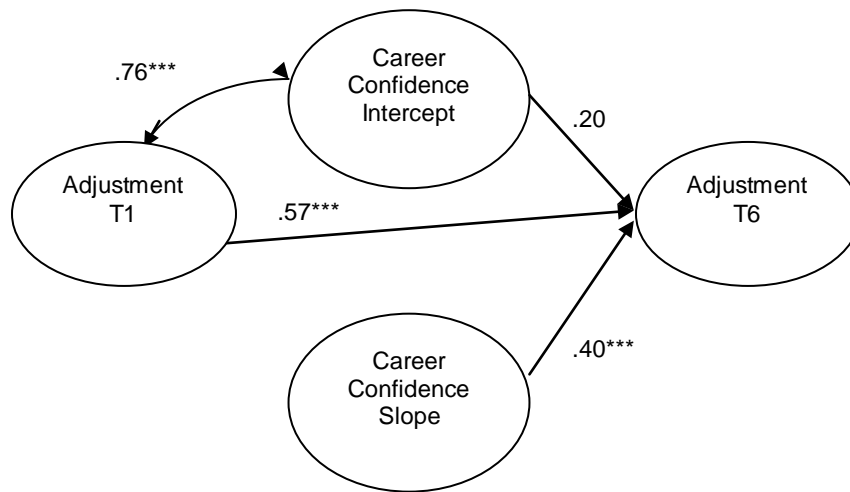
**Career indecision and adjustment** (see Figure 5). The model tested whether adjustment at Time 6 was predicted by the intercept and slopes (i.e., the change from Time 1 to 2 and the slope from Time 2 to Time 6) of career indecision; adjustment at Time 1 was added as a control variable predicting adjustment at Time 6. The final model's results showed that the chi-square was not significant ( $p = .271$ ), and the relative fit indices indicated that the model fit the data well (see Table 5). The intercept of career indecision negatively predicted adjustment at Time 6. The Time 2 through 6 slope

negatively predicted adjustment at Time 6, controlling for adjustment at Time 1 and the intercept of indecision. The change from Time 1 to Time 2 was not related to adjustment at Time 6. The model accounted for 49.7% of the variance in adjustment at Time 6. The unique effect of career indecision on adjustment 4.5 years post-high school was 7.4%. Findings suggested that low initial levels of career indecision in the 12<sup>th</sup> grade and sharper declines in career indecision from half a year to 4.5 years post-high school were associated with better adjustment.

**Summary.** The findings for career confidence and career planning and their association with adjustment 4.5 years post-high school were relatively similar. However, the functional forms of career confidence and career planning were different. Findings indicated that as youth transition from high school into post-secondary education and/or work, on average, their career confidence is increasing linearly, and their career planning initially remains stable from senior year in high school to six months post-high school and then increases linearly from six months to 4.5 years post-high school. These linear increases in career confidence and planning predict better adjustment at 4.5 years post-high school. The initial levels of career confidence and planning in 12<sup>th</sup> grade were not predictive of adjustment at Time 6. For career indecision, findings indicated that career indecision did not show a steady linear decline over time; rather, career indecision showed a significant linear decrease from 12<sup>th</sup> grade to six months after high school and then a less steep linear decrease from six months to 4.5 years after high school. This indicates that on average, when making the transition out of high school, youth become initially more decided (i.e., less undecided) about their careers; however, the increasing decisiveness (decreasing indecision) about their careers slows but still continues over time. Findings also showed that the initial level (intercept) of career indecision was negatively associated with adjustment 4.5 years post-high school,

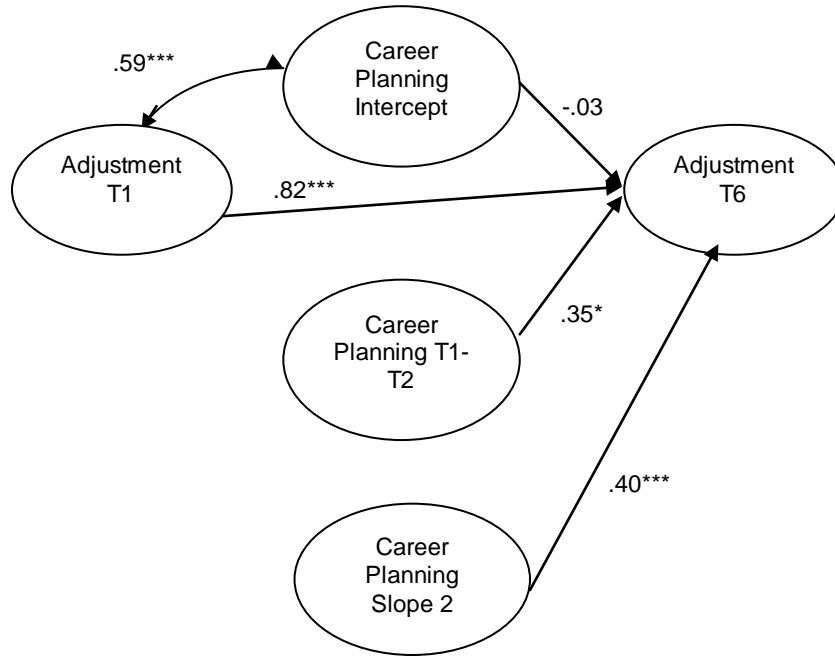
meaning that lower levels of indecision at grade 12 predicted better adjustment 4.5 years post-high school. Findings also indicated that the initial drop in career indecision between 12<sup>th</sup> grade and six months after high school was not associated with adjustment; however, greater declines in career indecision while out of high school (6 months to 4.5 years post-high school) were associated with better adjustment 4.5 years post-high school.

Figure 3. Standardized parameters for Model A



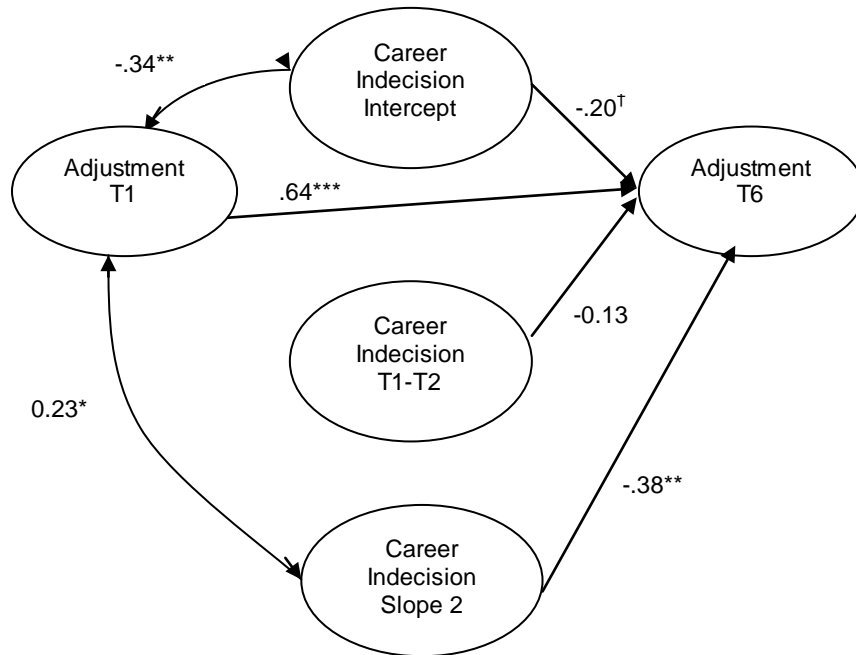
\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Figure 4. Standardized estimates for Model B



\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Figure 5. Standardized estimates for Model C



$^\dagger p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Table 5.

Adjustment at T6 Regressed on Career Preparation Dimensions Controlling for Adjustment at T1 on Adjustment at T6 (Unstandardized)

	Param.	Confidence	Planning	Indecision
Fixed Effects				
Initial Status ( $\pi_{0i}$ )	$\gamma_{00}$	0.901*** (0.262)	10.420*** (0.374)	33.072*** (0.416)
Adjustment T6	$\gamma_{01}$	0.087 (0.074)	0.005 (0.037)	-0.080* (0.034)
Rate of Change ( $\pi_{1i}$ )	$\gamma_{10}$	0.497*** (0.067)	0.136† (0.071)	-3.894*** (0.367)
Adjustment T6	$\gamma_{11}$	0.620*** (0.162)	0.378*** (0.115)	-0.045 (0.087)
Rate of Change ( $\pi_{2i}$ )	$\gamma_{20}$		0.357** (0.114)	-0.828*** (0.108)
Adjustment T6	$\gamma_{21}$		0.322*** (0.087)	-0.423** (0.151)
Goodness of Fit				
$\chi^2$ (p)		52.261 (0.060)	56.160 (0.271)	45.042 (0.092)
Df		38	41	35
CFI		0.992	0.992	0.995
TLI		0.987	0.985	0.990
RMSEA		0.030	0.031	0.026
R <sup>2</sup>		57.0%	58.7%	49.7%

†  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Discussion

The current study contributed to extant literature in many ways. First, it extended previous work which identified the pattern in change of each career preparation dimension by investigating each dimension's association with adjustment 4.5 years post-high school. Second, this study controlled for previous levels of adjustment, which helps us know the unique contribution each career preparation dimension had in predicting adjustment. Lastly, this study allowed for individual examination of the career preparation dimensions' associations with adjustment; results suggested differences in the association of each dimension's intercept and slope(s) and adjustment. Thus, we



were able to better understand the process of career adaptability (Savickas, 2005) over time and how it was associated with adjustment during a critical transition period.

Overall, each career preparation dimension was associated significantly with adjustment. Findings were similar for career confidence and career planning and slightly different for career indecision. Results showed that career confidence and planning in the 12<sup>th</sup> grade were not predictive of adjustment 4.5 years post-high school. This may be because young adults often change their career decisions, and decisions made about career while still in high school and immediately after high school may not affect adjustment when youth are in their early twenties. However, increases in career confidence (from Times 1 to 6) and planning (from Times 2 to 6) during the transition from high school to post-secondary education and/or work were associated with better adjustment 4.5 years after high school graduation. These results support developmental theories (Erikson, 1968; Super, 1980; Savickas, 2005) that posit that without successful navigation of career development in young adulthood, adjustment will be compromised. The findings of the current study also support Vondracek's (1995) self-realization through a vocational career perspective in that increasing confidence and planning about one's career choice were associated with greater self-actualization. Results show that on average, young adults were becoming more decided about their career choices, more confident about achieving their career goals, and engaging in increasingly more career planning. These increases were associated with higher levels of adjustment around age 22. Career identity commitment has been defined as a having a confidence about one's career decisions (Germeijs & van Geert, 2010), and the finding that increases in career confidence were associated with better adjustment is in line with much of the identity status literature that suggests career identity commitment is associated with adjustment (Kunnen, Sappa, van Geert, & Bonica, 2008; Luyckx et al., 2006b; Meeus et al., 2005;

Meeus et al., 1999). This study is consistent with and extends Skorkov's (2007b) study, which showed that increases in career confidence and planning were associated with adjustment six months after high school.

Findings also showed that adjustment during senior year in high school was concurrently associated with career confidence and planning during senior year in high school; however, adjustment during senior year in high school was not associated with growth in career confidence and planning from senior year in high school to 4.5 years post-high school. This is in contrast to findings from prior studies that suggested that adjustment in high school was a predictor of career confidence and planning levels after high school (Creed et al., 2003; Skorkov, 2007b). The current study went further than previous research and assessed the effects of adjustment during high school on changes in career confidence and planning well after high school. This effect was not found, and it may be that adjustment affects career confidence and planning concurrently but not longitudinally. The current findings suggest that during late adolescence and young adulthood the causal relationships between career confidence and planning and adjustment may be that initial levels of career planning and confidence in high school and changes in career confidence and planning post-high school affect adjustment rather than earlier adjustment affecting changes in career confidence and planning over time.

One difference in the findings for career confidence compared to career planning and adjustment is that growth in career planning from Time 1 to Time 2 was not significant, and therefore, stable. This stability was positively predictive of adjustment, meaning that for those who showed stability in their career planning during the period immediately after high school had more positive adjustment 4.5 years after high school. Planning is important for achieving career goals, and achieving career goals is

associated with adjustment. The literature addressing underemployment has shown that not meeting career expectations is associated with deficits in positive adjustment (Dooley, 2003). Therefore, not increasingly making career plans as youth leave high school has negative effects on adjustment 4.5 years post-high school. Fortunately, subsequent planning can help with adjustment. Independent of the initial period following high school, increases in planning from year 3 to 6 was also associated with adjustment in year 6.

In the current study, career indecision was linked with adjustment both in the senior year of high school and 4.5 years post-high school. Results were somewhat different for career indecision and adjustment than for career planning and confidence and adjustment. Lower levels of career indecision during senior year in high school were linked with better adjustment at the approximate age of 22 years, and faster declines in career indecision from six months post-high school to 4.5 years post-high school were associated with better adjustment at 4.5 years post-high school. The drop in career indecision from senior year to six months after high school, however, was not associated with subsequent adjustment. This finding indicates that making the initial career decision during the transition from high school to post-secondary education and/or work (senior year to six months post-high school) is not important for later adjustment; rather, it is the change in career decision-making occurring after high school that is more important for later adjustment. The education system in the United States is designed so that youth must make decisions about their careers during high school (e.g., whether to attend college, selecting a college major, selecting an occupational field), but are not given much guidance in making their decisions (Blustein et al., 2002; Herr & Niles, 1996). This situation leads to the conclusion that on average, youth are not fully prepared to make career decisions about their adult careers when they are 17 and 18 years old even if

they “think” they are decided. In addition, though not discussed in the results, the relatively sharp decline in career indecision from senior year to six months post-high school was not associated with the declines in career indecision from six months post-high school to 4.5 years post-high school (Stringer, 2010). This finding suggests that the decreases in career indecision that youth have during the transition from high school to six months after high school is not important for later declines in career indecision. These findings are relevant for practitioners and applied researchers because after a career development intervention during high school, youth may show a significant drop in their career indecision or increase in their career decidedness; however, given the results of the current study, this significant change may not be important for later adjustment four or five years later. More focus on helping youth make career decisions should be emphasized when youth are between the ages of 18 and 22 or 23 because changes in career indecision during this time are particularly important for adjustment at age 22 or 23 years.

Results also showed that growth in career indecision from Times 2 through 6 was associated with adjustment at Time 1. This finding supports previous findings that suggested that adjustment was not only an outcome but a predictor of career indecision (Creed et al., 2003; Skorikov, 2007b).

Overall, results also showed that growth in career confidence and career planning explained more variance in adjustment than career indecision did. This finding suggests that career confidence and planning are essential to build as youth make the transition from high school to post-secondary education and/or work. Youth should be helped to learn the process of becoming prepared to take on their adult careers and make career decisions. It will be important for practitioners and counselors to focus on building the confidence that youth have in attaining their career goals given their career

decisions, as well as the career planning in which youth engage. Making the career decision is only part of the process of becoming prepared for an adult career. The importance of career confidence and planning for the adjustment of youth in their early twenties cannot be overlooked.

### **Limitations and Future Directions**

The current study had some limitations, which included the exclusion of individuals who dropped out of high school before graduating and not having a large enough sample size to take into account individuals' school and work trajectories in the examination of the association between career preparation and adjustment. It will be important for future research to include individuals who drop out of high school because they may be most at-risk for having difficulties making career decisions. Skorikov and Uratani's (2008) work discussed the difficulty of identifying pathways after high school for young adults because many young adults combine work and education and different amounts of work and education. For example, some young adults work in jobs related to their future careers and attend vocational programs. Other young adults attend 4-year colleges full-time and work part-time in jobs that are not related to their future careers. And still others only attend school. Another complication is that some young adults take time off of school and return or do not finish school. The implications of these changes and instability in education and work are not known for career preparation; therefore, future research should examine within-individual predictors, such as patterns of work and school and their association with growth in career preparation dimensions.

Another important direction for future research is that although there were no sex differences found in the functional forms of the career preparation dimensions, sex may moderate the association between growth in career preparation dimensions and adjustment. According to gender role theory, males are expected to provide more

instrumental support than females are (Grandey, Cordero, & Crouter, 2005), therefore, males may have a stronger association between the career preparation dimensions and adjustment than females do. Males who are not making career decisions may feel like they do not have a solid sense of how they will earn an income, which may affect adjustment more for males than it does for females because of the societal expectations for them to be financially supportive in relationships with females. However, these assumptions may no longer hold true because of the increasing number of women who are pursuing post-secondary education and regard their careers as important as men do (Perrone et al., 2006)

It also will be important for future research to examine patterns of career preparation beyond 4.5 years after high school graduation. Because this study ended at 4.5 years after high school graduation, many individuals who went to college had not finished college by the end of the study. This matters because career development, including career preparation, is a life-long process that continues as individuals make developmental transitions and context changes. It will be important to see how career preparation is associated with adjustment after entry into adult occupational careers.

Although the current study had limitations, the contributions were noteworthy. This study included a very diverse population of youth who took varied educational and employment pathways, as well as many multiethnic, Asian, and Hawaiian participants. This study utilized longitudinal data collected annually for six years and used LGCA to examine growth and change in career indecision over the course of six years. Because growth in each dimension of career preparation affected subsequent adjustment, the information from the current study emphasizes the need for better programs and interventions that help increase career confidence and planning and decrease career indecision during, and especially, after high school.

#### IV. GENERAL DISCUSSION

Together, both studies contributed greatly to our understanding of career development during the transition from 12<sup>th</sup> grade to 4.5 years post-high school. We not only were able to examine three underlying processes of career identity commitment (i.e., career preparation), but also their importance for adjustment. More specifically, the trajectory of each dimension of career preparation was assessed and the trajectories' associations with each other were identified. Additionally, each trajectory's association with adjustment was investigated.

The dimensions of career preparation did not show similar trajectories over time. Career confidence increased linearly over time; whereas career planning had an initial decrease from 12<sup>th</sup> grade to six months post-high school, followed by a linear increase from six months to 4.5 years post-high school. Career indecision had an initial sharp decrease from 12<sup>th</sup> grade to six months post-high school, followed by a less steep decrease from six months to 4.5 years post-high school. These results suggest that when examining career preparation longitudinally, each dimension should be examined separately because each dimension's functional form is not the same over time. Associations of the intercepts and slopes of each career preparation dimension with the other two dimensions suggested that the career preparation dimensions were differentially associated with each other. Initial levels of career planning and career indecision during the 12<sup>th</sup> grade were predictors of growth in career confidence, and initial levels of career planning and career indecision during the 12<sup>th</sup> grade were

predictive of each other's changes from 12<sup>th</sup> grade to six months post-high school. This finding suggests that career planning and career indecision occur simultaneously.

As expected each dimension of career preparation was associated with adjustment at 4.5 years post-high school. Results suggested that both initial levels of career indecision in the 12<sup>th</sup> grade and decreases in career indecision from six months to 4.5 years post-high school are important for adjustment. However, the decrease in career indecision from 12<sup>th</sup> grade to six months post-high school was not important for adjustment. Growth in career confidence and career planning from 12<sup>th</sup> grade to 4.5 years post-high school were important predictors of adjustment, but initial levels of career confidence and planning during 12<sup>th</sup> grade were not important for adjustment 4.5 years after high school. This finding may suggest that for youth in their early twenties, it is never too late to begin planning for and becoming confident in their career goals.

Results suggest that overall, career confidence may be a mediator or partial mediator through which career indecision influences adjustment during the transition from high school to post secondary education or employment. Because initial levels of career indecision during the 12<sup>th</sup> grade were predictive of adjustment and growth in career confidence, and growth in career confidence was predictive of adjustment, less indecision in 12<sup>th</sup> grade may positively influence adjustment through increases in career confidence. This is in line with Vondracek's (1995) self-realization through a vocational career theory. He posited that making career decisions that are in line with who one is leads to a sense of self-fulfillment, or confidence that one will achieve his or her career goals because the chosen career fits with who the individual is. A mediational model should be tested in order to fully examine Vondracek's conceptual theory.

In summary, the results of the two studies of the current project contribute to extant literature in two important ways. The studies tell us how career preparation



dimensions develop over time and how they are associated with each other. And finally, they tell us that career preparation is important to study because its development matters for adjustment.

The two studies of the current project inform future directions for research. It will be especially important for researchers to examine the models tested in the current studies using samples from populations that include African Americans, Latinos, Native Americans, and more Caucasians, as well as high school dropouts and samples large enough for consideration of educational and employment pathways when examining the associations among dimensions of career preparation and their associations with adjustment. For example, because career preparation may be more strongly associated with adjustment when individuals are not in educational settings (Skorikov, 2007a), whether individuals are primarily in school or employment may moderate the association between growth in career preparation dimensions and adjustment at any point in time after high school. Being employed at 4.5 years post-high school may increase the strength of the relationship between growth in career preparation after high school and adjustment 4.5 years later.

Other future directions include examination of the career preparation dimensions after 4.5 years post-high school when college students are graduating from college and entering their adult careers. Examination of the career preparation dimensions' trajectories further into young adults' occupational careers will enable new questions to be addressed, such as: Does career preparation predict job satisfaction? Is job satisfaction a mediator between career preparation and adjustment? Does each career preparation dimension continue to show growth into the career establishment phase of career development? The trajectory of each career preparation dimension also should be examined before youth graduate from high school. A study that examined

associations among all three career preparation dimensions in one model, beginning around the first year of high school and continuing through the mid-to-late twenties, when individuals have assumed their adult career roles would be ideal in order to fully investigate the tenets of the commitment-focused portion of career adaptability using the theory of career construction (Savickas, 2005). Another future direction would be to examine the associations among the trajectories of the career preparation dimensions and the trajectory of adjustment. Studies such as these would allow researchers to identify the process of becoming prepared for an adult career from adolescence through early adulthood and how each career preparation dimension is associated with changes in adjustment over time.

Future research also should examine the exploration dimension of career adaptability and its longitudinal association with each career preparation dimension during educational and employment transitions. It will be important to identify whether exploration in breadth precedes career preparation as theorized (Luyckx et al., 2006a; Savickas, 2005). Luyckx and colleagues found that high initial levels of exploration in breadth were associated with increases in commitment making (similar to decision-making) in a group of college students who changed their majors. In addition, Porfeli and Skorikov (2010) found that exploration in breadth 3.5 years post-high school was predicted by high levels of career indecision 2.5 years post-high school; likewise, career indecision 3.5 years after high school was predicted by exploration in breadth 2.5 years after high school. This indicates that exploration in breadth and career indecision may be occurring simultaneously. Thus, it will be important for future research to examine career exploration in breadth's role in facilitating career preparation.

Taken together, the current project addressed tenets of career construction theory and extended Skorikov's (2007b) research by examining the dimensions of career preparation during the transition from high school to post-secondary education and/or employment. This project has laid a foundation for future work that examines career preparation dimensions and their association with adjustment during early adulthood by informing us about the nature of the longitudinal associations among the dimensions and their associations with adjustment. Future work should study career preparation during periods both before and after the transition from high school and well into the years post-high school in order to consider the influence of educational and employment pathways on the associations among career preparation dimensions and their associations with adjustment and other important life outcomes and processes.

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## APPENDICIES

## Appendix 1

### Literature Review

The goal of the proposed study is to examine dimensions of career preparation during the transition from high school to work and/or post-secondary education and the associations among dimensions of career preparation over time and each dimension's association with adjustment after 4.5 years post-high school. In this section, a review of theory that guides the current study is provided. Next, the literature that has addressed career preparation (i.e., career indecision, career confidence, and career planning) will be examined, followed by a review of the literature that focuses on career preparation and adjustment (i.e., positive mental health, depression, anxiety, well-being, and life satisfaction). Due to the limited literature that specifically focuses on longitudinal associations and patterns of the dimensions of career preparation and adjustment, research that investigates identity commitment that includes measures with items referring to the career identity domain and adjustment also will be presented.

#### *Career Identity Development Theory*

Developmental theories from both the identity and career development literatures guide the current study. Erikson's (1968) theory of psychosocial development and Vondracek's (1995) extension of Erikson's work (self-realization through a vocational career) detail why studying the process of arriving at career identity commitments is important. Luyckx and colleagues' (Luyckx, Goossens, Soenens, Beyers, & Vansteekiste; 2005; Luyckx, Goossens, & Soenens, 2006a) identity process model and Savickas' (2005) theory of career construction provide the conceptual framework for assessing the career identity commitment process for youth in transition from high school to post-secondary education and/or work.

Erikson (1968) discussed career identity as one of the most important domains of identity development for adolescents. Vondracek (1995) went further to call career identity development a mechanism through which individuals achieve self-realization. Vondracek proposed that self-realization through a vocational career requires a competence and achievement in one's career, as well as the integration of one's career identity into one's overall identity structure. Based on this perspective, a career that is chosen from careful decisions and planning stemming from knowledge of who one is, is more likely to lead to a well developed career identity than a career that does not reflect who one is. Therefore, career preparation, which involves careful career decision-making, career planning, and confidence to achieve one's career goals (Savickas, 2005; Skorikov, 2007b), is important for career identity development.

According to Marcia (1966) identity is formed through exploration and commitment processes. However, the specific nature of the exploration and commitment processes by which individuals form career identity commitments and maintain them was not specified by Marcia. Luyckx and colleagues (2005; 2006a), influenced by Erikson, Marcia, and other identity scholars (see Waterman, 1990 and Bosma, 1985), proposed an identity development process model that could be used in different domains of identity development in which there were two interrelated cycles: identity commitment formation and identity commitment evaluation. Identity commitment formation consists of exploration in breadth (exploration of many options) and commitment making (making an initial decision); identity commitment evaluation consists of exploration in depth (focused exploration of an identity commitment) and identification with commitment (internalization of the commitment into one's identity). In a university sample in the Netherlands, Luyckx et al. (2006a) found that commitment making and exploration in breadth were negatively associated. Identification with commitment, exploration in depth, and commitment

making were positively associated. The dimensions' slopes and intercepts also were associated over time. These results suggest that making a commitment (career decidedness), exploration of a choice in depth (similar to career planning), and identifying with a commitment (becoming sure about a choice, which is similar to career confidence) may be behaviors that represent a process in which one becomes more prepared to establish oneself in a career. They also found that initial levels of commitment making and exploration in depth were associated with growth in identification with commitment. If applied to career preparation dimensions, these results suggest that career indecision and career planning will predict growth in career confidence.

Findings from another study support the theoretical link between career decidedness and valuing one's career as part of one's identity (career identity commitment). Friedman and Weissbrod (2005) examined the relationship between work commitment and career decision-making status. The sample consisted of 95 (52% Female; 65% Caucasian) college juniors and seniors. The participants were ages 19 to 23 ( $M = 21.1$ ,  $SD = 0.97$  for men;  $M = 20.9$ ,  $SD = 0.99$  for women). The Life Role Salience Scales (LRSS; Amatea, Cross, & Clark, 1986) measure was used to assess work and family commitment levels. Commitment as measured by the LRSS refers to the salience or importance of a specific role to one's identity. Work decision-making status was measured using one item: "In terms of your deciding on a career/work path, which of the following is true?" Responses ranged from "I have made a decision," "I have thought a lot about career/work but have not made a decision," and "I have not yet thought a lot about career/work." Results showed that there were no gender differences for work commitment. Work commitment was significantly and positively related to work/career decisional status for both men and women. This supports the hypothesis

that having made a decision about one's work/career is positively related to having identity commitment to one's work role.

The theory of career construction (Savickas, 2005) is an extension of Super's (1957; 1980) life-span, life-space career development theory. Super's life-span, life-space theory of career development identifies the period from adolescence through young adulthood as a time of career exploration, in which adolescents and emerging adults explore themselves and career and educational opportunities and then make decisions about career and education based on their exploration. After one chooses his or her career and settles into a job, he or she is thought to enter the career establishment stage of career development. Then finally, after establishment, one enters disengagement when individuals become ready to leave their current places of employment or make career changes. Savickas specified that individuals go through life trying to fit their career identities with the real world opportunities and constraints. In order to deal with the realities that life presents, optimal career development throughout the life cycle consists of possessing career adaptability, which is comprised of career exploration in breadth, planning, decision-making, and confidence to reach career goals. As individuals make school-to-work and other work transitions, they go through "minicycles" of Super's career development stages. If not retiring, this means that an individual experiences disengagement and then enters exploration and establishment again when a career change is made. These cycles are similar to the Luyckx et al. (2005, 2006a) framework in which individuals go through cycles of broad exploration, making tentative decisions, and then evaluating them in accordance with their identities. In both Luyckx and colleagues' and Savickas' conceptual work, there is a commitment component. The proposed study's goal is to focus on the commitment aspect of career identity development. Specifically, decision-making (commitment making), planning



(exploration in depth), and confidence (identification with commitment) represent the focused, commitment-driven aspects of career identity development. Career decision-making is much like commitment making in that both concepts represent making an initial decision. Career planning is similar to exploration in depth because when individuals engage in career planning, they are focusing their exploration on one decision. Lastly, career confidence is similar to identification with career commitment because conceptually, as individuals become more certain of their careers and internalize their decisions, they gain confidence to achieve their career goals.

Overall, Vondracek (1995) and Erikson (1968) provide the basis for why studying career identity development is important, and Luyckx and colleagues (2005; 2006a) and Savickas (2005) provide guidance for how to assess the commitment-focused process of career identity development. For the proposed study, career decision-making, planning, and confidence collectively will be referred to as career preparation because they prepare one to enter the establishment stage of one's career development. And, it is during the transition from high school to college or employment that career preparation becomes increasingly salient (Savickas; Skorikov, 2007b).

### *Career Preparation*

Developmental theories point to the importance of preparing for an adult occupational career as a crucial developmental task of adolescence and young adulthood (Erikson, 1968; Havinghurst, 1972; Super, 1980). Empirical attention has mostly been given to assessing predictors and outcomes of the decision-making and planning dimensions of career preparation and the cross-sectional associations among these two dimensions; however, very few studies have assessed career preparation longitudinally, and only one study has examined all three dimensions. It is important to note that career decision-making is often reverse-scored as career indecision, and some

studies focus on career decision-making in terms of career decision self-efficacy (the perceived ability to make a career choice).

Cross-sectional research has established linkages between efficacy to make career decisions and career decidedness (or indecision) and planning and has suggested that career indecision decreases as individuals get older. In a diverse (42.2% Caucasian, 24.7% Hispanic, 19.2% African American) sample of 359 undergraduate female students, Lopez and Ann-Yi (2006) focused on the career decision-making dimension of career preparation. They used hierarchical regression analysis to assess a model in which career decision making self-efficacy predicted career indecision. Using the Career Decision Self-Efficacy Short Form (CDSE-SF; Betz, Klein, & Taylor, 1996), and the Career Decision Scale (CDS; Osipow, Carney, Winer, Yanico, & Koschier, 1976) the authors found that for all three ethnic groups, career decision making self-efficacy and career indecision were correlated at similar levels (ranging from  $r = -.43$  to  $r = -.53$ ). The results showed that career decision making self-efficacy negatively predicted career indecision, in that those with higher levels of efficacy about making career decisions were more career decided. In support of these findings, Betz and Voyten (1997) examined the prediction of career indecision by career decision self-efficacy in a sample of 350 (64% female; 84% Caucasian) college students. Multiple regression analyses showed that career decision self-efficacy was the best predictor of career indecision, controlling for academic and career outcome expectations. Also in support of the association between career decision self-efficacy and career indecision, in a sample of 834 (70% female; mean age = 17.7 years) Canadian college students, structural equation modeling showed that perceived career decision self-efficacy negatively predicted career indecision, controlling for neuroticism (Guay, Senécal, Gauthier, & Fernet, 2003). Thus, career decision self-efficacy and career indecision are strongly

associated with each other and represent aspects of the career decision-making dimension of career preparation.

In the intervention literature, associations between career decision-making and career planning have been found. Hirschi and Läge (2008) examined the effectiveness of a career development intervention during a group of Swiss youths' transition from school to occupational training when they were between the ages of 12 and 16 ( $M = 14.14$ ,  $SD = 0.70$ ). The sample consisted of 334 mostly non-college bound students. The test group consisted of 156 students (51% female), and the control group consisted of 178 students (49% female). Data were collected twice, once at the end of grade 7 and once at the beginning of grade 8. Career decision-making (assessed as career decidedness) and planning were assessed at each time point using the German adaptations of the Career Maturity Inventory (CMI; Crites, 1973) and the Career Development Inventory (CDI; Seifert & Eder, 1985). Repeated measures analysis of variance showed that after the intervention, controlling for previous levels of career decidedness and planning, career decidedness and planning both increased. These results suggest that career decidedness and planning are both indicative of becoming prepared for a career and are associated positively. It is expected that career indecision and career planning will be associated over time.

Research also has suggested that career indecision may decrease over time in youth before they transition from high school. In a cross-sectional study of 1,971 (55% female) Caucasian 8<sup>th</sup> through 12<sup>th</sup> grade Australian high school students, Patton and Creed (2001) showed that overall, the mean career indecision was lower for each successive age cohort from 8<sup>th</sup> to 11<sup>th</sup> grade. However, career indecision for the 12<sup>th</sup> grade cohort was higher than it was for the 11<sup>th</sup> grade cohort. This suggests that the general pattern of career indecision from eight to eleventh grade was decreasing, but an

increase in indecision may occur when transitioning from high school to work or post-secondary education.

In one of the few longitudinal studies conducted that examined associations between career preparation dimensions, Creed et al. (2006) found evidence that career decision-making and career planning are occurring simultaneously. In a sample of 220 Australian students, ages 13 to 15 ( $M = 14.10$ ,  $SD = .45$ ), career planning and career decision-making (measured in terms of career indecision and career decision self-efficacy) were assessed from grades eight to ten in a two-time point cross-lagged study. In a multiple regression analysis career indecision did not predict career planning cross-sectionally, controlling for school achievement, work experience, career decision self-efficacy, and self-esteem. However, career decision self-efficacy did predict career planning (20.88%), controlling for school achievement, work experience, career indecision, and self-esteem. Additional analyses showed that greater career decision self-efficacy at Time 1 predicted more career planning at Time 2, controlling for self-esteem and career indecision at Time 1, but this model only accounted for 9% of the variance in planning at Time 2. Greater career decision self-efficacy at Time 1 predicted greater changes in career planning from Time 1 to Time 2 (explaining 11% of the variance). Increasing levels of indecision and self-efficacy from Time 1 to Time 2 and no work experience at T1 were associated with changes in career planning from Time 1 to Time 2 (explaining 22% of the variance).

The authors argued that because the model that accounted for the most variance was the indecision and self-efficacy change scores predicting the planning changes scores, these dimensions change together over time rather than predicting one another. The results, however, were not clear about the direction of the associations between changes in indecision and self-efficacy and changes in career planning. Also, the

measures and scales used to assess the outcomes, career planning, were not the same at Time 1 and Time 2. It is unclear whether the authors standardized these scores. Despite these shortcomings, these results suggest that career decision-making and career planning change together over time. Given the unclear findings of the Creed et al. (2006) study, the proposed study will assess career preparation dimensions over time, using the same indicators of each career preparation dimension at each time point and will use latent growth curve modeling, rather than change scores to assess change over time. The proposed study also will assess growth and change in each dimension over time and their longitudinal associations with each other.

In the only longitudinal study of all three career preparation dimensions, Skorikov (2007b) investigated changes in career preparation from the spring of eleventh grade to six months after high school graduation (intervals of six months) in a sample of 389 ethnically and socioeconomically diverse high school students. Skorikov tested a latent construct of career preparation represented by career decidedness (assessed as career indecision reverse-scored), confidence (measured as confidence to achieve career goals), and planning (operationalized as making plans to achieve career goals). The measurement model showed that the nature of associations among the indicators did not change over time; however, the strength of their loadings onto career preparation increased. This indicated that career decidedness, confidence, and planning represented a single construct that was cumulative in nature. Skorikov used the same sample that will be used in the proposed study; however, he did not differentiate the dimensions' functional form over time using latent growth curve analysis or each dimension's longitudinal association with the others'.

Overall, studies show associations between career decidedness, confidence, and planning, but they have not examined these three dimensions of career preparation

longitudinally during the transition from high school to post-secondary education and/or work. The proposed study will assess each dimension of career preparation from twelfth grade in high school to 4.5 years after high school graduation for a diverse sample of youth. *It is expected that in general, career planning and confidence will show linear increases during the study time period and that career indecision will show a quadratic decline as individuals developmentally become decided about their careers through work and/or school experience.* Research also has not examined the association between the intercepts and slopes of career preparation dimensions. The dimensions of career preparation are thought to be interrelated processes that help individuals arrive at quality career commitments (Savickas 2005). Savickas, however, did not specify causal directions as to which these dimensions are associated. Therefore, the current study will explore the associations of dimensions of career preparation over time and whether the intercepts of the dimensions predict the slopes of the other dimensions (e.g., does the career indecision intercept predict the career confidence slope?; does the career planning intercept predict the career indecision slope?)

#### *Career Preparation and Adjustment*

Successfully dealing with developmental tasks is theorized to have positive effects on adjustment (Havinghurst, 1972), and career identity development is an important developmental task for adolescents and young adults (Erikson, 1968). Researchers also have noted the effects of career development processes, such as career preparation, on adjustment and the effects of adjustment on career development (see Hinkelman & Luzzo, 2007; Skorikov, 2007a). Most of this research, however, has focused on adults and the issues that are relevant to those already establishing their careers (e.g., work adjustment, career commitment, underemployment, unemployment, job satisfaction; see Dooley, 2003; Hinkelman & Luzzo, 2007; Skorikov, 2007a). Or

research has examined the associations between identity development and adjustment but has not specifically examined associations between career identity development and adjustment in youth. Therefore, much of the research reviewed for the proposed study focuses on career development and adjustment in adults who are already in their adult careers or youth populations and their identity development and its association with adjustment.

In the adult career development literature, Perrone et al. (2006) examined career identity commitment (assessed by the Saliency Inventory; Super & Nevill, 1986) and its relationship with work satisfaction in a sample of 40 male and 114 female college graduates who were employed full-time and married. Of the 154 participants, 23% had no children. Ages ranged from 25 to 60 ( $M = 40$  years,  $SD = 8.10$ ). Findings showed that career identity commitment positively predicted work satisfaction in a path analysis model. These findings indicate that career identity commitment is a positive predictor of adjustment for married adults and suggest that career preparation may be a positive predictor of adjustment for young adults.

In a longitudinal study Barnett et al. (1995) examined the effect of career satisfaction on psychological distress in a random sample of 300 well-educated (73% of men and 74% of women had a bachelor's degree) dual-earner couples, ages 25-40 (60% parents). Over the course of two years, they found that changes in job quality were negatively associated with changes in psychological distress (depression and anxiety). That is, when job quality increased, mental health improved, and sex did not moderate this association. These findings suggest that positive changes in career preparation for both males and females should be positively associated with adjustment for young adults who have not yet established their careers.

These studies are only examples of the vast array of research on career and adjustment in adulthood and have demonstrated that in adults, career-related outcomes are important for adjustment. However, we know little about the links between the outcomes of career development that are specific to youth and adjustment. Since youth in their late teens and early twenties typically are not established in their careers, studies with this population have focused more on identity formation and adjustment, with a few of these addressing the career identity domain. There also has been some research in the area of career preparation and adjustment among youth. Therefore, studies in this section focus on both identity development and career preparation dimensions.

A number of studies have found that identity commitment, using identity status measures (e.g., EOMEIS-2; Adams, Bennion, & Huh, 1989), is associated with adjustment. Some studies tested models in which well-being predicted identity commitment; whereas others tested models in which identity commitment predicted well-being. All of these studies, however, were cross-sectional, so the direction of the effect is unclear. Moreover, longitudinal studies indicate that adjustment is both a predictor and outcome of career preparation (Creed et al., 2003; Skorikov, 2007b).

For adolescents and college students, links between societal identity (work and school) commitment and adjustment have been found. More specifically, in a Dutch sample of 1303 males and 1511 females that was divided into groups of early adolescents (ages 12-14, n = 527), middle adolescents (ages 15-17, n = 748), late adolescents (ages 18-20, n = 658), and young adults (ages 21-24, n = 881), Meeus et al. (2005) found that parental support predicted emotional adjustment better than quality of identity commitments in early and middle adolescence. However, in late adolescence and young adulthood, emotional adjustment was better predicted by quality of identity



commitments rather than parental support. This suggests that formation of career identity commitments is salient in late adolescence and young adulthood.

Additionally, Luyckx and colleagues (2006b) examined identity development (combining the school and relationship domains) and social and academic adjustment in a sample of 565 college freshmen enrolled in a Dutch university. The majority (85.3%) were women, and ages ranged from 17 to 22 years (Mean age = 18 years, 8 months,  $SD = 7.6$  months). Identity development was assessed using the Ego Identity Process Questionnaire (EIPQ; Balistreri et al., 1995) and U-GIDS (Meeus & Deković, 1995). Social and academic adjustment was assessed using a shortened version of the Student Adaptation to College Questionnaire (SACQ; Baker & Siryk, 1984). The results from this cross-sectional study using structural equation modeling (SEM) showed that identity development explained 23% of the variance in academic adjustment and 15% of the variance in social adjustment. This study suggests that career preparation will be associated with social adaptability.

Another study had similar results in a German population (Hofer, Kärtner, Chasiotis, Busch, & Kiessling, 2007) but assessed identity status as a predictor of well-being. In a sample of 181 German students (75% Female; 21.51 years of age,  $SD = 4.57$ ), the association between the committed identity statuses (i.e., achievement and foreclosure) and well-being (life satisfaction and affective mood) was examined. Multiple regression analyses showed that the achieved status positively predicted life satisfaction and positive affect, controlling for sex and the foreclosed status. Foreclosure was not significantly associated with life satisfaction but was negatively associated with positive affect, controlling for sex and the achieved status, which was in contrast to expectation and may be a reflection of a cultural difference.

In longitudinal studies, school and work identity commitment has been found to be important for well-being (Kunnen, Sappa, van Geert, & Bonica, 2008; Meeus, ledema, Hensen, & Vollebergh, 1999) Kunnen et al. (2008) investigated facets of well-being as correlates of trajectories of school/work identity commitment and exploration in a sample of 89 (79% Female) Dutch first-year psychology college students. School/work identity commitment and exploration was assessed using the Groningen Identity Development Scale (Bosma, 1985). Results revealed that trajectories that showed strong, stable school/work identity commitments had the highest levels of well-being and lowest levels of negative emotion. The lowest well-being scores were found among trajectories that showed no commitments. Having no commitment was more strongly associated with having worse adjustment than having no exploration. This study indicates that identity commitment is important for well-being and maintaining low levels of negative emotion.

Meeus et al. (1999) conducted a longitudinal study of 1538 Dutch youth in different age groups. Of the sample, 369 were 12 to 14; 432 were 15 to 17; 328 were 18 to 20; and 409 were 21 to 24. Approximately 56.2% were female. Data on well-being (1 item on a 10 point Likert-type scale) and societal (work and school) identity commitment and exploration in depth (Utrecht-Groningen Identity Development Scale) were collected at two time points with three years between time points. Results indicated that societal identity commitments were stable and that commitment, regardless of exploration was associated with the highest levels of well-being. Taken together, studies on identity commitment suggest that career preparation will predict adjustment. Other studies on identity commitment and adjustment suggest that adjustment will predict career preparation.

Waterman (2007) investigated links between identity commitment and types of well-being similar to self-actualization. In a sample of 217 (68% female; 90% Caucasian) of American university students, the association of overall identity status (combining ideological and interpersonal domains) with three types of well-being (general optimism, psychological well-being, and personal expressiveness) was examined. Regression analysis was used to predict each of the identity statuses with dimensions of well-being. Results showed differentiation of well-being by identity status in the expected directions. Hedonic enjoyment (subjective well-being) and purpose (similar to self-actualization) were associated with the achieved status, and optimism (general feelings of well-being) was associated with the foreclosed status. This study suggests that self-actualization is a predictor of career identity commitment.

Similar to Waterman (2007), Strauser, Lustig, & Çiftçi (2008) examined the predictive role of psychological well-being on career identity. More specifically, they assessed the role of six dimensions of psychological well-being in predicting career decision-making, vocational identity (knowledge of one's strengths and values in relation to career), and work personality (positive orientation to general work requirements) in a sample of 91 (64% Female; 46% Caucasian, 45% African American) university undergraduates. Psychological well-being in this study was assessed using indicators of self-acceptance, positive social adjustment, autonomy, environmental mastery, purpose in life, and personal growth (self-actualization). Gender differences were not found in the least ordinary squares regression model. Results showed that the purpose in life subscale of psychological well-being explained 12.9% of the variance in vocational identity. Collectively, all of the subscales of psychological well-being explained 33.9% of the variance in the ability to make career decisions. For the current study, the studies that focus on identity development related to school and/or work demonstrate that

adjustment should be positively associated with career preparation trajectories and that it will be important to control for the effect of earlier adjustment on growth in career preparation and its prediction of subsequent adjustment.

More specific to the career domain, Creed, Prideaux, and Patton (2005) focused on career decision making and well-being in their assessment of the associations between career indecision, career decision self-efficacy, and well-being in a two-time point study during grades 8 and 10. The sample consisted of 292 Australian eighth grade students (48% female). The mean age was 13.45 ( $SD = .41$ ). Well-being indicators at Time 1 were satisfaction with life and self-esteem, and at Time 2, well-being indicators were adaptive and maladaptive decision coping patterns. Youth were divided into “decided” and “undecided” groups by grouping them according to their answers to the item “I have decided on a career and feel comfortable with it. I also know how to go about implementing my choice”. Multivariate analysis of variance showed that the undecided youth had lower levels of career decision self-efficacy, life satisfaction, and self-esteem than did the decided youth. Results also showed that those who were decided at both time points had higher levels of life satisfaction and self-esteem, as well as career decision self-efficacy than those who remained undecided at both time points. These results suggest that continual indecision is associated with lower levels of adjustment.

In the only longitudinal study of career preparation and adjustment of diverse (39% Asian, 14% Caucasian, 18% Hawaiian and Pacific Islander, 2% Hispanic, and 26% Multi-ethnic;  $N = 389$ ) American students experiencing the high school to work and/or college transition, Skorikov (2007b) found that high levels of career preparation positively affected adjustment both during high school (at eleventh grade) and six months after high school. Skorikov used a latent variable of career preparation, indicated

by career decidedness, career planning, and career confidence. When multiple regression analyses were conducted, the predictive ability of career preparation on positive mental health indicators of adjustment (emotional stability, self-actualization, and social adaptability) was greater during the transition from high school to work and/or college than it was during high school. Specifically, emotional stability, adaptability, and self-actualization (indicators of positive mental health) were more strongly associated with adjustment six months after high school graduation than when students were in their junior year of high school. These findings suggest that career identity development's effects on adjustment are stronger during transitional periods than they are while attending an educational institution (Skorikov, 2007a). This is most likely due to the fact that during the transition from school to work, decisions must be made regarding career, but while still in school, decisions can be put off. Likewise, Arnold (1989) found that during the transition from college to career, career-decidedness predicted well-being over time, but this effect was not found while in college. This suggests that the transition from school to work is a critical period in which adjustment is affected by career development. Skorikov also found that adjustment was a predictor of career preparation over time. His is one of the only studies to have assessed adjustment's effect on longitudinal patterns of career preparation.

In support of Skorikov's findings, Creed et al. (2003) investigated the effects of well-being and career decision self-efficacy during high school on career decision self-efficacy after high school in a two-time-point study using a sample of 168 (65.4% female) high school students. Results showed that levels of well-being and career decision self-efficacy before high school graduation predicted levels of both well-being and career decisions self-efficacy nine months after high school graduation. These findings are in

line with identity and adjustment research that has established that adjustment is both a predictor and outcome of identity commitment.

Overall, very little research has assessed the association of career preparation dimensions and adjustment while youth are in high school and in their early twenties. However, identity commitment and adjustment have been studied often, and this research suggests that adjustment is likely both a predictor and an outcome of career preparation. Extant work also has shown linkages between career commitment and adjustment in adults. Theoretically, career commitment in adulthood is associated with career preparation in adolescence and young adulthood (Super, 1980), and empirical work connects career commitment with adjustment in adulthood (Perrone et al., 2006). Research has not, however, examined career preparation and its association with adjustment during the transition from high school to work or post-secondary education. It is expected that increases in career preparation will be positively associated with adjustment near the end of the transition from high school to work or post-secondary education controlling for adjustment before the transition to grade 12.

### **Summary**

The proposed study utilizes Erikson's (1968) psychosocial development theory and extensions of his work (see Luyckx et al., 2005; 2006a and Vondracek, 1995), as well as Savickas' (2005) theory of career construction to draw connections between career preparation and adjustment during the transition from high school to work/post-secondary education. These theories and conceptual work stemming from them point to both exploration and commitment processes in the development of one's career identity (Luyckx et al., 2006a; Skorikov, 2007b). The proposed study aims to assess the process of becoming prepared to establish one's career by examining the commitment building dimensions of career identity. The dimensions indicative of career identity commitment

are career decidedness (i.e., career indecision), career planning, and career confidence (also collectively referred to as career preparation). Extant research has established some associations among these dimensions, and one study has demonstrated an association between a latent factor of career preparation (indicated by decidedness, planning, and confidence) and adjustment. However, research has not examined longitudinal patterns of career preparation dimensions, longitudinal associations among the dimensions, or their associations with adjustment in youth making the transition from high school to work/post-secondary education.

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## Appendix 2

### Measures

#### **Adjustment**

Emotional Stability (1 = “not much” to 4 = “very confident”)

- M1. When something bothers me I tend to become too emotional
- M5. I experience mood swings
- M9. I am emotionally very stable; my mood is positive even under stress
- M13. I feel so agitated or sad that I can't stay focused

Social Adjustment (1 = “not much” to 4 = “very confident”)

- M2. I don't know what to do in unfamiliar settings
- M6. I get along well with literally anyone if I want to
- M10. I find it easy to fit in
- M14. I know how to make the right impression

Self-Actualization (1 = “not much” to 4 = “very confident”)

- M4. I have the opportunity to “express myself” in my life
- M8. I am always being myself, no matter what I do
- M12. I live my life to the fullest
- M16. I do what excites me and utilize my skills and abilities

#### **Career Preparation**

Career Confidence (-3 = “completely disagree” to 3 = “completely agree”)

- L11. I don't know what will be expected of me in my chosen occupation
- L14. I feel that my occupational plans may be impossible to accomplish
- L16. I don't know what occupation will fit into the ‘big picture’ in the future
- L20. I am not sure I will be satisfied with my future occupation

Career Planning (-3 = “completely disagree” to 3 = “completely agree”)

- L6. I have a plan for where I want to be in my career ten years from now
- L8. I know what to do to accomplish my occupational goals
- L19. I will probably have similar occupational interests twenty years from now
- L15. I have discussed with other people what I want for an occupation

Career Indecision (1 = “not at all like me” to 4 = “exactly like me”)

- G1. If I had the skills or opportunity, I know I would be a (your choice), but this choice is really not possible for me. I haven't given much consideration to any other alternatives, however.
- G2. Several careers have equal appeal to me. I am having a difficult time deciding among them.
- G3. I know I will have to go to work eventually, but none of the careers I know about appeal to me.
- G4. I'd like to be a (YOUR CHOICE), but I'd be going against the wishes of someone who is important to me if I did so. Because of this, it is difficult for me to make a career decision right now. I hope I can find a way to please them and myself.

- G5. Until now, I haven't given much thought to choosing a career. I feel lost when I think about it because I haven't many experiences in making decisions on my own and I don't have enough information to make a career decision right now.
- G6. I feel discouraged because everything about choosing a career seems so "iffy" and uncertain; I feel discouraged, so much that I'd like to put off making a decision for the time being.
- G7. 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.
- G8. I want to be absolutely sure that my career choice is the "right" one, but none of the careers I know about seem ideal to me.
- G9. 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 career I should pursue.
- G10. I know what I'd like to major and specialize in, but I don't know what careers it can lead to that would satisfy me.
- G11. I can't make a career choice right now because I don't know what my abilities are.
- G12. I don't know what my interests are. A few things "turn me on," but I am not certain they are related in any way to my career possibilities.
- G13. 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.
- G14. I have decided on a career, but I am not certain how to go about implementing my choice. What do I need to do to become a (YOUR CHOICE) anyway?
- G15. I need more information about what different occupations are like before I can make a decision
- G16. I think I know what to specialize in, but feel I need some additional support for it as a choice for myself.

Appendix 3

Additional Figures

Figure 1. Plot of the association between the slopes of career indecision and career confidence.

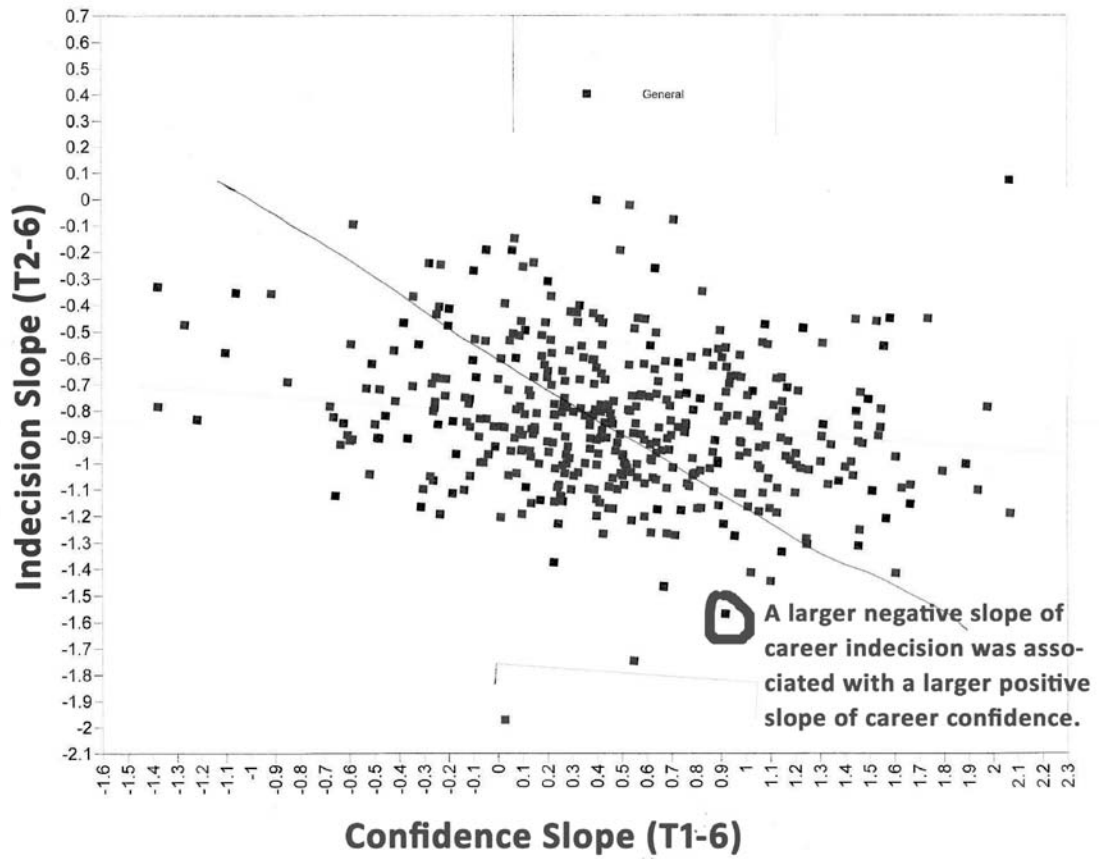


Figure 2. The association between the slopes of career indecision and career planning

