

**RETHINKING AUTONOMY: FOSTERING ACADEMIC SUCCESS AND WELL-BEING AMONG
YOUTH AND YOUNG ADULTS**

by

Laura K. Maurizi

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
(Social Work and Psychology)
in The University of Michigan
2012

Doctoral Committee:

Associate Professor Kai Cortina, Co-Chair
Associate Professor Andrew Grogan-Kaylor, Co-Chair
Professor Jorge Delva
Associate Professor Pamela Davis-Kean

©Laura K. Maurizi 2012

DEDICATION

To Rick, for being my partner in this journey, for believing in me and the awesome realism-laughter mix you bring to our lives. You are my rock, my best friend, my everything. To Mom and Dad, for your endless love and support and for providing me with a life full of opportunity, enrichment and possibility. To Sara, for being my constant cheerleader, for being my big and always letting me be small. I could never do any of it without you. To Logan, for reminding me what a gift life truly is and for keeping mama cozy and happy through her writing.

And, most of all, to poor adolescents everywhere, for your perseverance in the face of seemingly insurmountable odds and for allowing researchers, like myself, into your homes and lives.

ACKNOWLEDGEMENTS

I would like to thank my committee chairs, Dr. Andrew Grogan-Kaylor and Dr. Kai Cortina. Andy, both your support and expertise have been absolutely invaluable to me. It is through you that I know what it means to be a good mentor to others. Kai, your encouragement and humor have contributed tremendously to my graduate career. Thank you also for your patience and for sharing (and hopefully passing on some of) your statistical talent with me.

I would also like to thank my committee members, Dr. Pamela Davis-Kean and Dr. Jorge Delva. Jorge, thank you for giving me a home in the School of Social Work. Your guidance has helped to shape me as a researcher and academic. Pam, your feedback on this project has been enormously helpful. Thank you for pushing me and helping me to approach my work with a more critical eye.

Thank you to Dr. Rosario Ceballo. Rosie, I have learned so much from you; you provided me with an amazing foundation from which to grow. Thank you for your compassion and for the opportunity to do the type of work that is truly meaningful to me. Thank you to the members of the Ceballo lab, especially Allyson and Quyen. It has been a pleasure learning from and growing with all of you.

Thank you to the members of the SLS workgroup for providing a working environment that constantly expanded my thinking, for serving as an amazing source of support, and for providing the opportunity for collaboration.

Many thanks to the Rackham Graduate School and the School of Social Work, without whose support this research would not have been possible. Thank you also to the PSID team at ISR for all the work they do to support researchers and make secondary data accessible.

Thank you to all the people behind the scenes, especially Todd Huynh and Laura Thomas. I've peppered you with questions and requests over the years, and you both have always responded helpfully and with kindness. Thank you.

Finally, thanks to my family for always being there for me, and to my friends who laughed and commiserated with me. Thank you especially to Ben and Stella, for reminding me what is truly important in life, each in your own way. And, thank you to Kate, Teresa and Meredith, for being there through it all.

TABLE OF CONTENTS

DEDICATION.....	ii
ACKNOWLEDGEMENTS.....	iii
LIST OF FIGURES	v
LIST OF TABLES.....	vii
ABSTRACT.....	viii
CHAPTER	
1. RETHINKING AUTONOMY.....	1
2. SUPPORTING ADOLESCENT AUTONOMY: LONGITUDINAL EXPLORATION OF THE IMPACT OF PARENTING, AND PARENTS’ PERCEIVED AUTONOMY ON ADOLESCENTS’ ACADEMIC/OCCUPATIONAL SUCCESS AND WELL-BEING.....	54
3. THE LONGITUDINAL INFLUENCE OF NEIGHBORHOOD QUALITY, WEALTH AND AUTONOMY IN ADOLESCENCE ON WELL-BEING AND ACADEMIC SUCCESS IN YOUNG ADULTHOOD	86
4. AUTONOMY, KNOWLEDGE, AND VALUE: UNDERSTANDING THE MECHANISMS BY WHICH SOCIAL AND RESOURCE CAPITAL EMPOWER YOUTH TO PURSUE POST- SECONDARY EDUCATION	132
5. UNPACKING ADOLESCENT AUTONOMY, WELL-BEING AND ACADEMIC SUCCESS.....	186
FIGURES.....	206
TABLES	228
REFERENCES	239

LIST OF FIGURES

FIGURE 2.1: HYPOTHESIZED MODEL FOR STUDY 1	206
FIGURE 2.2: LONGITUDINAL ASSOCIATION OF PARENTING, PARENTS' FEELINGS OF CONTROL AND ADOLESCENTS' FEELINGS OF CONTROL TO WELL-BEING AND ACADEMIC SUCCESS IN YOUNG ADULTHOOD	207
FIGURE 3.1: HYPOTHESIZED MODEL FOR STUDY 2	208
FIGURE 3.2: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS (UNWEIGHTED DATA)	209
FIGURE 3.3: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS (WEIGHTED DATA)	210
FIGURE 3.4: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE LOW WEALTH GROUP (UNWEIGHTED)	211
FIGURE 3.5: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE MIDDLE WEALTH GROUP (UNWEIGHTED)	212
FIGURE 3.6: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE HIGH WEALTH GROUP (UNWEIGHTED)	213
FIGURE 3.7: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE LOW WEALTH GROUP (WEIGHTED)	214
FIGURE 3.8: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE MIDDLE WEALTH GROUP (WEIGHTED)	215
FIGURE 3.9: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS FOR THE HIGH WEALTH GROUP (WEIGHTED)	216

FIGURE 3.10: HYPOTHESIZED MODEL FOR STUDY 2 CONTROLLING FOR PARENTING	217
FIGURE 3.11: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS CONTROLLING FOR PARENTING (UNWEIGHTED DATA)	218
FIGURE 3.12: LONGITUDINAL INFLUENCE OF NEIGHBORHOOD DISADVANTAGE AND ADOLESCENT AUTONOMY ON YOUNG ADULT WELL-BEING AND ACADEMIC SUCCESS CONTROLLING FOR PARENTING (WEIGHTED DATA).....	219
FIGURE 4.1: HYPOTHESIZED MODELS 1-4	220
FIGURE 4.2: MODEL 1: SOCIAL AND RESOURCE CAPITAL AS PREDICTORS OF FUTURE ACADEMIC PLANS	221
FIGURE 4.3: MODEL 2: KNOWLEDGE AND VALUE AS MEDIATORS IN THE RELATIONSHIP BETWEEN SOCIAL AND RESOURCE CAPITAL AND ADOLESCENTS' FUTURE ACADEMIC PLANS	222
FIGURE 4.4: MODEL 3: SOCIAL AND RESOURCE CAPITAL AND ACADEMIC SELF- EFFICACY AS PREDICTORS OF FUTURE ACADEMIC PLANS	223
FIGURE 4.5: MODEL 4: PERCEIVED AUTONOMY AS A MEDIATOR BETWEEN SOCIAL AND RESOURCE CAPITAL AND ACADEMIC SELF-EFFICACY AND FUTURE ACADEMIC PLANS	224
FIGURE 4.6: HYPOTHESIZED MODELS 5A-5D.....	225
FIGURE 4.7: MODEL 5: FINAL MODEL	226
FIGURE 4.8: MODEL 5: EXAMINING ADOLESCENTS' SENSE OF AUTONOMY, COLLEGE PREPARATORY KNOWLEDGE, VALUING OF HIGHER EDUCATION AND ACADEMIC SELF- EFFICACY AS MECHANISMS LINKING SOCIAL AND RESOURCE CAPITAL TO ADOLESCENTS' FUTURE EDUCATIONAL PLANS	227

LIST OF TABLES

TABLE 3.1: CORRELATIONS FOR STUDY 2 VARIABLES	228
TABLE 3.2: MEANS AND STANDARD DEVIATIONS BY ETHNICITY	229
TABLE 3.3: MEANS AND STANDARD DEVIATIONS BY FAMILY WEALTH	230
TABLE 3.4: MODEL 3 SIGNIFICANT PATHWAYS BY WEALTH GROUP (UNWEIGHTED DATA)	231
TABLE 3.5: MODEL 3 SIGNIFICANT PATHWAYS BY WEALTH GROUP (WEIGHTED DATA)	234
TABLE 4.1: CORRELATIONS FOR STUDY 3 VARIABLES	237

ABSTRACT

The current study incorporated both empowerment and ecological perspectives into existing theoretical models employed in the investigation of autonomy to gain a better understanding of social mechanisms that may serve to promote academic success and well-being among adolescents. Findings from the empirical portion of this dissertation confirmed previous research attesting to the importance of autonomy to adolescents' well-being and academic success. In contrast to previous studies which have largely focused on the behavioral dimension of autonomy (i.e. self-regulation, intrinsically motivated behaviors), these studies added to previous research by providing evidence that adolescents' *feelings* of autonomy (operationalized in terms of perceived control) predict their well-being and academic success over time. Overall, study findings demonstrated that adolescents' feelings of autonomy may help to explain the association not only between parenting (at the micro-social level), but also between neighborhood conditions (at the macro-social level) and adolescents' outcomes. In addition to the typically observed associations between parental control and adolescents' sense of autonomy, this study indicated that parents' *own* sense of autonomy may be an important, previously unexamined, aspect of parenting related to adolescents' sense of autonomy. When controlling for the association between parenting and adolescents' feelings of autonomy, neighborhood conditions were further related to adolescents' sense of autonomy, thus providing evidence of environmental influence on adolescent autonomy outside the typically investigated micro-social contexts. Moreover, results indicated that the association between neighborhood conditions and adolescents' sense of autonomy varied according to family wealth, further suggesting that structural inequalities at the societal level may have implications for the processes by which adolescent autonomy relates to their psychological and academic trajectories. In consideration of those factors which may support adolescent autonomy, study findings additionally indicated that social capital in both the family and school contexts is important to adolescents' sense of control over graduating from college. Importantly, this sense of control seems to be paramount to adolescents' valuing of higher education in predicting adolescents' future educational plans. Implications of these findings for understanding adolescent autonomy and how best to support adolescent well-being and academic success as they move into young adulthood are discussed.

CHAPTER 1

Rethinking Autonomy

The concept of autonomy is central to human existence, and has been the subject of much scholarly work. Deriving from the Latin words *autos*, meaning *self*, and *nomos*, meaning *law* or *rule*, the word autonomy literally means *self-rule*. From a psychosocial perspective, the attainment of autonomy as a capacity is considered a primary milestone of psychosocial development. Traditionally conceptualized as individuation *from* parents and the formation of a coherent self-identity (Blos, 1962), more recent perspectives view autonomy as a fundamental human need for self-regulation, self-governance, and agency (e.g. Ryan & Lynch, 1989, Kagitcibasi, 2005) *within* the context of positive and supportive relationships with others (e.g. parents, teachers; Allen, Hauser, Bell & O'Connor, 1994). From a cultural standpoint, Markus and Schwartz (2010) argue that “the moral importance of freedom and autonomy is built into [the United State’s] founding documents” (p. 344) with cross-cultural studies identifying the need for autonomy as significant to adolescent development among diverse populations including Chinese, Asian-American and Latin-American populations (e.g. Fuligni, Tseng & Lam, 1999; Yau & Smetana, 1996; Nucci, Camino & Sapiro, 1996). In consideration of its centrality both to psychosocial development (e.g. Steinberg & Silverberg, 1986) and the human condition (e.g. Markus & Swartz, 2010), it is therefore not surprising that in

studies concerning the academic achievement and mental health of youth, the concept of *autonomy* repeatedly surfaces.

By in large, research indicates that autonomy is associated with numerous positive developmental outcomes related to both academic achievement and mental health including lower levels of depression (Rudy, Awong & Lambert, 2008; Wang, 2009), higher self-esteem (Koydemir-Ozden & Demir, 2009), greater likelihood of intrinsic life-goals and well-being (Lekes, Gingras, Phillippe, Koestner & Fang, 2010), higher levels of self-regulation and achievement (d'Ailly, 2003; Soenens & Vansteenkiste, 2005), more school enjoyment (Studsrod & Bru, 2009), positive future achievement-related beliefs (Kenny, Walsh-Blair, Blustein, Bempechat & Seltzer, 2010), and valuing education (Eccles et al., 1993). In contrast, and as a counterpoint to autonomy, a controlling environment is associated with higher levels of adolescent depressive symptoms, academic difficulty and lower levels of intrinsic motivation (Gray & Steinberg, 1999; Kakihara, Tilton-Weaver, Kerr, & Stattin, 2010; Wang, Pomerantz, & Chen, 2007). Due to the prevailing notion of autonomy as a milestone to achieve in the transition from adolescence to adulthood, research highlighting the importance of autonomy to academic success and well-being among adolescent populations is particularly prevalent. However, the view that the need for autonomy is singular to adolescence is not universal.

Research examining the role of autonomy in human development typically adheres to one of two different empirical traditions: a developmental (psychosocial) perspective of autonomy (Blos, 1962; Greenfield, Keller, Fuligni & Maynard, 2003) or a Self-Determination Theory (humanistic) perspective of autonomy (SDT; Deci & Ryan,

2000). A developmental perspective of autonomy defines autonomy in terms of individuals' increasing capacity to explore the world around them as they age (Erikson, 1950). Generally, individuals are perceived as becoming more capable of caring for themselves and satisfying their own needs as they develop, furthering the opportunity for more frequent and dynamic interactions with the environment thereby fostering further adaptation, increased capability of self-sufficiency and the eventual capacity to take on adult roles (Greenfield et al., 2003). Historically, adolescence was conceptualized as a period of increasing individuation from parents, but more recent developmental perspectives hold that complete autonomy from parents is contradictory to positive adolescent development and that a balance between autonomy and relatedness is the central developmental task of adolescence (Allen et al., 1994). Within this tradition, autonomy is seen as increasing over the life course as individuals become more capable of interacting with their environment.

In contrast, SDT identifies autonomy as one of three inherent psychological needs fundamental to self-motivation, self-regulation and well-being across all ages (Deci & Ryan, 2000). According to Deci and Ryan (2000), autonomy entails individuals' sense of choice, volition and opportunity to self-regulate, in addition to freedom from a controlling environment. [SDT identifies competency and relatedness as the two other inherent psychological needs. Feelings of competency involve individuals' belief that they have the ability to perform a task or succeed at an endeavor (Eccles et al., 1983), and relatedness refers to individuals' sense of being securely connected to others (Baumeister & Leary, 1995)]. Within this tradition, autonomy is largely viewed as decreasing as individuals age and become more socially constrained or controlled by their environment,

which, according to this theory, is viewed as limiting the possibility for choice, volition and self-regulation. Importantly, Ryan and Deci (2006) also maintain that autonomy is a form of behavioral regulation, distinct from the concepts of independence and individuation.

The prevalence of research concerning autonomy over the last decade can largely be credited to the SDT empirical tradition (Deci and Ryan, 2000). Although, much of Deci and Ryan's work concerning SDT and, by extension, autonomy has focused on human motivation (see Gottfried, Fleming & Gottfried, 1996; Ryan 1995), they and their colleagues have consistently maintained that in addition to being a theory of motivation, SDT provides a framework for understanding human well-being and, more globally, human behavior. Indeed, as a widely accepted meta-theory, the work by Deci, Ryan, colleagues and other researchers employing SDT has spanned a range of domains including education, parenting, health and sports, in addition to psychotherapy.

The investigation of autonomy by researchers from myriad disciplinary traditions suggests that multidisciplinary examination of this concept may be promising for research efforts aimed at improving our understanding of individuals' academic and occupational success and well-being. In recent years, there has been increasing recognition of the necessity for and importance of such multidisciplinary research efforts. Researchers at the Office of Behavioral and Social Sciences Research at the National Institutes of Health emphasize the utility in engaging multiple perspectives and crossing disciplinary boundaries, in addressing the complex and multidimensional factors that influence individuals' health, including mental health (Mabry, Olster, Morgan, & Abrams, 2008). A similar push to incorporate interdisciplinary perspectives in their

research has been seen among education researchers (e.g. Becker & Luthar, 2002; Buchmann, DiPrete & McDaniel, 2008).

Perhaps contributing to the adoption of SDT by myriad disciplines in the study of autonomy is the wide array of operationalizations applied to autonomy among researchers in this tradition including self-governance, self-regulation (Ryan & Lynch, 1989), choice, freedom from control, volition (Deci & Ryan, 2000) and agency (Kagitcibasi, 2005). However, these numerous operationalizations of autonomy detract from the ease of engaging in multidisciplinary work due to limiting the possibility of establishing a common language that can be used across disciplines to discuss autonomy. The fact that the *same* word (autonomy) is often used across disciplines to discuss *different* (albeit related) phenomena (Steinberg and Silverberg, 1986) precludes the possibility of deciphering what exactly is known about autonomy and what remains to be discovered. Broadly, there are several groupings for definitions applied to the term *autonomy*: 1) autonomy as independence or individuation; 2) autonomy as self-regulation; 3) autonomy as choice; 4) autonomy as volition or agency; and 5) autonomy as (freedom from) control. While, the majority of studies on autonomy within the developmental tradition focus on independence and individuation, studies in the SDT tradition often focus on self-regulation and motivation, and to a lesser extent choice, volition, agency, and freedom from a controlling environment. That the research on autonomy uses several, sometimes conflicting, definitions for autonomy makes it difficult to draw accurate conclusions and make generalizations about the role of autonomy in adolescents' academic success and mental health.

Clarifying Definitions and Theoretical Assumptions

The use of the one word *autonomy* to denote a variety of different concepts has contributed to the false assumption that studies of autonomy share one concept as their focal point. In reality, many studies adopting a developmental science approach to the study of autonomy center on examination of independence, or more recently, individuation from parents, whereas studies adopting an SDT perspective are concerned with the extent to which social environments control or limit individuals' natural inclination toward intrinsic motivation, fulfillment and well-being. Within the SDT tradition, such examination is often framed in terms of autonomy-granting of teachers and parents and resulting behavioral choices or individuals' motivational orientation toward the world.

According to Cognitive Evaluation Theory (CET; Deci & Ryan, 1985), a sub-theory of SDT, social and environmental factors exist on a continuum from *controlling* to *autonomy-supportive*, with controlling factors viewed as undermining autonomy, whereas autonomy-supportive factors are viewed as fostering autonomy. Thus, *control* is positioned as the counterpoint to autonomy. As its name might suggest, CET is primarily concerned with individuals' perception of their own autonomy. In this sense, *autonomy* is defined in terms of an *internal* perceived locus of causality (deCharms, 1968) or the sense that behavior is self-determined. In contrast, *control* is defined by an *external* perceived locus of causality (Deci & Ryan, 2000) or the sense that behavior is determined by factors outside the self. In this view, autonomy entails a sense that behavior comes from the self and that one *has control* over behavior. Thus, environmental factors are also classified as either *controlling* or *autonomy-supportive* based on individuals' evaluation

of their environment and whether they perceive they have autonomy over their behavior (internal locus of control) and are behaving autonomously (with volition).

Although *freedom from a controlling environment* is therefore a central component of SDT, few studies define autonomy in this manner. Instead, the majority of research examining autonomy within a SDT framework focuses on intrinsic motivation and choice, with much less research examining the influence of individuals' feelings of control on mental health and academic outcomes. This dissertation is primarily concerned with examining autonomy in terms of freedom from control and examining how theories of empowerment may inform understanding of individuals' need for and feelings of control and how a fundamental human need for autonomy relates to the academic success and well-being of adolescents.

Control

Weisz, Southam-Gerow & McCarty (2001) define control as an individual's capacity to produce a desired outcome. According to Weisz, Francis & Bearman (2010), perceived control has been operationalized largely in terms of primary control (e.g. attributional style, locus of control). This focus on *primary* control involves individuals' perceived power to "[influence] objective conditions to make them fit one's wishes," that is, a contingency between values or desires and outcomes. In contrast, *secondary* control involves the ability to "[influence] the personal psychological impact of objective conditions by adjusting oneself to fit those conditions rather than trying to alter [the conditions themselves]," or the ability to cope when faced with a situation where valued or desired outcomes are not possible.

The Optimization in Primary and Secondary Control model (OPS model; Heckhausen, 1999) views control as an adaptive and strategic process in which the purpose is either to facilitate goal pursuit by engaging with the goal or managing the consequences of goal failure by disengaging from the goal, thus linking the concept of control to self-regulation. According to this model, if youth experience low levels of perceived control over life endeavors, including academic pursuits, they are likely to disengage from these endeavors. Thus, lower levels of control can contribute to lower levels of academic success. Similarly, low levels of perceived control can lead to higher depression and anxiety symptoms (Frala, Leen-Feldner, Blumenthal & Barreto, 2010; McGinn, Jerome & Nooner, 2010; Scott & Weems, 2010). Auerbach, Tsai & Abela (2010) find that adolescents reporting lower perceived control report higher levels of depressive symptoms further suggesting that lower perceived control may be associated with increased vulnerability to depression.

Attribution style and locus of control are often used as indicators of individuals' sense of primary, or perceived, control. While individuals with an internal locus of control believe that success or failure results from internal causes such as ability or effort. In contrast, individuals with an external locus of control believe that failure results from external causes such as teacher bias, luck or task difficulty (Weiner, 2000). Among adolescents, an internal locus of control tends to be related to higher grades and emotional well-being (Gilman & Anderman, 2006; Ramirez & Avila, 2003). An external locus of control, on the other hand, is related to higher levels of anxiety symptoms (McGinn et al., 2010) increased psychological vulnerability to anxiety (Chorpita & Barlow, 1998), higher levels of depressive symptoms (Benassi, Sweeney & Dufour,

1988; Twenge, Zhang & Im, 2004) and poor school achievement outcomes (Twenge et al., 2004). Twenge et al. (2004) further report that externality in externality of control has been steadily increasing since the 1960s, emphasizing the importance of studying this concept. Indeed, in a sample covering more than 20 years in 84 countries, Verme (2009) found that locus of control and individuals' freedom to choose were two of the most important factors related to self-reported life satisfaction.

However, the difficulty in operationalizing perceived control in terms of an internal locus of control is that it is possible for internal as well as external attribution to be associated with increased academic difficulty (Thompson, Davis & Davidson, 1998). A pessimistic attributional style refers to the tendency to attribute failure or difficulty to uncontrollable, stable, internal causes (e.g. lack of ability) *or* to uncontrollable, stable, external causes (e.g. teacher bias). Thus, it is possible that even individuals with an internal locus of control may be at risk for depression or academic failure due to the tendency to assign failure to perceived internal deficits like incompetence. This lower perception of control over academic ability has also been found to explain the association between entity beliefs and behavioral disengagement at school (Doron, Stephan, Boiche & Le Scanff, 2009). Similarly, DaFonseca et al. (2009) find that individuals who consider their academic ability to be a fixed trait are more likely to develop depressive symptoms. Thus, it is not only individuals' locus of control and associated orientation toward the world that can impact their mental health and academic outcomes, but also their assessment of and attributions assigned to a given situation that may influence individuals' perceived control.

Important to the conceptualization of control is the distinction between *having control* and *being controlled*. Research finds that individuals who lack autonomy (or are externally controlled) are at risk for academic and psychological difficulty. However individuals' sense of autonomy (feeling in control) is also important to mental health and academic success. Despite the importance of concepts of locus of control and attribution style to adolescents' developmental outcomes, surprisingly little autonomy research focuses on adolescents' *sense* of control. Instead, the majority of research tends to center on individuals' capacity for self regulation or the extent to which immediate micro-level contexts control adolescent behaviors.

Self-Efficacy

According to Reeve and Assor (2011), *perceived* autonomy entails the subjective feeling that actions arise out of an “internally focused, volitional sense of causality” (p. 111). Related to a sense of having control, self-efficacy is the belief that one is capable of performing a task or succeeding in an endeavor. Self-efficacy is comprised of two components: outcome expectations and efficacy expectations. Outcome expectations are beliefs that particular actions lead to particular outcomes. Similar to primary control, this reflects a contingency between behaviors and outcomes. Efficacy expectations are the beliefs that one has the required competency to achieve an outcome. Thus, there is considerable conceptual overlap between outcome expectations and primary control.

Similar to autonomy, higher levels of self-efficacy are also associated with increased academic success and emotional well-being. For example, students with high self-efficacy are more likely to engage in self-regulation and apply adaptive learning strategies (Zimmerman, 2000). Further higher levels of self-efficacy are associated with

better grades (Pinquart, Juang & Silbereisen, 2003; Saunders, Davis, Williams & Williams, 2004), higher levels of school engagement (Caraway, Tucker, Reinke & Hall, 2003) and lower levels of unemployment (Pinquart et al., 2003). Among adolescents, lower levels of self-efficacy is associated with higher levels of both depression (Jenkins, Goodness, & Buhrmester, 2002; Muris, Schmidt, Lambrichs & Meesters, 2001; Schunk & Miller, 2002; Smith & Betz, 2002) and anxiety (Muris, 2002) while higher levels of self-efficacy are associated with higher levels of life satisfaction (Vecchio, Gerbino, Pastorelli, DelBove & Caprara, 2007).

Whereas the concept of self-efficacy includes both control beliefs and competency beliefs, Deci and Ryan (2000) distinguish between autonomy and competency as two separate constructs. More importantly, they argue that self-efficacy is closer to their conception of competency than autonomy (Ryan & Deci, 2006). However, given research finding that both components of self-efficacy are individually related to both academic success and mental health, further exploration of the mechanisms linking self-efficacy to academic and mental health outcomes is needed. For example, is it only through feelings of competency (as Deci and Ryan (2006) propose) that self-efficacy operates? Or does self-efficacy also relate to these outcomes through feelings of control? In other words, does the decision to pursue post-secondary education or not entail only beliefs that one has the capability or knowledge to successfully apply to and be accepted into college or be academically successful once in college? Or, does this decision also entail the belief that attending college is a viable option; that possessing the capability or knowledge to be successful will definitively translate into this goal being reached?

Autonomy as Freedom from (External) Control: Autonomy-Granting and Autonomy Support

Research concerning autonomy among many educational, mental health, and social science researchers as the construct of autonomy pertains to academic and mental health outcomes typically examines individual autonomy within the context of autonomy-granting by significant adults. Parents and teachers are often portrayed as the gatekeepers to autonomy serving as both barriers to, and access points for, choices and opportunities available to youth in addition to playing a key role in fostering an environment that is either conducive to or restrictive of autonomy. The literature on autonomy-granting is based on the premise that both parents and teachers have an impact on adolescents' sense of autonomy through the behavioral choices they allow adolescents and the extent to which they encourage or permit adolescents the opportunity for self-regulation.

Examination of individuation, intrinsic motivation and the autonomy-granting of parents and teachers to the exclusion of examination of control results in a narrow focus on either individual processes involved in self-regulation as it relates to motivation or psychosocial processes involving relationships with parents and teachers. Research on autonomy within the parent and teacher contexts largely examines how the family and school contexts *act upon* the adolescent and the extent to which parents and teachers grant autonomy to adolescents. Less focus is given to the actions and perceptions of the adolescents themselves and the extent to which adolescents perceive they have control over their environment, their lives and their decisions. Traditional examination of autonomy-granting by parents and teachers also tends to focus on the extent to which

behavioral autonomy is permitted or encouraged as opposed to emotional or cognitive autonomy. However, close examination of studies of autonomy in both the parent and teacher contexts provides for some understanding of the influence of these contexts on adolescents' feelings of control.

Autonomy in the Parent and Family Context. The focus on autonomy-granting in the parent context as it relates to adolescent autonomy has grown, in part, out of the fact that traditional investigations of parenting as it pertains to adolescent outcomes center on parenting style. Parenting styles consist of varying combinations of warmth, demandingness and autonomy granting (Karavasilis, Doyle & Markiewicz, 2003). Warmth refers to the level of responsiveness, involvement, support and interest parents express toward their children. Demandingness refers to the amount of control a parent imposes on a child, the implementation for standards and rules, and the degree to which a parent enforces the standards and rules (Broderick & Blewitt, 2003). Autonomy-granting entails the extent to which parents allow their children to engage in particular behaviors or allow individual expression and decision-making in the family (Steinberg, Lamborn, Darling, Mounts & Dornbusch, 1994). Based on these definitions, it seems that (a lack of) demandingness is more in keeping with definition of autonomy as espoused by Deci and Ryan (1985) (i.e. freedom from a controlling environment) than is autonomy granting. Yet, the typical operationalization of autonomy utilized by researchers corresponds more closely with autonomy-granting (i.e. behavioral choice).

Instead of distinguishing between demandingness and autonomy-granting as they relate to adolescent autonomy, researchers often differentiate between parental behavioral and psychological control, with psychological control being more equivalent to

manipulation, and behavioral control more akin to parental monitoring (e.g. Kakihara & Tilton-Weaver, 2009; Barber, 1996). A focus on psychological control as it relates to adolescent autonomy is concerned primarily with *how* parents express demandingness or engage in autonomy-granting, as opposed to whether these aspects of parenting exist in a home. A focus on *how* parents parent leads some researchers to conclude that parental control universally violates autonomy (e.g. Soenens & Vansteenkiste, 2010). Both camps define psychological control similarly as involving love withdrawal, guilt-induction, shaming and instilling anxiety (Barber, 1996). In contrast, behavioral control takes on two different meanings, referring both to attempts to regulate and structure behavior through communication and monitoring and to the use of controlling, coercive and punitive parenting.

By and large, studies find that lower levels of parental psychological control are also associated with better psychological adjustment, including lower depressive and internalizing symptoms, both longitudinally and cross-sectionally (Doyle & Markiewicz, 2005; Gray & Steinberg, 1999; Kindap, Sayil & Kumru, 2008; Loukas, Paulos, & Robinson, 2005; Rudy et al., 2008; Wang et al., 2007; Zhong, Yu, Zhou, Deng, & Lu, 2009) and higher levels of achievement (e.g. Aunola & Nurmi, 2004; Bean, Bush, McKenry, & Wilson, 2003). Research focusing on positive behavioral control such as parental monitoring typically finds monitoring to be related to higher levels of achievement and lower levels of internalizing symptoms (e.g. Pittman & Chase-Lansdale, 2001; Studsrod & Bru, 2009). However, Stattin and Kerr (2000) argue that it is parental *knowledge* of their children's behavior that is associated with positive developmental outcomes, not attempts to control or solicit information about adolescent behavior typical

of parental monitoring, that are associated with positive development. Similar to research on psychological control, Stattin and Kerr (2000) find that parental attempts to control adolescent behavior are actually linked to worse adjustment in adolescence.

Similarly focusing on knowledge, recent work by Farkas & Grolnick (2010) moves beyond typical investigations of parental autonomy-granting to examine how *adolescents'* knowledge of parental rules and expectations may be associated with feelings of autonomy. Farkas & Grolnick (2010) argue that parental structure is an aspect of parenting that includes communication of rules and parental monitoring distinct from parental autonomy-granting and psychological control, but important to adolescents' sense of autonomy. Farkas and Grolnick (2010) propose that the term *structure* should be used in place of *behavioral control* to distinguish between *how* parents parent versus *what* parents do when they parent. The authors further argue that both parental autonomy-granting and parental structure are necessary in order for adolescents to feel a sense of control and be truly autonomous.

In linking parental control to adolescent outcomes, research suggests that parental control may influence adolescents' academic achievement and well-being through its relationship to adolescents' feelings of autonomy (Ryan & Deci, 2000). Indeed, research links high levels of structure and autonomy-granting to an internal locus of control (McClun & Merrell, 1998) suggesting a link between parenting and feelings of control. Kakiyama et al. (2010) further find that adolescents' feeling of being over-controlled by parents partially mediates the relationship between parental control and depressive symptoms providing more evidence that adolescents' sense of control may mediate the relationship between parenting and adolescent outcomes.

Autonomy in the Classroom and Teacher Context. Similar to the family context, much of the research examining autonomy within the school context focuses on the relationship between autonomy-granting and adolescent outcomes. Perhaps, not surprisingly, this research largely centers on the academic arena with research focusing on the relationship between teacher autonomy-granting and academic outcomes and less research examining the association between teacher autonomy-granting and mental health outcomes. In contrast to research on parenting, there is not a corresponding body of literature focusing on the relationship between teacher psychological control and adolescent developmental outcomes per se. Instead, research focuses on the academic expectations of teachers, particularly with respect to low expectations or bias, which may be thought of as a type of indirect psychological control.

For example, Anyon (1981, 1995) found that teachers altered the content and instruction of their courses based on the assumption that their poor, African American students would not pursue higher education. Specifically, Anyon indicated that these students were not given access to rigorous, college-preparatory curricula due to teachers' belief that it was a waste of time and resources to provide such opportunities to students who would not pursue a college degree. Through confirmation bias, the tendency for people to seek evidence that confirms what they already believe to be true, low teacher expectations of students' ability can also lead to lower student achievement through the practice of assigning grades according to expectations of students' performance as opposed to actual merit (McLoyd, 1998) which may reinforce an external locus of control (i.e. adolescents' attributing their failure to teacher bias as opposed to actual merit or effort on their part). Research demonstrates that students from low SES backgrounds, and

minority students are particularly susceptible to academic difficulty due to low teacher expectations (McLoyd, 1998).

Similarly, gender-based teacher expectations can also influence adolescent mental health and academic outcomes. Boggiano & Barrett (1991) find that when students violate gender role expectations, teachers respond in a controlling manner. In contrast, when students remain within gender role expectations (i.e. girls act helpless and boys adopt a mastery approach), teachers respond in a supportive manner. Thus, biased teacher expectations may not only have a negative impact on student outcomes through decreasing feelings of self-efficacy and control but also through limiting overall teacher support.

As with parenting, many studies investigating the autonomy-granting of teachers and its association with adolescent outcomes have centered on the provision of behavioral choice. Yet, some researchers argue that the provision of choice alone is not enough to support academic success (e.g. Assor, Kaplan & Roth, 2002; Stefanou, Perencevich, DiCintio & Turner, 2004). Such research further suggests that choices may, in fact, deter autonomy particularly if the choices presented are not relevant to students' interests and goals, are too numerous or complex or are incongruent with students' values (Katz & Assor, 2007). As such, investigations examining the association between teaching practices and adolescent autonomy have increasingly emphasized importance of *autonomy-support*. Teacher *autonomy-support* entails a variety of teaching practices of which granting choices in a manner that promotes autonomy (e.g. explaining the relevance of these choices) can be a part. Teacher *autonomy-support* also includes encouraging self-initiation or independent thinking, minimizing the use of external

controls (e.g. pressure, controlling language; Su & Reeve, 2011), acknowledging students' perspectives and feelings (Grolnick, Deci & Ryan, 1997; Ryan, Sheldon, Kasser & Deci, 1996) and explaining the relevance of behaviors and tasks (Assor et al., 2002; Skinner & Belmont, 1993). Indeed, some of these studies find that such factors are *more* important than choice in supporting autonomy (Assor et al., 2002).

Studies find that teacher autonomy-support is linked with greater intrinsic motivation, greater engagement with academic tasks, greater enjoyment of learning and the ability to learn from mistakes in classroom tasks (Black & Deci, 2000; Danielsen, Wiiium, Wilhelmsen & Wold, 2010; Grolnick et al., 1997; Reeve, Jang, Carrell, Jeon & Barch, 2004; Roth, Ron, & Benita, 2009). With respect to mental health, autonomy-support has been linked to lower levels of depression through its positive association with adolescents' feelings of social competence and lower levels of anxiety (Black & Deci, 2000; Wang, 2009). Previous research indicates that teacher autonomy-support is related to several important developmental outcomes among adolescents via increases in adolescents' intrinsic motivation or self-regulated learning (Deci, Koestner & Ryan, 1999). However, few studies have examined whether teacher autonomy-support may be related to positive developmental outcomes among adolescents through increasing adolescents' sense of control. Research indicates that teacher praise of easy tasks, or failure to blame students for poor performance, can lead to students to adopt an entity view of their ability and a pessimistic attribution style (Dweck, 1999). Such an entity view may be adopted because of the resulting belief that their performance is due to uncontrollable causes. Indeed, teaching students to attribute failure to lack of effort rather than low ability can help students gain a sense of control over their academic success

(Robertson, 2000). As such, investigation of adolescents' feelings of control may indicate an important mechanism by which teacher autonomy-support operates to positively influence adolescents' outcomes.

The Difficulty in Operationalizing Autonomy in Terms of Choice

The association between choice and positive developmental outcomes has remained controversial. In a meta-analysis examining the relationship between choice and educational outcomes, Patall, Cooper and Robinson (2008) found that, compared to no choice, having choice was related to intrinsic motivation, effort, task performance, and perceived competence. However, other research questions the role of choice in promoting adolescents' academic success. These studies find that choice has little or no effect on motivation and performance (e.g. D'Ailly, 2004; Reeve, Nix & Hamm, 2003) or that choice may actually have a negative effect on educational outcomes such as effort (Flowerday & Schraw, 2003) and quality of work (Iyengar & Lepper, 2000).

In support of conceptualizing autonomy in terms of control rather than choice, Reeve et al. (2003) found that internal locus of control, but not perceived choice, is associated with individuals' feelings of self-determination. Relatedly, Katz and Assor (2007) argue that the choice is not sufficient in and of itself to have a positive impact on individuals' feelings of autonomy and associated educational outcomes. Rather, they argue, choices need to be relevant to students' values and interests and that students need to be able to express negative feelings towards tasks in order to foster autonomy.

Examining processes involved in decision-making reveals that offering individuals too many choices or complex choices can also limit autonomy and well-being (Iyengar & Lepper, 2000; Katz & Assor, 2007). Specifically, when bombarded with

numerous or complex choices, individuals may “choose the default option” or “choose not to choose” (Katz & Assor, p. 434), thereby undermining autonomy. Despite the apparent importance of considering the number and quality of choices to autonomy, absent from this discussion seems to be whether adolescents have the requisite knowledge and information required to inform decisions and how *understanding* of choices may impact autonomy.

In the initial conceptualization of social and environmental factors that serve to facilitate or constrain motivation within the SDT framework, factors were labeled as either *controlling* or *informational*. In keeping with the premise that control runs counter to autonomy, *informational* factors were deemed *autonomy-supportive*. Yet, most investigations operationalize autonomy-support in terms of *choice* rather than *information*. Thus, a focus on teachers, parents and other significant social contexts as providers of information that may help equip youth with the tools to best navigate their world would be more in keeping with the original conceptualization of SDT which views the social environment as either fostering or constraining autonomy.

Although, other factors such as fostering relevance, encouraging self-initiation or independent thinking, minimizing the use of external controls, and acknowledging students’ perspectives and feelings have been found to be autonomy-supportive (Su & Reeve, 2011), investigations of how information contributes to autonomy are limited. According to cognitive developmental theory, as they move through the teenage years, adolescents are increasingly able to engage in abstract reasoning (Feldman, 2004; Lerner, 2002), and are therefore increasingly able to evaluate the world around them and the possibilities and limitations it presents with respect to educational and occupational

decisions (Howard & Walsh, 2010). Particularly, at this stage of development, adolescents are able to deduce which educational or occupational outcomes are *accessible* compared to those that might be preferred (Furlong & Cartmel, 1995; Gottfredson, 1981). Therefore, in addition to the importance of individuals' value of choices, adolescents' *perception* of a choice as viable will influence how in control of their destiny and the possibilities open to them they feel.

Autonomy as Independence and Individuation: Cultural Implications

In addition to the limitations in the operationalization of autonomy discussed thus far, it is worth noting that many studies of autonomy (particularly within the SDT tradition) have been further criticized for lacking cultural appropriateness based on the argument that identifying autonomy as a fundamental human need reflects a westernized, individualistic, middle- to upper-class view of development. Yet, this perceived lack of culturally sensitivity of SDT as a theory may have more to do with the way in which *autonomy* has been operationalized by researchers rather than with the contention that autonomy is not necessarily a fundamental human need.

SDT does not conceptualize autonomy as independence from others (Deci & Vansteenkiste, 2004). Yet, some studies citing SDT hypothesize a greater need for or level of autonomy among independent as compared to collectivist cultures and individuals. These researchers assume autonomous motivation will necessarily coincide with autonomy (in this case defined as individualism or individuation from parents) when there is no substantial reason to think that intrinsic motivation would be higher among more individualistic societies or would increase as adolescents' become more developmentally autonomous. Many researchers maintain that adolescents in

individualistic cultures are more likely to view themselves as independent, autonomous, and unique whereas it is more common in collectivist cultures to view oneself as interdependent, in relation to others, and as part of social groups (Pomerantz, Qin, Wang & Chen, 2009). Despite such assertions, when defining autonomy in terms in keeping with SDT (i.e. as intrinsic motivation or feelings of control and choice), research supports the idea that individuals require autonomy irrespective of culture (e.g. Nucci et al., 1996) and that youth from collectivist cultures can also demonstrate higher levels of autonomy than youth from individualistic cultures (Wang & Pomerantz, 2009).

Studies further find cross-cultural evidence that autonomy (as defined in the SDT tradition) is important to individuals' well-being. For example, Chirkov, Ryan, Kim, and Kaplan (2003) found that autonomy was related to greater levels of well-being among individuals living in Russia, the United States, Turkey and South Korea. Thus, it appears that criticisms of the study of autonomy levied on cultural grounds often concern the sometimes faulty theoretical assumptions that undergird some research on autonomy research. Examination of cross-cultural and socio-cultural studies of autonomy and the diverse conceptualization of autonomy employed by these studies emphasizes the need to carefully examine and critique the specific hypotheses and assumptions that accompany the varied operationalizations of autonomy. However, the premise that individuals require freedom and control over their destinies seem to be borne out by cross-cultural research.

Autonomy as Choice Revisited: More Cultural Implications

In further criticism of research on autonomy, Markus and Schwartz (2010) question the cultural appropriateness of viewing choice and well-being as congruent from a standpoint separate from the previous discussion of individualistic versus collectivist

cultures. In their research, Markus and Schwartz find that the value of choice is singular to middle-class and upper-middle class populations, while working class populations place less emphasis on choice. Kusserow (1999, 2004) goes beyond this argument to suggest that working class Americans may display a greater need for control, that is, contingency between hard work and outcomes, while middle-class Americans may display a greater need for choice. In contrast, Nucci and colleagues (1996) found that lower-class children valued control to a lesser extent than children from middle-class backgrounds. Finally, though her work has been difficult to verify quantitatively, Lareau (2003) argues that middle class children display “an emerging sense of entitlement” – a belief that their individual preferences are valuable and that the world can be adjusted to suit them. By contrast, lower class children manifest an “emerging sense of constraint” – a belief that the best they can do is adapt themselves to their limited life circumstances. Such research suggests that very meanings of *choice* and *control* may differ according to social class (Bowman, Kitayama & Nisbett, 2009). Given that relatively little work has focused on examining autonomy in terms of perceived control as opposed to choice, more research is needed examining the salience of perceived control to individuals’ well-being in socioeconomically diverse populations.

Autonomy as Perceived Control

As can be seen, within the SDT tradition the operationalization of autonomy in terms of control can be quite complicated, involving several related concepts, namely locus of control, locus of causality, freedom from control and autonomy-support. Although the concepts *choice* and *self-regulation* are most often used to operationalize autonomy, the concept of control can probably most easily distinguish between a

developmental as opposed to SDT conceptualization of autonomy. From a developmental science perspective, individuals' capacity for self-regulation increases with age. As such, the provision of choice by significant others becomes increasingly developmentally appropriate and offers increasingly opportunities for self-regulation. The increasing capacity for self-regulation allows for more self-control and the ability to monitor and adapt one's emotions, behaviors and cognitions to the environment. From an SDT perspective, the environment (not age) dictates the extent to which individuals are able to engage in *self*-regulation as opposed to controlled regulation. The provision of choice is one mechanism by which the environment can act in a way that is non-controlling. The opportunity for more self-regulation requires less regulation or control from the environment and contributes to feelings of control, intrinsic motivation, fulfillment and well-being. Thus, in one view autonomy is a capacity involving degree of self-control, while in the other view it is a description of the interaction between an individual and her environment and the extent to which the individual is free from environmental pressure.

The fact that studies adopting both views of autonomy focus largely on the concepts of choice and self-regulation, coupled with the view that parents and teachers serve as the primary gatekeepers of choice and opportunities for self-regulation has likely contributed to a lack of distinction between these two very different conceptualizations of autonomy. Further, operationalization of autonomy in terms of choice has contributed to researchers questioning the culturally appropriateness of viewing autonomy as a universal need. Operationalization of autonomy in terms of control helps to make clearer the distinction between an SDT and developmental perspective of this concept by

distinguishing between *having* and *developing* inner control and the experience of *being* or *feeling* controlled by the environment.

It is important to point out that individuals' feelings of autonomy (i.e. the emotional aspect of autonomy) are largely unconsidered in research. Despite the fact that a developmental science definition of self-regulation involves cognitive, emotional and behavioral domains of development, (by their own admission) research employing SDT typically focuses on behavioral self-regulation (Ryan, Kuhl, & Deci, 1997). As such, SDT gives limited direct consideration to the potential significance of emotions or cognitions to autonomy, instead making assumptions about autonomy based on manifested behaviors or measures of motivational orientation rather than measured feelings of autonomy.

A notable exception to this trend in work concerning autonomy within the SDT tradition, Farkas and Grolnick (2010) have recently begun to join the concepts of choice, control and self-regulation in their work, thus integrating the behavioral, emotional and cognitive components of autonomy. Farkas and Grolnick define autonomy as "the need to feel like one's actions are undertaken with a sense of volition and willingness, and that one's behaviors reflect personally endorsed beliefs, values, thoughts, desires, and/or decisions" (p. 267). In this view, autonomy requires not only the availability of choice but the feeling that behavioral choices are under one's control and in accord with the inner self. Such a focus acknowledges the role of emotional autonomy (or a sense of control) in guiding behavior. This perspective also acknowledges individuals as active participants in their lives as opposed to passive recipients of a *controlling* or *autonomy-granting* environment.

Reeve and Assor (2011) define perceived autonomy as a subjective feeling that behaviors are *internally controlled* and enacted with a sense of volition, highlighting another reason for focusing on the concept of control in conceptualizing autonomy. As reviewed previously, an internal perceived locus of control is associated with measures of both academic success and mental health (e.g. Gilman & Anderman, 2006; Ramirez & Avila, 2003). Related, self-efficacy, or the belief that there is contingency between behaviors and outcomes is likewise related to the academic success and mental health of adolescents (e.g. Gutman & Midgley, 2000; Muris et al., 2001; Saunders et al., 2004). Such findings suggest that individuals' feelings of perceived control may be a mechanism by which controlling versus autonomy-supportive contexts impact academic and mental health outcomes of youth.

Reconciling the Developmental and SDT Perspectives on Autonomy

This dissertation also takes the view that autonomy is a fundamental *human need* that is not singular to adolescence. In their seminal article on stage-environment fit, Eccles et al. (1993) suggested that schools may not provide for adolescents' *developmental* needs, resulting in lower levels of motivation and achievement. The authors argued that lack of opportunity to make decisions in school may contribute to the developmental need for autonomy being unsatisfied. This research by Eccles and colleagues spawned an entire body of literature focusing on autonomy-granting on the part of teachers and the importance of task selection to positive academic outcomes. However, in this view, the need for autonomy is seen developmental, that is, increasing as adolescents move through adolescence toward adulthood (Eccles et al., 1993). This

perception that autonomy is a developmental need as opposed to a universal human need results in two major assumptions.

The first assumption is that at the beginning of adolescence, individuals possess a more limited need for autonomy. Depending on the specific operationalization of autonomy (and the specific needs of the individual for that matter), this may or may not be true to differing degrees. It is true that adolescents may not require limitless control or over daily routines and tasks. Indeed, one could argue that such control may not be developmentally appropriate for young adolescents in many cases. However, when considering freedom from controlling adults, or freedom from oppression, these are needs for autonomy that are not necessarily age constrained. Indeed, as Stattin and Kerr (2000) point out, “the perception of personal control is important to people’s physical and psychological health and well-being (p. 367).

The second assumption is that all adults have a similar level of autonomy once adulthood is reached. The role of social constraints that go beyond the influence of parents and teachers are not considered. How do economic circumstances, social class, experiences of oppression and discrimination influence individuals’ sense of autonomy? This last point ties into one of the major limitations in research on autonomy. Although parents and teachers no doubt have influence over the environments of youth while they age, there are many other social factors that may constrain autonomy that are not taken into consideration in the literature on autonomy. As will be discussed in more detail below, focus on the autonomy-granting of parents and teachers does not take into consideration how other social factors and forces (e.g. poverty, discrimination) in

adolescents' environments may influence their feelings of autonomy, particularly their sense of control.

Toward a Multidisciplinary Framework

Critical analysis of research on autonomy among personality, developmental, mental health and education researchers, reveals another shortcoming of research aside from complications that arise from a lack of clarity in the operationalization of autonomy. Despite an emphasis on the importance of multidisciplinary perspectives to social science research in recent years, research examining the mental health and academic success of adolescents has historically tended to focus on internal processes, largely neglecting examination of psychosocial and socio-cultural factors (Herman, Reinke, Parkin, Traylor & Agarwal, 2009). Similarly, while research on the academic success of youth has increasingly incorporated examination of psychosocial influences, much less research focuses on socio-cultural factors that may contribute to inequalities in educational attainment. Research on autonomy is similarly limited. The body of research investigating autonomy as it relates to the academic success and psychological well-being of adolescents tends to focus on the individual and micro-social contexts (e.g. teachers, parents), with less consideration to the broader school, neighborhood and socio-cultural contexts. How these larger social institutions and contexts may function to either constrain or foster individuals' sense of control is largely neglected. Further, viewing parents and teachers as the primary purveyors of autonomy does not consider the role that youth and adolescents play in influencing their own development and outcomes. The restricted scope of existing literature on autonomy may seem to suggest that exploration of autonomy has a limited capacity to unveil promising points for intervention and policy

reform beyond the individual and micro-social levels. However, by incorporating empowerment and socio-ecological perspectives into existing theoretical models employed in the investigation of autonomy, a multidisciplinary framework for understanding autonomy as it relates to the academic success and mental health of adolescents and young adults on both the micro- and macro-levels can be developed.

Empowerment Theory.

Empowerment Theory considers the relationship of the individual to the larger social and political environment, focusing on individual strengths and viewing problems as rooted in the environment (Perkins & Zimmerman, 1995). Empowerment involves the realization that individuals' experiences of oppression are not unique, but part of a larger socio-political situation of generalized oppression (Gutierrez & Ortega, 1991).

Oppression can be defined as a state of asymmetric power relations in which some social groups accumulate privileges—social or psychological resources—over other groups.

This asymmetric power limits the possibility for self-determination and well-being in the oppressed group (Nelson & Prilleltensky, 2005). Applying an empowerment perspective to the study of autonomy allows for the consideration of macro social constraints to autonomy in addition to the role of privilege and oppression in influencing individuals' sense of control.

Although investigations of autonomy employ similar terminology as studies of empowerment (e.g. control, agency) in addition to the fact that research on empowerment identifies autonomy as a key quality of empowered individuals (Bolton & Brookings, 1996), research on autonomy does not often conceptualize control in terms of individuals' sense of empowerment with respect to life opportunities and decisions. As

previously discussed, *control* is typically defined in one of two ways. On the individual-level, *control* is positioned as the counterpoint to autonomy (Deci & Ryan, 2000). That is, in the absence of choice, volition and the opportunity to self-regulate, individuals are viewed as *having* ‘controlled’ motivations and behaviors. At the micro-level, adolescents are viewed as *being* controlled by either the psychological control or behavioral restrictions imposed by their parents and teachers, rather than *having control* or *feeling in control*. Conceptualizing control in these two manners adopts a deficit approach in focusing on factors that constrain, rather than support, individuals’ well-being and success.

A deficit perspective blames the individual for academic or mental health difficulties (Craig, 2007; Zimmerman, Phelps & Lerner, 2008). In the case of autonomy research, individuals are therefore blamed for their reactions to their social environment or teachers and parents are held responsible for failing to provide autonomy-support to adolescents. Such a focus on deficits in examinations of adolescent autonomy does not attend to individual, familial and group strengths and how social and financial capital may promote individuals’ feelings of autonomy, thereby neglecting an empowerment perspective. Instead of viewing autonomy as the absence of *being controlled*, autonomy can also be thought of in terms of *having control* or power or *feeling in control*. In this view, for behavior or decisions to be truly autonomous, individuals must not only be free from control or constraint, but they must also be actively engaged with their environment and possess a critical understanding of that environment. Thus, an empowering social context is one that is *autonomy-supportive* or *promotes feelings of control*.

While autonomy and empowerment have largely been investigated by two distinct theoretical and empirical traditions, there are important relationships between these constructs that are integral to our understanding of well-being and academic success among youth. Investigations of individuals' sense of empowerment and efforts to foster such empowerment have increased tremendously over the past two decades, however much of this research has been limited to intervention and evaluation work or community-based participatory research. There has been little interdisciplinary work joining these more qualitatively-focused studies of empowerment and studies of autonomy that largely follow quasi-experimental or survey-based research designs. Further limiting the connection between these two bodies of research, studies of youth empowerment have tended to center largely on civic engagement or youth participation with respect to health and violence outcomes, with fewer exploring the role of empowerment in mental health or educational outcomes.

Yet, as they pertain to academic and mental health outcomes, processes of empowerment as they relate to adolescent autonomy can take many forms. For example, investigation of *autonomy-support* as opposed to *autonomy-granting* of parents and teachers employs a more strengths-based, empowerment-focused approach. Research on parent and teacher *autonomy-support* focuses on the knowledge or information that parents and teachers provide to youth. In contrast to research on *autonomy-granting*, this research emphasizes factors that allow youth to be informed and active participants in their life decisions and processes. As previously discussed, education research has increasingly emphasized the importance of autonomy-supportive teacher behaviors in the

classroom. Similarly, evidence associating autonomy-support with positive academic outcomes among adolescents can be seen in the empowerment literature.

For example, within the school setting, Astramovich and Harris (2007) describe the role of advocacy counselors in promoting empowerment among youth by helping students effectively identify and overcome environmental and institutional barriers to their success. According to the authors, central to a sense of empowerment and self-determination in the educational context are a high sense of self-efficacy and internal locus of control, further linking the concepts of empowerment and autonomy. To translate this research into terminology used in research autonomy, such work by advocacy counselors can clearly be seen as *autonomy-supportive*. Indeed, intervention efforts to promote youth empowerment have shown promise for academic outcomes through several different mechanisms involving autonomy including increasing adolescents' sense of self-sufficiency (Propp, Ortega, & NewHeart, 2003), encouraging positive self-concepts and internal attributions of causality (Garcia-Ramirez et al., 2005), and identifying youth's strengths and supporting them (Rodriguez & Conchas, 2009). Given empirical research linking these concepts to autonomy, these findings support the promise of adopting an empowerment perspective to better understand the role of adolescent autonomy in promoting academic success and mental health.

Similar to the argument made by Eccles and colleagues (1993) that there is a lack of stage-environment fit between adolescents' developmental needs for independence and individuation and the level of autonomy afforded by schools resulting in decreased levels of motivation, McQuillan (2005) argues that student disengagement from learning is linked to a lack of feeling empowered and autonomous. Aside from the concept of

autonomy-support, work on youth empowerment is pertinent to the study of adolescent autonomy in a number of other significant ways. Notably, a central tenet of the youth empowerment movement is that society, and U.S. schools in particular, socialize youth to be passive and subordinate with little opportunity for control over decisions or processes relevant to their lives and learning (McQuillan, 2005). Studies of social capital offer other mechanisms by which the autonomy of youth may be supported and youth may be empowered.

It is important to point out that, while studies focusing on social capital have the potential to connect empowerment theory to the study of autonomy, they are not typically conceptualized as such. Still, in examining specific intervention efforts aimed at youth empowerment, it is clear that many such efforts target both cognitive and structural capital as means to empower youth and bolster their sense of autonomy. In their study of community-based youth organizations (CBYO), Baldrige, Hill and Davis (2011) provide a more concrete connection between social capital theory and the concepts of empowerment and autonomy in detailing how CBYOs empower youth to pursue education specifically through facilitating the development of social capital and an understanding of the broader social contexts. Specifically, youth indicated that the social support and sense of personal value gained in the program were critical in helping them to form the self-efficacy necessary to succeed in life (Baldrige, Hill, & Davis, 2011).

Similarly, Advancement via Individual Determination (AVID), has helped to increase college enrollment among students by providing them with social capital (Rodriguez & Conchas, 2008). The authors emphasize that building collaboration between CBYOs and schools is a key aspect of social capital theory as it promotes

relationships and connections between the various contexts in youth's lives. The authors further argue that CBYOs may be particularly important to urban youth given that they are likely to experience feelings of powerlessness due to economic disadvantage, undersourced schools, and limited health insurance. Rodriguez and Conchas emphasize that CBYOs can empower youth by supporting them and helping them to voice their concerns to adults in positions of authority (e.g. teachers, school administrators) in addition to helping to increase youth's social capital by providing them with information that equips them to better navigate college preparatory requirements.

Less work focuses on how youth empowerment is related to mental health outcomes signaling a need to investigate how adolescents' feelings of power and control may be associated with well-being. However, research indicating a positive association between both parental and teacher autonomy-support and lower levels of depression coupled with research finding a relationship between adolescent feelings of control and power with mental health outcomes signals that application of empowerment theory to the investigation of autonomy as it relates mental health may prove fruitful. In addition to emerging evidence that micro-level social factors may be autonomy-supportive and therefore empowering, empowerment theory particularly calls for the consideration of macro-social factors that may be *autonomy-supportive* for youth. Consideration of the intersection social capital, empowerment and autonomy at the macro-level is particularly imperative given that economic and political contexts are known to play a significant role in academic difficulty, disengagement and dropout, particularly among minority and urban youth (Rumberger, 1995) in addition to playing a significant role in health and mental health disparities (Almedom, 2005).

Socio-ecological Theory

Socio-Ecological Theory emphasizes the importance multiple environmental contexts to individuals' development (Bronfenbrenner, 1977) and, as such, is in keeping with an empowerment perspective that views the individual in relation to the larger social and political environment. According to this theory, the environment in which an individual exists consists of many different contexts that simultaneously interact with the individual and with each other over time to influence development. Consideration of how multiple contexts influence development is particularly relevant to research on adolescents and young adults, in light of the increasing impact of contexts outside the family as individuals age (Eccles, 2004). Though the extent to which studies adopt a socio-ecological perspective does vary somewhat by discipline, the incorporation of a multi-contextual focus in studies on autonomy is limited. As indicated previously, the majority of research on autonomy examines the family and teacher contexts with little exploration of the larger school and neighborhood contexts or how structural inequality at the socio-cultural and political levels may impact autonomy. Incorporation of socio-ecological theory into the study of autonomy can help to address this limitation. Consideration of how multiple contexts influence adolescents' sense of autonomy and related academic and mental health outcomes not only allows for investigation of how these contexts may compete to foster or impede autonomy, but also acknowledges the possibility of cumulative risk and protective effects over time.

Macro Contexts

Despite research highlighting the importance of autonomy to the academic success of adolescents, few studies examining how structural components of the school

environment may impact adolescent outcomes are framed in terms of autonomy. Indeed, there is a dearth of research investigating autonomy within macro-social contexts altogether. As such, a certain degree of conjecture is required to begin to identify potential associations between macro-social factors and adolescents' sense of control and agency.

As discussed previously, cross-cultural work attempting to link cultural values to individuals' relative need for autonomy has been highly criticized and the notion that autonomy is synonymous with *independence* has been largely rejected (Allen et al., 1994). Rather, from both a developmental and SDT perspective, autonomy is seen as complementary to needs for connectedness and relatedness to others, with the needs for autonomy and relatedness existing in both individualistic and collectivist cultures (e.g. Fuligni et al., 1999; Yau & Smetana, 1996; Nucci et al., 1996). Despite these cross-cultural examinations of autonomy, there has been relatively little empirical research specifically addressing the relationship between the socio-cultural context *within* the United States to individuals' sense of autonomy.

In a recent discussion of potential associations between macro-social contexts and autonomy, Reeve and Assor (2011) argue that societies and social institutions with hierarchical structure are, by definition, at odds with autonomy particularly when they are involved in the transmission of dominant values and beliefs. The authors argue that social institutions are controlling when they pressure individuals to change what they think, feel, or do into something prescribed by the social institution as more acceptable. "Further, a controlling entity applies pressure until individuals relent and change the way they think, feel, or behave (to be consistent with those of the institution's)" (Reeve &

Assor, 2011, p. 113). Although the authors term this type of control *suppression*, such assertion of dominance and power at the expense of others is similar to the concept of oppression.

Importantly, according to Pelletier and Vallerand (1996), individuals and institutions tend to become more controlling when they perceive individuals or institutions lower in the social hierarchy to have low levels of autonomy or be less capable. Related to the concepts of empowerment and Bourdieu's (1986) conceptualization of social capital, individuals in the majority culture often enact their dominance or position of power through discriminatory practices. Research finds that perceived discrimination is related to higher levels of depressive symptoms (Brody et al., 2006; Gee, Spencer, Chen, Yip & Takeuchi, 2007; Prelow, Danoff-Burg, Swenson & Pulgiano, 2004). Discrimination is also related to mental withdrawal from school (Sanders, 1997). In examining the mechanisms by which discrimination may be related to mental health and academic outcomes, research finds that experiences with racism are longitudinally associated with lower perceived academic control, which is, in turn, associated with increased depressive symptoms (Lambert, Herman, Bynum & Ialongo, 2009). The authors argue that discrimination and racism can decrease individuals' sense of control because these experiences are often rooted in macro level social inequalities that the individual is powerless to address. Findings suggest that experiences with discrimination and racism may, therefore, be linked to adolescents' depressive symptoms through an impact on individuals' sense of control or autonomy in the academic domain.

Relatedly, much research has documented the association between stereotype threat and academic difficulty (Jordan & Lovett, 2007). Resulting from historical

discrepancies in test scores between European-American students and ethnic minorities, particularly African-American students, stereotype threat has also been shown to be associated with lower levels of self-efficacy at school (Davis, Aronson & Salinas, 2006). Given the conceptual overlap between feelings of self-efficacy and perceived control (Bandura, 2001), a possible mechanism by which stereotype threat may be linked to academic difficulty may be through limiting youth's feelings of autonomy.

Importantly, Reeve and Assor (2011) argue that, although they do not typically do so, social institutions (and individuals within these institutions) can operate in a manner that serves to nurture rather than suppress individual autonomy. According to Reeve and Assor (2011), overcoming autonomy suppression requires an overhaul in the way that institutions (and individuals within these institutions) approach and think about autonomy, by targeting pressures from within. Specifically, Reeve and Assor (2011) argue that political support for autonomy that “surrounds [individuals and institutions] with a culture that highlights the social importance of autonomy support and reduces fears that it might produce social or material cost” (p. 117) would aid in this transition to autonomy-supportive rather than autonomy-suppressive social environments.

Cross-cultural examinations of different global societies identify those “rich in civil liberties and individual rights” (p. 117) that support daily autonomy through such practices as allowing citizens the right to vote, applying laws equally to all citizens and emphasizing the importance of equality as generally autonomy-supportive (Downie, Koestner & Chua, 2007). Although U.S. society may rank lower on the scale of supporting hierarchical (rather than egalitarian) political practices compared with other nations (Downie et al., 2007), there are still numerous sources of autonomy suppression

in our society. The hierarchical nature of many social institutions in addition to the hierarchical and unequal allocation of resources within U.S. society creates many scenarios under which autonomy suppression and overall human oppression occur.

Socio-cultural level. Theories of capital speak to the allocation of resources among individuals in a society. Specifically, theories of social capital emphasize the role of social relationships and social institutions in dictating what resources are available to individuals in helping them to successfully pursue desired actions (Lin, 2001). The amount of social capital individuals have at their disposal depends largely upon the quality of information and resources possessed by their social networks (Bourdieu, 1986). According to Bourdieu, factors such as social class and race that impact individuals' position in the social hierarchy often limit individuals' social capital. That is, the more oppressed individuals are, the less social capital they tend to possess.

Coleman (1988), on the other hand, defines social capital in terms of the resources conferred by individuals' social relationships. The majority of research examining the association between social capital and adolescents' educational outcomes has focused on the latter type of social capital (Dika & Singh, 2002) with researchers advocating for the bolstering social relationships and social resources as means to empower individuals (Semenza, March & Bontempo, 2007). Despite the promise of efforts to improve social relationships and increase social resources as means to support academic success and well-being among youth, such victories may only amount to stop-gap measures.

Drawing from empowerment theory and Coleman's conceptualization of social capital, there are other factors besides the autonomy-support of parents and teachers that are needed in order to facilitate academic success and emotional well-being of youth. In

addition to the provision of choices and the relevance of choices, individuals must be aware of choices and have knowledge of the meaning of these choices. For example, a cultural factor such as the dominant language of a country may dictate the amount of information accessible to individuals, thereby enabling or limiting the capacity to make informed, autonomous choices.

Research focused on empowerment further emphasizes that “students must be *taught* the codes needed to participate fully in the mainstream of American life” and “be helped to learn about the arbitrariness of those codes and about the power relationships they represent” (Delpit, 1988, p. 296). Such knowledge and the decision-making capacity that accompanies it, is sometimes labeled the *cognitive* form of social capital (Almedom, 2005). In contrast to *cognitive* capital, *structural* social capital encompasses such access to public goods and services (Almedom, 2005). Researchers acknowledge that due to inequality and social segregation at the societal level, *structural* forms of social capital and individuals’ overall opportunity structure differ quite substantially between the dominant and minority cultures in the United States (Almedom, 2005; Conchas, 2001). As Reeve and Assor (2011) point out, without a general shift in beliefs about the social and material cost of true social equality along with the willingness of those in positions of power to relinquish some of this power, inequalities in U.S. society are likely to persist.

While Coleman’s conceptualization of social capital includes resources as a form of capital, some researchers make a distinction between *social* capital and *resource* capital, arguing that factors such as parental education and income should be conceptualized separately from aspects of social relationships (parental school involvement, parental expectations) that also serve as forms of “capital” (Mullis, Rathge

& Mullus, 2003). Repeatedly, research finds that lower socioeconomic status is related to lower levels of academic achievement and mental health (Evans, 2004; National Center for Education Statistics, 2000; Leventhal & Brooks-Gunn, 2000; Gutman, Sameroff & Cole, 2003). Although SDT identifies autonomy as central to both educational success and psychological well-being, few studies have aimed to identify the mechanisms by which socio-economic status may be associated with adolescents' feelings of autonomy and related outcomes.

In their examination of the association between social class and youth's conceptions of personal choice and social regulation, Nucci et al. (1996) argue that socioeconomic status is associated with feelings of autonomy through feelings of privilege and oppression.

Social stratification results in a differential distribution of privilege, power, and autonomy such that persons in superordinate positions judge that they have entitlements and autonomy... Those in subordinate positions ... consonant with their lower status, tend to view themselves as having role obligations that make them more likely to accept obedience and authority (p. 1225).

In addition to influencing feelings of autonomy, the authors further argue that socioeconomic status dictates the degree to which individuals may engage in autonomous behaviors or perceive they have chances to behave autonomously.

Social stratification results not only in differences in the degree to which people are afforded opportunities for self-direction, but clear risks and sanctions exist for those in subordinate positions who do not conform. In terms of development, this translates into differential opportunities for children to experience autonomy and constraint...social stratification is likely to result in different patterns of social experience for middle-class and lower-class children such that lower-class children would be less likely than their middle-class counterparts to view actions as within their personal domain (p. 1225).

Further exploration of the association between socio-economic status and adolescents' feelings of autonomy and related outcomes is necessary in order to determine whether these proposed relationships are borne out by research.

As emphasized by Almedom (2005), part of the difficulty in examining social or economic capital and associated feelings of empowerment as they relate to mental health is methodological, as quantitative methodology is not as conducive to examination of these phenomenon but is typically used in studies of mental health. Further still, some researchers question whether investigation of social capital at the individual level is meaningful at all for the study of health and mental health outcomes (Smith & Lynch, 2004). These researchers argue that what is important is *access* to social capital (Almedom, 2005), or autonomy *potential*. As such, additional research is necessary in order to decipher whether it is the presence of resources that support autonomy or adolescents' own sense of autonomy that is important to mental health outcomes.

In support of the importance of considering the association between adolescents' perceived autonomy and their developmental outcomes, Dika and Singh (2002) argue for the need to attend to adolescents' sense of autonomy and agency in accessing social capital at the macro and institutional level. Attention to individuals' feelings of autonomy and the contribution of factors in the macro- social context to *feelings of control*, in particular, allows for consideration of how processes involved in privilege and oppression may contribute to individuals' sense of autonomy and may allow for identification of social factors beyond the micro-social level that serve to empower individuals through increasing feelings of control. Instead of making inferences about individuals' autonomy based on investigators' evaluation of the extent to which the environment is controlling,

an empowerment perspective advocates for allowing individuals to self-define their own experiences with their environment is important. Directly measuring individuals' perception of their own autonomy acknowledges the role of the individual in making meaning of their interactions with the larger social contexts of which they are a part.

School Level. Dika and Singh (2002) argue that examination of macro forces and institutional discriminatory patterns is particularly relevant to understanding issues of power and domination that perpetuate inequalities in educational outcomes. Aside from the role of teachers in the school context, research suggests that specific school policies or practices may also influence adolescents' sense of autonomy. As a major social institution all adolescents in the U.S. are required to attend, Reeve and Assor (2011) contend that, similar to parents and teachers, schools may also function in a hierarchical or autonomy-supportive manner. According to the authors, autonomy-support in the school context entails creating an educational atmosphere that supports students, affords them with choices and allows them to experience autonomy in the classroom. In contrast, a hierarchical or autonomy-suppressive school prioritizes institutional and/or societal goals, needs and perspectives over the needs and perspectives of the students.

Many schools emphasize both upper-class and Western values, often failing to address the sociopolitical and economic realities that influence the post-secondary and career choices of minorities and those of lower socio-economic status. As Stanton-Salazar (1997) points out, minority children and youth often faced with "having to learn to participate in multiple and often conflicting social systems and contexts... contexts that are culturally different from, if not alienating to, cultural outsiders" (p.2-3). Indeed, over the past several years, scholars have increasingly cited the lack of a culturally

appropriate curriculum in schools and associated lack of culturally relevant training for teachers (e.g. Gay, 2000; Tate, 1997) as examples of structural failure at the school level that contribute to lower levels of achievement among minority students.

In addition to their failure to provide culturally relevant and accessible educational material, schools in working class and minority communities also do not typically provide students with access to the types of social support networks that enable them to successfully navigate the “mainstream marketplace, where institutional resources, privileges and opportunities for leisure, recreation, career mobility, social advancement, and political empowerment are abundant” (Stanton-Salazar, 1997, p. 4). Instead, through practices such as school tracking, (i.e. grouping students in classrooms by achievement levels), schools serve to further limit adolescents’ feelings of autonomy and reinforce social inequalities. Not only may tracking limit the sense of control students feel over more immediate aspects of their educational environment such as course selection, in addition to the overall academic possibilities they feel are open to them, but students in lower tracks are also more likely to have lower academic self-efficacy beliefs which can result in higher anxiety and lower school grades (Kao & Thompson, 2003; Lucas, 1999). Furthermore, students are often tracked starting at an early age, often with little opportunity to switch into a more advanced or challenging curricular route, also potentially impacting feelings of control. In addition to the relationship between tracking and feelings of control, research also finds that such differential treatment according to ability is directly related to lower levels of achievement and more depressive symptoms over time (Loukas & Robinson, 2004) in addition to increased competition between students and a greater emphasis on performance compared to mastery goals.

In an effort to examine those social resources that may foster adolescents' sense of empowerment and the feeling that educational goals may be competently pursued and actualized, recent educational research has begun to focus on the extent to which students have the college preparatory knowledge and financial resources necessary to pursue a college education in addition to traditional examination of adolescents' school achievement and test scores as markers of potential college success. This research indicates that adolescents who have more access to college preparatory information (e.g. which high school courses are required for college enrollment, how to finance higher education) are more likely to pursue higher education (Staton-Salazar, 2001; Tornatzky, Cutler & Lee, 2002). Staton-Salazar and Dornbusch (1995) also emphasize the necessity for students to have supportive ties with adults in the school context to help them navigate such information, emphasizing the intersection of larger school context with teachers' behaviors.

Conversely, bias from teachers and/or students in the school context may potentially limit adolescents' sense of autonomy through creating deficits in social capital. Zirkel (2004) finds that stigmatized students are likely to withdraw from school, both socially and academically. According to Zirkel (2004), students of color report feeling more isolated at school than European-American students, particularly in schools that lack ethnic diversity. Such isolation, whether through self-isolation or exclusion, may translate to lower levels of autonomy-support and transmission of social capital. While research indicates that increases in social support can mitigate the association between discrimination and both depressive symptoms and academic difficulty (Brody et al., 2006; DeGarmo & Martinez, 2006), less is known about the how the transmission of

social capital from such positive relationships may relate to feelings of autonomy and to what extent social capital may serve as a possible mechanism by which these relationships are protective. Investigations of social capital in the school context and investigation of its relation to feelings of autonomy may help to better understand the pathways between both discrimination and social isolation and adolescents' developmental difficulties.

Neighborhood Level. Much of the research on neighborhood adopts a sociological perspective focusing on the relations between objective neighborhood characteristics (e.g. poverty levels, crime, type of housing, housing values) and developmental outcomes (Leventhal & Brooks-Gunn, 2003). For example, Williams, Davis, Miller-Cribbs, Saunders, and Williams (2002) find neighborhood disadvantage (operationalized in terms of perceived crime, abandoned buildings, individuals on welfare, number of homeless individuals and prostitution) is associated with lower grades and adolescents' reported intentions of finishing high school. Other studies find that neighborhood disadvantage (e.g. high unemployment rates and residential instability) is associated lower test scores and higher rates of school dropout (Ainsworth, 2002; Crowder & South, 2003). Additionally, research finds that lower levels of neighborhood safety are associated with lower levels of academic performance (Bowen, Bowen & Ware, 2002; Bowen, Rose, Powers & Glennie, 2008; Woolley & Grogan-Kaylor, 2006).

With respect to the association between neighborhood factors and well-being, research findings are controversial. While some research indicates that neighborhood poverty is associated with depressive symptoms among adolescents (Wickrama & Bryant, 2003) and internalizing symptoms in young adults (Wheaton & Clarke, 2003),

other studies find no association between neighborhood disadvantage and internalizing symptoms (e.g. Deng et al., 2006; Li, Nussbaum & Richards, 2007). Such inconsistent findings emphasize the need to examine the association between neighborhood factors and adolescent well-being further.

Research investigating the relationship between neighborhood factors and adolescents' sense of autonomy is limited. However, Plunkett, Abarca-Mortensen, Behnke and Sands (2007) find that adolescents' positive perceptions of their neighborhood (e.g. high levels of employment, education and wealth of most families) is associated with feelings of self-efficacy and academic aspirations. In contrast, adolescents living in low income neighborhoods and who are faced with chronic stressors typical of these environments may experience feelings of constrained choice (Rieker & Bird, 2005), which may limit their perceived opportunity to choose education as a priority. Indeed, Durlauf (2003) argues that those behaviors individuals' perceive to be within the realm of choice tend to mirror those behaviors individuals most often observe or see modeled in the neighborhood context. As such, individuals may fall victim to a "poverty trap" (p. 5) constrained by the lack of social and economic resources in their communities. While these studies collectively point to the importance of neighborhood factors to adolescents' feelings of choice and self-efficacy, fewer studies examine how neighborhoods may influence adolescents' feelings of control.

Studies examining social capital in the neighborhood context emphasize the importance of social supports in the neighborhood to positive educational outcomes (Cook et al., 2002; Schwartz & Gorman, 2003). Importantly, Conchas (2001) finds that the positive impact of neighborhood social support is particularly salient for those

students negatively affected by the belief that race and class limit their educational opportunities, suggesting that social support may be protective for experiencing lower levels control. However, in a recent study of the association between neighborhood belonging and both academic and mental health outcomes, findings (preliminarily) suggest that while feelings of relatedness in the neighborhood context may be protective certain developmental outcomes, a sense of belonging to a low-income neighborhood may limit individuals' perceptions of the academic opportunities open to them (i.e. certain characteristics of a low income neighborhood may decrease feelings of academic autonomy; Maurizi, Ceballo, Epstein-Ngo & Cortina, *revise and resubmit*). Relatedly, Morrow (1999) argues that poor communities often suffer due to having a lower position in terms of local power structures, contributing to a lack of autonomous control over life circumstance. Other research finds that neighborhood stress is associated with an external locus of control (Coley & Hoffman, 1996) suggesting another mechanism by which neighborhoods may have a detrimental impact on adolescent development. Cumulatively these studies suggest that perceived control may be one mechanism through which neighborhood factors are associated with poor mental health outcomes emphasizing the need to study the association between neighborhood characteristics and adolescent autonomy further.

Applying an Empowerment Perspective to the Study of Autonomy

In examining research on autonomy, there is overwhelming evidence indicating that increased feelings of autonomy and environmental factors that support autonomy are consistently related to lower levels of psychological difficulty and higher levels of academic success among adolescents and young adults. In contrast, the feeling of being

controlled and environmental factors that are controlling are related to lower levels of mental health and academic success.

As this review has explored, despite its promise for better understanding the mechanisms involved in the mental health and academic success of adolescents, to date, research on autonomy has been limited in three significant ways. First, numerous different concepts are used to operationalize autonomy leading, at times, to conflicting findings with respect to autonomy in addition to a degree of controversy over what can be concluded from studies of autonomy. Secondly, the study of autonomy has primarily focused on the individual and micro-level social contexts (i.e. teachers, parents), largely neglecting examination of the broader school, neighborhood and socio-cultural contexts. Thirdly, although the concept of control is central to many studies of autonomy, most studies of autonomy have not addressed the role of empowerment in individual autonomy. Given these limitations, there remains the need to rethink the way that autonomy is studied. A multidisciplinary approach incorporating empowerment perspectives from social work research and the socio-ecological approach advanced by sociology researchers into the psychological and educational literature on autonomy may be particularly beneficial to understanding the academic success and well-being among adolescents.

The empirical portion of this dissertation begins to address the three main limitations observed in the current literature on autonomy through a series of three studies. Chapters two through four of this dissertation contain three empirical papers testing the extent to which incorporation of an empowerment perspectives into current literature on autonomy may contribute to understanding how adolescents' sense of

autonomy is related to their academic success and mental health over time. Brief outlines of these studies are included below.

Study 1

Although it is well-established that parenting is important to adolescents' sense of autonomy and related developmental outcomes, few studies actually directly measure adolescents' feelings or perceptions of their own autonomy. Instead many studies assume congruence between "controlling" parenting practices and adolescents' feelings of control or between "autonomy-supportive" parenting practices and adolescents' feelings of autonomy. In the tradition of Social Determination Theory (Ryan & Deci, 2000), most studies that do examine a direct link between adolescent behavioral autonomy and adolescent developmental outcomes operationalize autonomy in terms of intrinsic motivation, that is, engaging in an activity for the sake of the activity itself (Gottfried et al., 1996; Ryan, 1995). Thus, the primary aim of Study 1 is to explore the operationalization of autonomy in terms of control within the context of a well-established literature (i.e. parenting). To do so, Study 1 examines the extent to which parenting monitoring, parental discussion of rules and parental psychological control are associated with adolescents' *feelings of control*. Additionally, this study seeks to examine whether *feelings of control* mediate the association between parenting and both academic and mental health outcomes over time.

This study adopts both Farkas and Grolnick's (2010) distinction between parental structure and parental control and draws from Stattin and Kerr's (2000) reconceptualization of parenting monitoring to hypothesize that parental monitoring will be positively associated with adolescents' academic success and well-being, but unrelated

to their feelings of control. This study also builds from past literature to investigate parental discussion of rules as a form of parental structure to explore whether discussion of rules is positively associated with increased feelings of control among adolescents. Finally, and in keeping with previous literature, this study tests the hypothesis that parental psychological control will be associated with adolescents' well-being and academic success through its negative influence on adolescents' feelings of control.

Finally, drawing from research linking parent and child mental health, Study 1 explores whether parents' sense of control is associated with their children's sense of control. To the extent that parents and their children share certain aspects of the social environment (e.g. the neighborhood or social-cultural context), parents and the children may experience similar constraints to their autonomy, potentially contributing to an association between parental feelings of autonomy and adolescent feelings of autonomy.

Study 2

In conceptualizing parents and teachers as the primary gatekeepers of autonomy, research presumes that parents and teachers are solely responsible for the degree of environmental control or autonomy-support adolescents may experience. Applying both empowerment and socio-ecological theories to current studies of autonomy calls for examination of how the larger social environment (e.g. school, neighborhood, socio-cultural contexts) may relate to adolescents' sense of autonomy. As such, Study 2 explores the association between neighborhood disadvantage and adolescents' feelings of control and subsequent well-being and academic success over time.

In U.S. society, socio-economic status is inextricably linked to living in disadvantaged neighborhoods necessitating the need to control for socio-economic status

in isolating neighborhood effects (Leventhal & Brooks-Gunn, 2000). However, taking empowerment theory into account also calls for a deeper examination into how structural inequality at the socio-cultural and political levels may impact autonomy. Therefore, in consideration of the association between neighborhood and individuals' sense of autonomy, Study 2 further examines whether the association between neighborhood disadvantage and autonomy varies according to family resources (in this case, operationalized as family wealth).

Finally, given the associations between parenting and adolescents' feelings of autonomy explored in Study 1 and the desire to establish whether macro social contexts such as the neighborhood independently relate to adolescents' sense of autonomy and related well-being and academic success, the final aim of Study 2 was to explore the association between neighborhood disadvantage and adolescents' feelings of control while controlling for parenting.

Study 3

Theories of social capital emphasize the role of social relationships and social structures as resources that enable individuals to successfully pursue desired actions (Lin, 2001). The degree of social capital individuals have at their disposal depends largely upon the quality of information and resources possessed by these individuals' social networks (Coleman, 1988). Thus, bolstering social relationships and social resources can serve to empower individuals by increasing their social capital (Semenza et al., 2007), while parental education and family income are important sources of resource capital (Mullis et al., 2003). The extent that adolescents' family and school contexts possess and transmit the requisite knowledge, information, structure and confidence that allow

adolescents to successfully navigate their environment reflects the extent to which these environments are not only autonomy-supportive but also empowering.

Thus, building from social capital and empowerment theory, Study 3 examines whether the association between social and resource capital and adolescents' plans to attend college and fulfill college entry requirements is mediated by adolescents' self-efficacy beliefs, valuing of education, college preparatory knowledge and adolescents' perceived autonomy to attend college. In focusing on adolescents' feelings of control, this dissertation seeks to highlight the role the social environment plays not only in influencing those choices adolescents perceive as being available to them and their understanding of these choices but also their feelings of agency and empowerment and their belief in possibility of successfully navigating the social environment to reach their goals. This study aims to determine whether the presumed choice conveyed by financial and social resources is enough for adolescents' to feel empowered to pursue higher education or whether a sense of control, operationalized as self-efficacy to pursue choices, knowledge of choices, valuing of choices, and feelings of autonomy are additional requisites plans to pursue higher education.

CHAPTER 2:

Supporting Adolescent Autonomy: Longitudinal Exploration of the Impact of Parenting, and Parents' Perceived Autonomy on Adolescents' Academic/Occupational Success and Well-Being

In investigating the academic success and mental health of adolescents, the concept of autonomy repeatedly surfaces. Numerous research studies have touted the importance of autonomy to adolescents' positive development finding greater levels of autonomy to be associated with several important outcomes including lower levels of depression (Rudy et al., 2008; Wang, 2009), higher self-esteem (Koydemir-Ozden & Demir, 2009), greater likelihood of intrinsic life-goals and well-being (Lekes, Gingras, Phillippe, Koestner & Fang, 2010), higher levels of self-regulation and achievement (d'Ailly, 2003; Soenens & Vansteenkiste, 2005), more school enjoyment (Studsrod & Bru, 2009), and valuing education (Eccles et al., 1993). Yet despite this apparent broad consensus regarding the importance of autonomy to adolescent development, the question remains, what is autonomy?

The word autonomy derives from the Latin word *autos* (meaning *self*) and *nomos* (meaning *rule*). Yet, operationalization of this concept of *self-rule* is enormously varied. Even within the single discipline of psychology, different theoretical perspectives offer conflicting conceptualizations of autonomy. From a psychoanalytic perspective,

autonomy is conceptualized as a capacity and an important milestone in psychosocial development (Erikson, 1950). Although Erikson viewed autonomy in terms of self-regulation during toddlerhood, more recent examinations of autonomy have centered on the adolescent years (Greenberger, 1984; Hoffman, 1984). Autonomy has traditionally been conceptualized in terms of independence and individuation *from* parents (Steinberg & Silverberg, 1986), but there is growing recognition that the development of autonomy occurs *within* the context of positive relationships with others (Allen, Hauser, Bell & O'Connor, 1994).

The psychoanalytic view of autonomy maintains that individuals' need for autonomy and capacity to become autonomous increases as they age. That is, the increasing capacity for autonomy (behavioral, emotional, cognitive) coupled with more frequent and dynamic interactions with the environment over time, support increasing adaptation, self-regulation, self-sufficiency and the eventual capacity to take on adult roles. Differing from the psychoanalytic views of autonomy, the humanist perspective views the need for autonomy as universal and independent of and holds that feelings of autonomy generally decrease over time as individuals become more socially constrained by their environment and have having increasingly limited opportunities to behave, feel and think autonomously (Deci & Ryan, 2000).

The study of autonomy within the humanist tradition can largely be attributed to Self-Determination Theory (SDT; Deci & Ryan, 2000). SDT defines autonomy in terms of an *internal* perceived locus of causality (deCharms, 1968). In this sense, the definition of autonomy within the SDT tradition is quite literal, entailing *self* (as opposed to external) regulation and determination. In contrast to a sense of autonomy, the feeling of

being *controlled* is defined by an *external* perceived locus of causality (Deci & Ryan, 2000) or the sense that behavior is determined by factors outside the self or beyond *self*-control. Despite differences in the conceptualization of autonomy within the psychoanalytic and humanist psychological perspectives, there is no dispute regarding the important role that parents play in fostering behavioral autonomy within their children. Yet, there remains a need to better understand how different aspects of parenting contribute to adolescents' *feelings* of autonomy and the influence of these feelings of autonomy on adolescent outcomes over time.

Parenting and Adolescent Autonomy

Despite the vast amount of research attesting to the importance of parenting to adolescents' autonomy, there is a great deal of controversy surrounding the conceptualization of those aspects of parenting related to autonomy in addition to the operationalization of autonomy itself. Most research investigating the association between parenting and adolescent autonomy considers the capacity for autonomy as age-dependent. Consequently, much of this research concerns different forms of parental autonomy-granting. Autonomy-granting encompasses the extent to which parents allow their children to engage in particular behaviors or allow individual expression and decision-making within the family (Steinberg, Lamborn, Darling, Mounts, & Dornbusch, 1994). Parents are thus portrayed as the gatekeepers to autonomy, serving as both barriers to, and access points for, choices and opportunities. The literature on autonomy-granting largely reflects the premise that parents have an impact on adolescents' sense of autonomy through the behavioral choices they allow their adolescents and the extent to which they grant their adolescents the opportunity for self-regulation.

Many studies conceptualize parental autonomy-granting as being on the opposite end of the spectrum from parental control. Such studies largely focus on two topics, parental behavioral control (parental monitoring) and parental psychological control (emotional manipulation; e.g. Kakihara & Tilton-Weaver, 2009; Barber, 1996). In general, parental monitoring is typically related to higher levels of achievement and lower levels of psychological difficulty (e.g. Kindap, Sayil, & Kumru, 2008; Pittman and Chase-Lansdale, 2001; Studsrod & Bru, 2009), and psychological control is more often associated with lower levels of achievement and higher levels of psychological difficulty (e.g. Aunola & Nurmi, 2004; Bean, Bush, McKenry, & Wilson, 2003; Gray & Steinberg, 1999; Loukas, Paulos, & Robinson, 2005; Wang, Pomerantz, & Chen, 2007). On the face of it, the association between parental monitoring (as a form of behavioral control) and positive developmental outcomes seems to run counter to the widely held premise that academic success and well-being require freedom from a controlling environment, and instead supports the view that some types of control can be beneficial to adolescents.

Such seemingly incongruent findings on how autonomy-granting and parental control relate to adolescent academic and mental health outcomes indicates a need for researchers to consider the myriad ways in which autonomy is operationalized and work toward both reconciling conceptual differences and forming of a common language that can be used to discuss human autonomy across disciplinary and theoretical boundaries. In support of such efforts, Farkas & Grolnick (2010) argue that the term *parental structure* should be used in place of *behavioral control* to denote parental monitoring in order to avoid confusion between behavioral control exercised through parental monitoring, which can often support autonomy, and other more restrictive types of behavioral

parental control, such as corporal punishment. Similarly, Silk, Morris, Kanaya & Steinberg (2003) argue that parental control and autonomy-granting (operationalized as parental monitoring) be investigated as two distinct constructs. In keeping with these arguments, this study investigates both parental psychological control and parental monitoring as they relate to adolescents' feelings of autonomy, conceptualizing parenting monitoring as a type of parental structure as opposed to behavioral control.

In addition to their insights on the conceptualization of parenting monitoring within an autonomy framework, Farkas & Grolnick (2010) move beyond typical investigations of parental autonomy-granting to emphasize the importance of their *knowledge* of parental rules and expectations and not simply the degree of enforcement of these rules and expectations, to adolescents' autonomy. The authors emphasize that parental communication and discussion of family rules and expectations are other important aspects of parenting that may be associated with adolescents' autonomy. Farkas and Grolnick (2010) point out that by providing information to their adolescents, parents contribute to their adolescents' capacity to make decisions, thereby enhancing feelings of control, volition and agency. Thus, in addition to examination of parental psychological control and parental monitoring, this study also examines the relation of parental discussion of family rules to adolescents' autonomy and related developmental outcomes over time.

In further efforts to more concisely operationalize adolescent autonomy, researchers adopting an SDT perspective emphasize the need to distinguish between autonomy-granting and *autonomy-support* on the part of parents. Instead of merely being recipients of choices and opportunities granted or bestowed by their parents, adolescents

are viewed as active participants in the behavioral choices they make. Parental autonomy-support includes such practices as taking their children's perspective into consideration and allowing them to have decision-making (Soenens & Vansteenkiste, 2005). Studies find that parental autonomy-support of this kind is related to adolescents' feelings of autonomy in addition to increased levels of self-regulation and achievement (d'Ailly, 2003; Soenens & Vansteenkiste, 2005). Despite the known association between parental autonomy-support and positive academic outcomes among adolescents, the majority of studies addressing *autonomy-support* have focused on the autonomy-support of teachers.

The relatively limited research on autonomy-support in the parent context, coupled with inconsistent investigation and interpretation of how parental control relates to adolescent outcomes, signals the need for focused studies to examine and compare how different aspects of parenting relate to adolescent autonomy and impact developmental outcomes over time. Simultaneously consideration of *how* parents parent (i.e. autonomy-support versus control) and *what* parents do when they parent (e.g. parental monitoring, discussion of rules) as each relates to adolescents' autonomy may help to elucidate processes involved in the academic success and well-being of adolescents.

That leaves the question: How do we measure adolescent autonomy? According to Reeve and Assor (2011), autonomy entails both the feeling that "one is not compelled by external or by intra-personal forces to adopt goals and enact behaviors one does not fully identify with" and the behaviors involved in "construct[ing], maintain[ing], and realiz[ing these] goals, values, and interests" (p. 111). Within the literature on autonomy,

however, studies typically examine only the association between environmental factors and behavioral autonomy. Thus, the association between a controlling environment and perceived autonomy is typically assumed or inferred. To answer this question, the importance of the perception of autonomy must be considered.

Perceived Autonomy

Few studies directly examine individuals' perceptions of their own autonomy and feelings of autonomy and the relationship between these perceptions and feelings and their behavioral outcomes. Those studies that do directly measure autonomy often operationalize autonomy in terms of intrinsic motivation, that is, engaging in an activity for the sake of the activity itself (e.g. Gottfried, Fleming & Gottfried, 1996; Ryan, 1995). Fewer studies focus on the degree to which adolescents' feel a sense of control as a measure of their sense of autonomy. Instead, adolescents are viewed as *being* controlled by either the psychological or behavioral restrictions imposed by their parents, rather than *having control* or *feeling in control*. Weisz, Southam-Gerow & McCarty (2001) define control as an individual's capacity to produce a desired outcome. In this view, feelings of control involve not only not being *compelled* by external forces (above), but also not being *limited* by external forces. According to Weisz, Francis and Bearman (2010), perceived control involves perceived power to "[influence] objective conditions to make them fit one's wishes," that is, a contingency between values or desires and outcomes.

The importance of feelings of control to adolescent outcomes is evidenced by research indicating that lower levels of perceived control are associated with higher depression and anxiety symptoms (Auerbach, Tsai & Abela, 2010; Frala, Leen-Feldner, Blumenthal & Barreto, 2010; McGinn, Jerome & Nooner, 2010; Scott & Weems, 2010);

when academic outcomes were examined, higher levels of perceived control are related to higher grades (Gilman & Anderman, 2006; Ramirez & Avila, 2003). Additionally, research indicates that parenting is associated with adolescents' sense of control (Becker, Ginsburg, Domingues & Tein, 2010; McClun & Merrell, 1998) with some research suggesting that parent psychological control, in particular, may be negatively associated with children's feelings of control (Soenens & Vansteenkiste, 2010). Additionally, Kakihara, Tilton-Weaver & Stattin (2010) find that *feeling* over-controlled by parents partially mediates the association between parental control and depressive symptoms. Together, these findings underscore the potential for adolescents' feelings of perceived control to serve as a mechanism by which parental psychological control and structure contribute to adolescents' academic success and well-being.

A largely neglected, yet potentially important, contribution to adolescents' sense of autonomy is their parents' own perceptions of control. In the same way that parent mental health is associated with child mental health, it is possible that adolescents' feelings of control are influenced by their parents' feelings of control. Wainryb & Turiel (1994) report that the degree to which parents perceive and value their own autonomy impacts the degree to which they provide their own children with choice. Thus, in addition to exploring how different aspects of parenting are related to adolescents' sense of control and related academic success and well-being over time, this study seeks to make an additional unique contribution by examining the association between parents' perceived control and adolescents' perceived control.

Current Study

The current study explored the association between both parenting and parents' perceived control and adolescents' perceived control and their impact on adolescents' academic and occupational success and well-being over time. Because most studies examining the relationship between parental control and adolescent outcomes have examined direct effects (Soenens & Vansteenkiste, 2010), the first aim of this study was to specifically examine whether and to what extent adolescents' *feelings of control* mediate the association between parental psychological control and structure (i.e. parental monitoring, parental discussion of family rules) and adolescents' academic and mental health outcomes. In examining which measures of parenting are associated with adolescents' feelings of control, the second aim of this study was to determine whether parental monitoring could better be conceptualized as a form of behavioral control or as a form of parental structure, and further, whether parental discussion of family rules could better be conceptualized as a form of parental autonomy-granting or as a form of parental structure.

In most studies, exploration of the relation of the family context to adolescents' sense of autonomy is limited to investigation of parental control (or its converse, autonomy-granting) and parental monitoring. Drawing from research demonstrating a link between parent and child mental health, the third aim of this study was to expand current conceptualizations of the aspects of parenting that may be associated with adolescents' sense of control to additionally examine whether parents' own sense of control may influence their adolescents sense of control.

Method

Procedure

This study utilized data from the Panel Study of Income Dynamics (PSID), focusing on the Child Development Supplement (CDS-II) collected in 2002 and Transition to Adulthood (TA-II) collected in 2007. The main PSID study collected demographic and socioeconomic data from 1968 to 1997 and biennially thereafter from a nationally representative sample of approximately 18,000 individuals living in 5,000 families. The CDS collected information on developmental outcomes for children of the original PSID sample in 1997, 2002-2003 and 2007-2008. Data collected in 1997 surveyed children aged 0-12 (n=3196) and their primary caregivers; data collected in 2002 surveyed these same children aged 5-17 (n=2904) and their primary caregivers. Starting in 2005, the Transition to Adulthood (TA) collected data on the developmental pathways and outcomes for 936 young adults (18-21 years old) for whom data had previously been captured in CDS-I and II. In 2007, a second wave of TA data (TA-II) was collected, surveying the same adults from the first wave of TA (TA-I), with the addition of adults who had “aged out” of the CDS between 2005 and 2007 (n=1115). The present study underwent a complete IRB review in order to gain access to the PSID data housed at the Institute for Social Research and the University of Michigan.

Participants

This study focuses on an adolescent subset of the CDS-II aged 13-17 in 2002/2003 who also completed the TA-II in 2007/2008 when they were aged 18-23 (N=963) along with their primary caregiver. Although 1115 young adults were sampled for the TA-II data collection, 152 of these individuals did not participate in the CDS-II

data collection, thus limiting the sample size available for longitudinal analysis. For ease of discussion data collected in 2002 will be referred to as Time 1 (T1) and data collected in 2007 will be referred to as Time 2 (T2).

Adolescents ranged in age from 12-19 years ($M=16.09$, $SD=1.53$) at Wave 1 and 18-23 ($M=20.53$, $SD=1.54$) at Wave 2. Forty-seven percent of the sample was male ($n=451$) and 53 % of the sample was female ($n=512$). The sample was 47.9% European-American ($n=461$), 42.5% African-American ($n=409$) and 9.3% an “other” ethnicity ($n=90$). Data on ethnicity were missing for 3 participants. Ninety percent ($n=863$) of adolescents’ primary caregivers were their biological mothers, while 1.5% percent were non-biological mothers (stepmother, adoptive mother, foster mother, $n=15$). Six percent of primary caregivers were fathers ($n=59$) with the remaining 2.5% of caregivers including adolescents’ grandmothers ($n=17$), aunts ($n=5$) or other relations ($n=5$). For ease of discussion, adolescents’ primary caregivers are referred to as *parents* in the text of this article, although 2.5% of these caregivers were *parental figures* and not *parents*.

Measures

Demographic and T1 Controls.

Time Invariant Controls. Adolescents’ sex, age and ethnicity were used as demographic control variables in all analyses. Primary caregivers indicated their child’s ethnicity for the CDS-I data collection in 1997. Because all individuals who participated in either the CDS-II or TA-II had data collected at the CDS-I time point and this was the only year for which complete data on child ethnicity was available, data from the CDS-I was used to establish adolescent ethnicity. Response options were: 1 = *White, non-Hispanic*, 2 = *Black, non-Hispanic*, 3 = *Hispanic*, 4 = *Asian or Pacific Islander*, 5 =

American Indian or Alaskan Native, 7 = *Other*. Because fewer than 10% of adolescents were identified as *Hispanic*, *Asian or Pacific Islander*, *American Indian or Alaskan Native*, or *Other*, these responses were collapsed into one category, “Other” ethnicity.

Time Variant Controls. Adolescents’ family income was used as a marker for socio-economic status and was used as a demographic control in all analyses. Primary caregivers reported total family income from the tax year 2002. This variable included the sum of all income (wages, social security, losses) from the head of household, “wife,” and other family members. Family incomes ranged from \$0 to \$2.05 million with a median of \$52,368.00 ($M=\$71,675.04$, $SD=\$111,773.00$). Family income was recoded as follows: 1 ($\$0.00$ to $\$5,000.00$), 2 ($\$5,001.00$ to $\$10,000.00$), 3 ($\$10,001.00$ to $\$15,000.00$), 4 ($\$15,001.00$ to $\$20,000.00$), 5 ($\$20,001.00$ to $\$25,000.00$), 6 ($\$25,001.00$ to $\$30,000.00$), 7 ($\$30,001.00$ to $\$35,000.00$), 8 ($\$35,001.00$ to $\$40,000.00$), 9 ($\$45,001.00$ to $\$50,000.00$), 10 ($\$50,001.00$ to $\$60,000.00$), 11 ($\$60,001.00$ to $\$75,000.00$), 12 ($\$75,001.00$ to $\$95,000.00$), 13 ($\$95,001.00$ to $\$120,000.00$), 14 ($\$120,001.00$ to $\$150,000.00$), 15 ($\$150,001.00$ to $\$185,000.00$), 16 ($\$185,001.00$ to $\$225,000.00$), 17 ($\$225,001.00$ to $\$9,999,999.00$).

High School GPA. Young adults retrospectively reported their high school GPA at T1 during the TA-II data collection in addition to the highest permissible GPA given by their school. In order to assure that all GPAs were on the same 10-point scale, each adolescent’s reported high school GPA was divided by their reported maximum possible GPA and then multiplied by 10 ($M=8.04$, $SD=1.21$). Data for this item were not collected for individuals who did not graduate from high school or who had a GED ($n=156$).

Emotional well-being. Emotional well-being at T1 was assessed using 3 items from the Midlife in the United States (MIDUS) study. Questions asked adolescents to indicate how often, during the last month they felt “happy,” “interested in life,” and “satisfied” Response options ranged from *1= Never* to *6= Every Day* with higher scores indicating greater emotional well-being ($M=4.54$, $SD=1.06$, $\alpha=.86$).

Parenting: Structure and Control (T1).

Parental Monitoring. This scale consisted of four items asking adolescents to indicate the extent to which they believe their parents are aware of the adolescent’s behaviors. Sample items included, “Do your parents know what you do during your free time?” and “Do your parents know which friends you hang out with during your free time?” Response options ranged from *1=Never* to *5=Almost Always* with higher scores indicating more parental monitoring ($M = 3.69$, $SD=.88$; $\alpha=.73$).

Parental Discussion of Rules. One item was used to measure the extent to which parents’ discussed family rules with their adolescent, “How often do you discuss rules and limits with [your] child?” Response options ranged from *1=Never* to *5= Every Day* with higher scores indicating more discussion of rules ($M=3.28$, $SD=1.16$).

Psychologically Controlling Mothering. Five items were used assess the extent to which adolescents’ viewed their mothers’ behaviors as psychologically controlling through such means as love withdrawal or guilt induction. Sample items included, “My mother blames me for other family members’ problems,” “My mother is a person who, if I hurt her feelings, she stops talking to me until I please her again,” and “My mother is a person who is always trying to change how I feel or think about things.” Response options ranged from *1=not like her* to *3=a lot like her* with higher scores indicating more

parental control ($M=1.52$, $SD=.48$; $\alpha=.74$). [Note: The measure of psychologically controlling fathering was not used due a low response rate of fathers ($n=596$) which would have contributed to greater than 15% of the data missing in the SEM model].

Parents' Sense of Control (T1).

Given that feelings of autonomy may be domain specific (Vallerand, 1997), this study examined not only caregivers' feelings of control over adolescents' academic outcomes, but also feelings of control more generally.

Parent Academic Control. Adolescents' primary caregivers reported on their educational aspirations and expectations for their adolescent. Response categories were recoded to range from 1 (Finish Some High School) to 6 (Graduate from Graduate School). Caregiver academic control was defined as the contingency between caregiver educational aspirations and expectations for their child. As such, expectations were subtracted from aspirations and then reverse-coded on a scale from 0 = *low contingency between aspirations and expectations* to 5 = *high contingency between aspirations and expectations* with higher numbers indicating more academic control ($M=4.24$, $SD=1.07$).

Parent Global Control. Adolescents' primary caregivers answered three questions from the Pearlin Self-Efficacy questionnaire indicating the level of control they felt over aspects of their daily lives. Items were, "I have little control over things that happen to me," "There is little I can do to change important things in my life," and "I feel pushed around in life." Items were recoded such that response options ranged from 1 = *strongly agree* to 4 = *strongly disagree* with higher scores indicating greater feelings of control ($M=3.01$, $SD=.61$; $\alpha=.75$).

Adolescents' Sense of Control (T1).

Similar to the case with primary caregivers, this study also included measures of adolescents' feelings of control over future academic and occupational outcomes in addition to feelings of control over the future more generally.

Adolescent Academic Control. Similar to adolescents' primary caregiver, adolescents' academic control was defined as the contingency between adolescent-reported educational aspirations and expectations for themselves. Response categories for educational aspirations and expectations ranged from 1 (Finish Some High School) to 6 (Graduate from Graduate School). Expectations were subtracted from aspirations and then reverse coded such that responses ranged from $0 = \text{low contingency between aspirations and expectations}$ to $5 = \text{high contingency between aspirations and expectations}$ from higher numbers indicated more control ($M=4.54$, $SD=.79$).

Occupational Control. Occupational control was assessed by a single item asking adolescents and young adults to indicate, "How likely is it that you get [the job you want most]?" Response options ranged from $1 = \text{no chance}$ to $5 = \text{it will happen}$ with higher levels indicating more occupational control ($M=3.76$, $SD=.95$).

Future Control. Future control was assessed by three items asking adolescents to indicate to what extent they worry about or expect negative future events. Sample items included, "How often do you worry that your family may not have enough money to pay for things?" "How often do you worry that you will not get a good job when you are an adult?" Items were recoded such that response options were $1 = \text{everyday}$, $2 = \text{almost every day}$, $3 = \text{2 or 3 times a week}$, $4 = \text{about once a week}$, $5 = \text{once or twice a month}$, $6 = \text{never}$

with higher scores indicating a greater sense of control over the future ($M = 4.78$, $SD=1.07$, $\alpha=.64$).

Young Adult Outcomes (T2).

Academic Success. Academic success was assessed according to the level of schooling completed by young adults at T2. Three separate questions asking about level of schooling were used to create one continuous item. Items were recoded to create a measure of academic success such that *1=never completed high school*, *2=high school graduate or GED*, *3=started a 2-year or 4-year degree but discontinued attendance*, *4=currently enrolled in or completed a two-year degree*, *5=currently enrolled in or completed a 4-year degree* ($M = 3.47$, $SD=1.05$). Because participants were aged 18-23, no distinction was made between individuals who had begun or completed a college degree unless individuals indicated that they had discontinued college attendance.

Occupational Success. Occupational success was assessed by employment status indicating whether young adults were *employed or a student* versus *unemployed and not in school* at T2.

Emotional well-being. Emotional well-being was assessed using 3 items from the Midlife in the United States (MIDUS) study. Questions asked adolescents to indicate how often, during the last month they felt “happy,” “interested in life,” and “satisfied” Response options ranged from *1= Never* to *6= Everyday* with higher scores indicating greater emotional well-being ($M=5.14$, $SD=.91$, $\alpha=.78$)

Analysis Plan

The data were analyzed in three stages. First, t-tests and ANOVAs were conducted to examine whether there were any differences in key study variables

according to sex and ethnicity. Next, in order to validate the use of the contingency between parent expectations and aspirations as a measure of parent academic control, caregiver-reported reasons for the discrepancy between their expectation and aspirations were examined.

Finally, structural equation modeling (SEM) tested the model depicted in Figure 2.1. This model tested whether three measures of parental control and structure at Time 1 were longitudinally associated with young adults' academic success and well-being at Wave 2 *via* adolescents' feelings of control at Time 1. Additionally, this model tested whether parents' own feelings of control were associated with adolescents' feelings of control at Time 1 and subsequent academic success and well-being when they were young adults at Time 2. Gender, age, ethnicity and family income at Time 1 were used as control variables. In addition, autoregressive paths between adolescents' high school GPA and well-being at Time 1 and Time 2 outcomes were included in the model to control for prior emotional well-being and academic success. Analyses were conducted using MPlus (Version 6.1).

MPlus was selected for use due to its efficiency in dealing with missing data. As is a common problem in secondary-data analysis of a national dataset, several study variables had a significant level of missing data; covariance coverage ranged from 79.8% to 100.0%. Study details on missing data and data collection procedures can be found on the PSID-CDS website: <http://psidonline.isr.umich.edu/Guide/documents.aspx>. In order to account for missing data, t-tests were first performed to determine whether those participants who were missing data on study variables differed from those participants who did not have missing data. Comparisons were made for *job control* and *mother*

psychological control due to these variables having the greatest amount of missing data. For mother psychological control, those participants who had missing data were less likely to identify as an “Other” ethnicity and more likely to be female than those participants with complete data. Participants with missing data did not differ from those participants with complete data with respect to any other demographic variables. For job control, those participants who had missing data were more likely to be older, less likely to identify as African-American, and more likely to identify as European-American. To account for the inclusion of participants with missing data, all analyses controlled for demographic variables that were related to patterns of missing data (i.e. sex, age, ethnicity). Attempts to use the *auxiliary* command in MPlus to reduce the uncertainty caused by the missing data and improve the precision of the estimation (Asparouhov & Muthen, 2008) led to non-convergence of the study model.

Because the PSID initially oversampled low-income and African-American families, all analyses were conducted using a sample weight that takes into account differential probabilities of selection due to the original PSID sample design as well as subsequent attrition. Due to one of the main outcomes (occupational success) being dichotomous, variance-adjusted weighted least square estimation (WLSMV) was used. WLSMV adjusts for non-normality and small sample sizes with categorical data.

Results

Descriptive Analyses

T-tests revealed that adolescent females reported higher levels of parental monitoring ($M=3.80$, $SD=.87$) than males ($M=3.57$, $SD=.87$; $t(843) = -3.68$, $p < .001$). Females also reported higher levels of emotional well-being at Time 1 ($M=4.62$,

SD=1.01) than males ($M=4.45$, $SD=1.10$; $t(862) = -2.34$, $p < .05$). In addition, females reported higher levels of job control ($M=3.88$, $SD=.93$) than males ($M=3.62$, $SD=.95$; $t(825) = -3.95$, $p < .001$). Finally, females reported higher high school GPAs at Time 1 and higher levels of educational success ($M=8.26$, $SD=1.14$; $M=3.12$, $SD=1.03$; respectively) than males at T2 ($M=7.75$, $SD=1.23$; $t(697) = -5.58$, $p < .001$; $M=2.93$, $SD=1.08$; $t(950) = -2.70$, $p < .01$; respectively). Males reported higher levels of unemployment ($M=.17$, $SD=.38$) than females at Time 2 ($M=.11$, $SD=.31$; $t(961) = 2.76$, $p < .01$).

Analysis of variance (ANOVA) revealed several significant differences between ethnic groups with respect study variables. At Time 1, adolescents identifying as European-American, African-American and 'Other' Ethnicity differed with respect to reported levels of parental monitoring ($F(2,839)=15.50$, $p=.000$), mother control ($F(2,816)=3.53$, $p=.03$), parental discussion of rules ($F(2,959) =42.46$, $p=.000$), future control ($F(2,873)=10.59$, $p=.000$), educational control ($F(2,834)=6.07$, $p=.002$), occupational control ($F(2,821)=6.30$, $p=.002$), emotional well-being ($F(2,858)=3.94$, $p=.020$), and high school GPA ($F(2,694)=25.33$, $p=.000$). At Time 1, parents' report of family income ($F(2,949)=103.42$, $p=.000$) and their own sense of academic control ($F(2,953)=6.19$, $p=.002$) also differed by adolescent ethnicity. At Time 2, adolescents identifying as European-American, African-American and 'Other' Ethnicity differed with respect to reported levels of emotional well-being ($F(2,957)=6.88$, $p=.001$), academic success ($F(2,946)=25.58$, $p=.000$), and levels of unemployment ($F(2,959)=19.45$, $p=.000$).

Post-hoc analyses employing Tukey methodology revealed that European-American adolescents reported higher levels of parental monitoring ($M=3.87$, $SD=.78$) than both African-American ($M=3.54$, $SD=.94$; $p<.001$) and 'Other' Ethnicity students ($M=3.56$, $SD=.93$; $p<.01$). However, European-American adolescents reported lower levels of controlling mothering ($M=1.47$, $SD=.46$) than African-American students ($M=1.56$, $SD=.48$; $p<.05$), but not 'Other' ethnicity students. With respect to parent discussion of family rules, African-American adolescents reported higher levels of parent discussion of family rules ($M=3.65$, $SD=1.14$) than both European-American ($M=2.95$, $SD=1.05$, $p<.001$) and 'Other' Ethnicity adolescents ($M=3.31$, $SD=1.31$, $p<.05$). The difference between reported levels of parental discussion of family rules between 'Other' ethnicity adolescents and European-American students was also significant ($p<.05$).

With respect to adolescents feelings of control at Time 1, European-American adolescents reported higher levels of perceived future control ($M=4.95$, $SD=.92$) than both African-American ($M=4.65$, $SD=1.17$; $p<.01$) and 'Other' ethnicity adolescents ($M=4.52$, $SD=1.18$, $p<.001$). European-American adolescents also reported higher levels of academic control ($M=4.64$, $SD=.64$) than African-American adolescents ($M=4.45$, $SD=.91$; $p<.01$), but not 'Other' ethnicity adolescents. However, African-American adolescents reported higher levels of occupational control ($M=3.89$, $SD=.93$; $p<.01$) than European-American adolescents ($M=3.66$, $SD=.92$; $p<.01$). The difference in reported levels of occupational control between African-American and 'Other' ethnicity adolescents was not significantly different.

African-American adolescents reported higher levels of emotional well-being ($M=4.64$, $SD=1.01$) than 'Other' ethnicity adolescents ($M=4.30$, $SD=1.17$; $p<.05$), but not

European-American adolescents. However European-American adolescents reported higher high school GPAs ($M=8.32$, $SD=1.14$) than both African-American ($M=7.65$, $SD=1.18$, $p<.001$) and ‘Other’ ethnicity adolescents ($M=7.96$, $SD=1.28$, $p<.05$).

With respect parent report of control at Time 1, parents of European-American adolescents reported higher levels of educational control ($M=4.37$, $SD=.95$) than parents of African-American adolescents ($M=4.11$, $SD=1.15$; $p<.01$). Although the omnibus ANOVA test was not significant for ethnic differences in the parent report of global control, post-hoc analyses employing Tukey methodology indicated that parents of ‘Other’ ethnicity adolescents reported higher levels of global control ($M=2.04$, $SD=.61$) than parents of European-American adolescents ($M=1.88$, $SD=.57$; $p<.05$).

For Time 2 outcomes, African-American young adults reported higher levels of emotional well-being ($M=5.26$, $SD=.92$) than both European-American ($M=5.08$, $SD=.89$, $p<.01$) and ‘Other’ ethnicity adolescents ($M=4.94$, $SD=.97$, $p<.01$). On the other hand, African-American young adults ($M=2.76$, $SD=1.09$) reported lower levels of academic success than both European-American ($M=3.26$, $SD=.96$, $p<.001$) and ‘Other’ ethnicity young adults ($M=3.07$, $SD=1.04$, $p<.05$). Finally, African-American young adults reported higher levels of unemployment ($M=.22$, $SD=.41$) than both European-American ($M=.08$, $SD=.27$, $p<.001$) and ‘Other’ ethnicity young adults ($M=.10$, $SD=.30$, $p<.01$).

Examining the Contingency between Educational Aspirations and Expectations as a Measure of Parent Academic Control

With respect to parents’ sense of control over their adolescents’ educational outcomes, 401 parents believed their children would receive less education than they

would have liked them to. Of the 251 parents that indicated “what might keep [her/his] child from getting as much education as s/he want[ed],” 27.1% (n=68) attributed this discrepancy to "costs of education, money, lack of financial support" while 19.5% (n=49) attributed the discrepancy to "(lack of) ambition, motivation, attitude" and 11.1% (n=28) attributed it to "change in personal interests or goals". Other reasons for parents believing their child would receive less education that they wanted included “peer influence/hanging out with the ‘wrong crowd’” (n=17), “gets a job instead, interested in non-academic fields” (n=14), and “marriage/relationship” or “having children” (n=15). In defining control as high contingency between values or desires and outcomes (Weisz et al., 2010) and examining the reasons parents endorsed for the lack of contingency between their desired education for their children and what they believe will be their children’s educational outcome, it is clear that many parents feel a lack of control over their adolescents’ academic destiny.

One could imagine that a discrepancy between the educational expectations and aspirations for their children might reflect parents’ disappointment in their children or an accurate assessment of their capabilities. However, these data instead reflect that this discrepancy primarily reflects parents' assessment of the resources available to their children to pursue education. Either way, children’s perceived ability and the ability to secure the resources necessary to enable their children to pursue a desired level of education are both factors that parents perceive as beyond their control. Interestingly, twenty-two parents indicated that “nothing” would keep their children from getting the education their children wanted, but still reported that their children would receive less

education than the parents wanted for them, perhaps reflecting more global feelings of a lack of control over their child's future educational attainment.

Main Analyses

Main analyses employed a structural equation modeling approach to examine whether parental monitoring, controlling mothering and parental discussion of rules at Time 1 were longitudinally associated with young adults' academic success and well-being at Time 2 *via* adolescents' perceived future control, academic control and occupational control at Time 1. Additionally, this model tested whether parents' own feelings of global control and academic control at Time 1 were associated with adolescents' feelings of control at Time 1 and subsequent academic success and well-being when they were young adults at Time 2. In addition, pathways between all time invariant controls (sex, age, ethnicity) and each variable were included in the model. Only pathways between family income and Time 1 variables were included. Finally, to account for variance explained by academic achievement and mental health at Time 1, autoregressive paths between Time 1 emotional well-being and Time 2 emotional well-being in addition to autoregressive paths between high school GPA and both Time 2 academic success and unemployment were included (See Figure 2.1)

The model was first tested restricting all pathways between measures of parenting and parental control and Time 2 outcomes. However, modification indices revealed direct pathways between parental monitoring and both emotional well-being and academic success at Time 2. Further, modification indices indicated a significant pathway between parent academic control and young adult academic success at T2. Finally, modification indices revealed a significant pathway between family income at Time 1 and academic

success at Time 2. According to fit criteria suggested by Hu and Bentler (1995), the final model fit the data well ($\chi^2(383) = 508.714, p < .001$; RMSEA = .019; CFI = .941, TLI=.920). All significant pathways are depicted in Figure 2.2. Due to space constraints, the coefficients for the pathways between control variables and other study variables could not be included in Figure 2.2. However, significant pathways between control variables and the direction of these relationships are noted next to each of the study variables in Figure 2.2. Coefficients for these pathways are included in the text below.

Results indicated that controlling mothering and parental discussion of family rules were both negatively related to adolescents' future control ($\beta = -.29, p < .001$; $\beta = -.13, p < .05$; respectively). Parental monitoring was directly associated with young adults' well-being ($\beta = .16, p < .05$) and academic success ($\beta = .12, p < .05$) at Time 2. Parents' sense of global control was associated with adolescents' feelings of future control ($\beta = .23, p < .001$) in addition to adolescents sense of academic control ($\beta = .12, p < .05$) and occupational control ($\beta = .17, p < .01$). Parent academic control was related to adolescents' academic control at Time 1 ($\beta = .10, p < .01$) in addition to young adults' academic success at Time 2 ($\beta = .17, p < .001$).

In turn, adolescents' sense of future control contributed to both their well-being ($\beta = .15, p < .05$) and academic success ($\beta = .17, p < .01$) at Time 2. Adolescents' academic control also contributed to their academic success ($\beta = .09, p < .01$) at Time 2. Adolescents' sense of occupational control was not related to any young adult outcomes at Time 2. The autoregressive path between adolescent well-being at Time 1 and young adult well-being at Time 2 was also significant ($\beta = .26, p < .001$) as was the autoregressive pathway between adolescent high school GPA and academic success at

Time 2 ($\beta = .12, p < .05$). The pathway between high school GPA and unemployment at T2 was not significant.

Analysis of indirect effects revealed a significant path from controlling mothering to emotional well-being at Time 2 via adolescents' sense of future control at Time 1 ($\beta = -.04, p < .05$). There was also a significant indirect effect of controlling mothering at Time 1 to adolescents' academic success at Time 2 via adolescents' sense of control at Time 1 ($\beta = -.05, p < .01$). Although parental discussion of rules was negatively associated with adolescents' sense of future control, the longitudinal indirect effects of discussion of rules on both adolescent well-being and academic success were also only marginally significant ($\beta = -.02, p < .10$; $\beta = -.02, p < .10$); respectively).

Examining the longitudinal indirect effects of parents' sense of control on adolescent outcomes indicated that parents' feelings of global control at Time 1 were significantly associated with adolescents well-being at Time 2 via adolescents' sense of future control at Time 1 ($\beta = .04, p < .05$). Parents' feelings of global control at Time 1 were also indirectly associated with adolescents' academic success at Time 2 via both adolescents' sense of future control ($\beta = .04, p < .05$) and adolescents' feelings of academic control ($\beta = .01, p < .10$), though the indirect path via adolescents' feelings of academic control was only marginally significant. Finally, in addition to the direct association between parents' sense of academic control on their adolescents' academic success at Time 2, there was also a marginal indirect relationship between parents' academic control and adolescents' academic success via adolescents' feelings of academic control ($\beta = .01, p < .10$).

With respect to demographic controls, there were a number of significant associations. Compared to being male, being female was associated with higher levels of parental monitoring ($\beta = .16, p < .01$), higher perceived occupational control ($\beta = .12, p < .05$), and higher high school GPA ($\beta = .15, p < .01$), but lower perceived future control ($\beta = -.18, p < .01$). Being female was also associated with higher levels of emotional well being at Time 2 ($\beta = .12, p < .05$) compared to being male. Being older was associated with lower levels of parental monitoring ($\beta = -.15, p < .01$), lower parental discussion of rules ($\beta = -.18, p < .001$), and lower perceived future control ($\beta = -.17, p < .01$).

Compared to being European-American, being African-American was related to reporting lower levels of parental monitoring ($\beta = -.12, p < .01$), higher levels of parental discussion of family rules ($\beta = .11, p < .05$), higher levels of perceived occupational control ($\beta = .11, p < .05$), and higher levels of adolescent well-being ($\beta = .07, p < .05$), but having a lower high school GPA ($\beta = -.22, p < .001$). Finally, being African-American was also associated with an increased probability of being unemployed ($\beta = .16, p < .01$) at Time 2. Being a member of an 'Other' ethnicity was associated with higher levels of discussion of family rules ($\beta = .13, p < .01$) compared to being European-American.

Finally, a higher family income at Time 1 was associated with lower levels of controlling mothering ($\beta = -.16, p < .01$), higher levels of parental monitoring ($\beta = .12, p < .05$), higher levels of parent global control ($\beta = .22, p < .001$), higher levels of parent academic control ($\beta = .14, p < .01$), higher levels of adolescents well being at Time 1 ($\beta = .13, p < .05$), and higher levels of academic success at Time 2 ($\beta = .31, p < .001$).

Discussion

Numerous studies point to the importance of adolescents' autonomy to positive developmental outcomes including academic success and emotional well-being (e.g. d'Ailly, 2003; Lokes, et al., 2010; Koydemir-Ozden & Demir, 2009; Soenens & Vansteenkiste, 2005; Rudy et al., 2008; Wang, 2009). Across disciplinary boundaries, researchers agree that parents play a key role in influencing adolescent autonomy in serving to either foster or restrict not only adolescents' behaviors but also feelings of agency and control. However, lack of a common language to discuss autonomy, and theoretical disagreement over what is meant by autonomy, has not only made it difficult to draw accurate conclusions and make generalizations about the role of autonomy in adolescents' academic success and mental health, but has also limited the possibility for communication across disciplinary and theoretical boundaries.

Drawing from both the psychodynamic and humanist empirical traditions, this study explored the association between both parenting and parents' perceived control and adolescents' perceived control and their impact on adolescents' academic and occupational success and well-being over time. Although existing research touts the importance of both parental monitoring and parental autonomy-support to adolescent autonomy, few studies directly measure the association between measures of parenting and adolescents' perceived autonomy. Further, due to conflicting operationalizations of autonomy, controversy as to the association between parental monitoring and adolescent autonomy and whether parental monitoring should be conceptualized as a form of behavioral control remains (Farkas & Grolnick, 2010). Aside from controversy as to how existing measures of parenting relate to adolescent autonomy, there has been limited

consideration to how other aspects of parenting, such as parents' own feelings of autonomy or control may related to adolescent autonomy. By focusing on the concept of control and the influence of parental monitoring, parental psychological control, parental discussion of rules, and parental control on adolescents' emotional well-being and academic success via adolescents' feelings of control, this study sought to overcome these limitations.

With respect to the first aim of this study, results indicate that adolescents' feelings of control mediate the longitudinal negative association between controlling parenting and both adolescents' well-being and academic success. In contrast, parents' behavioral control (parenting monitoring) was directly positively associated with these outcomes. As previously noted, many studies of autonomy do not directly measure autonomy as a construct, but instead make the assumption that *if* a relationship between measures of parental autonomy-granting or autonomy-support and outcomes is observed, the hypothesis that *autonomy* is also associated with positive outcomes is supported. Findings from this study indicate that adolescents' perception of future control does, in fact, help to explain the impact of controlling parenting on young adults' emotional well-being and academic success.

With respect to the second aim of this study, the findings further indicate that while parental monitoring may influence developmental outcomes, parental monitoring does not seem to relate to adolescents' sense of autonomy, thus supporting the notion that parental monitoring may not be best operationalized as a type of parental *control*. Rather, as Farkas & Grolnick (2010) suggest, parental control may be more aptly conceptualized as a measure of parental structure. Conceptualizing parental monitoring in terms of

structure may help to differentiate parental monitoring from other negative types of parental control. This distinction may further help to reconcile at least part of the controversy between the psychodynamic and humanistic views of autonomy in that conceptualizing parental monitoring in terms of structure rather than control allows for controlling parenting to still be considered to universally limit adolescents' sense of freedom, agency, and control. To further explore the association between parental control and adolescent autonomy, future studies should continue to differentiate between parental structure and control and strive to establish whether there are, in fact, types of parental behavioral control (e.g. punitiveness, corporal punishment) that, unlike parental monitoring, *do* limit adolescents' sense of control.

Although Farkas & Grolnick (2010) suggest that discussion of family rules may be a type of structure, it seems that adolescents in this sample viewed parental discussion of family rules as a negative parenting behavior. It may be that parents discuss family rules more often with adolescents who are exhibiting externalizing behaviors and that this measure is more reflective of an underlying problem than of either parental structure or a type of autonomy-support. Because this measure was only one item, it is difficult to establish how adolescents may have conceptualized this item. Future studies should include more detailed measures of both parental structure and parental autonomy-support to further untangle what aspects of parenting most support adolescent autonomy.

With respect to the third aim of this study, parents' feelings of control were significantly associated with adolescents' feelings of control. Specifically, parents' global sense of control was associated with all three measures of adolescent control: future control, academic control and occupational control. Additionally, parents' academic

control was associated with adolescents' academic control. Furthermore, parents' sense of control was shown to have a significant indirect relationship with both adolescents' well-being and academic success over time via the association between parents' own sense of control and adolescents' sense of control. These findings therefore suggest a previously unstudied mechanism by which parenting may be related to adolescent developmental outcomes. Of note, parent academic control also *directly* influenced young adults' academic success at Time 2, in addition to being related to adolescents' academic control at Time 1. This finding suggests that parents' academic control may be linked to their adolescents' academic success via its relationship to other factors in addition to its relationship to adolescents' feelings of control. Examination of parent-reported reasons for lower levels of academic control, for example, indicated that lack of resources for schooling was a common reason for lower levels of control, indicating one possible factor that may explain the association between parents' feelings of control and young adults' academic success.

Overall, findings indicate that both parenting and adolescents' feelings of control influence adolescents' academic success and emotional well-being over time. Importantly, *both* adolescents' sense of future control and academic control emerged as important predictors of their academic success five years later suggesting that in addition to domain specific influences of adolescents' sense of control, a more global sense of control is also important. Further emphasizing the importance of adolescents' own sense of control to their academic success and emotional well-being, both controlling parenting and parents' feelings of control were indirectly related to adolescent outcomes via adolescents' feelings of control. Future research should strive to explicate these

associations further by both exploring other environmental influences on adolescents' feelings of control and examining additional domains of adolescent control.

As with all research studies, this study has limitations. Due to missing data, psychologically controlling fathering could not be included in the model. Future research should examine whether there are differences between mother and father influence on adolescents' feelings of control and associated outcomes. Relatedly, the measures of parents' feelings of global and academic control were completed by mothers and fathers, in addition to a small number of grandmothers, aunts and other relations. Although the sense of control felt by adolescents' primary caregiver is likely to have the strongest relationship to adolescents' own sense of control, future studies should examine whether the sense of control felt by different family members differentially affects adolescents' sense of control.

Although this study was longitudinal in design, the association between measures of parenting, parents' sense of control and adolescents' sense of control were all from one time point. Therefore, it is impossible to establish whether parenting temporally preceded adolescents' sense of control or vice versa. Pomerantz and Eaton (2001) found that low achieving children elicited controlling parenting from their parents. Likewise, adolescents' mental health has been found to influence the extent to which adolescents' perceive their parents as being controlling (Wang et al., 2007; Soenens, Luyckx, Vansteenkiste, Duriez & Goossens, 2008). As such, future studies should aim to establish whether a causal pathway between different aspects of parenting and adolescents' feelings of control can be established.

Notwithstanding these limitations, this study makes an important contribution to the investigation of adolescent autonomy. In operationalizing autonomy in terms of control, this study was able to provide initial evidence that conceptualizing parental monitoring in terms of parental structure, rather than control, may begin to explain some of the seemingly inconsistent research studies linking parental control to positive adolescent outcomes. This study also contributes toward reconciling some of the controversy between the psychodynamic and humanistic views of autonomy, as it may be the role of parental structure and autonomy-support in influencing adolescents' autonomy, rather than the need for autonomy itself that is age-dependent. Alternatively, it may be that different aspects of parenting are associated with different aspects of autonomy. In focusing on adolescents' feelings of autonomy, this study may have captured a more psychological or cognitive form of autonomy. Aspects of parenting such as parental monitoring that focus more on the behavioral domain of development may similarly be related to more behavioral forms of autonomy. Additional research will be needed to bear this out. Importantly, this study indicates that parents' feelings of control may be an important, yet relatively unstudied, aspect of parenting that is associated with adolescents' feelings of autonomy highlighting the need for continued efforts to more clearly operationalize what is meant by autonomy and identify those environmental factors that support autonomy. Such endeavors will facilitate multidisciplinary exploration of those factors that best support the academic success and well-being of adolescents.

CHAPTER 3:

The Longitudinal Influence of Neighborhood Quality, Wealth and Autonomy in Adolescence on Well-being and Academic Success in Young Adulthood

Recent years have seen increasing recognition of the importance of the neighborhood context to youth development (Johnson, 2010; Murry, Berkel, Gaylord-Harden, Copeland-Linder & Nation, 2011). Mounting evidence indicates that neighborhood disadvantage is associated with numerous risk factors (e.g. increased crime and violence, lower quality schools) known to thwart well-being and academic success, particularly among adolescents (see Leventhal & Brooks-Gunn, 2000; Murry, et al., 2011 for reviews). Despite the critical importance of neighborhood quality to adolescent development, there is a dearth of research examining the processes by which neighborhood factors are linked to adolescent well-being and academic success (Leventhal & Brooks-Gunn, 2000; Murry, et al., 2011).

Coinciding with an increase in the number of research studies examining the relation of neighborhood factors to adolescent well-being and academic success, the past decade has seen increasing recognition of the importance of adolescent autonomy to positive developmental outcomes. Numerous research studies identify adolescent autonomy as fundamental to adolescent well-being (e.g. Koydemir-Ozden & Demir, 2009; Lokes, Gingras, Phillippe, Koestner & Fang, 2010; Rudy et al., 2008; Wang, 2009)

and academic success (d'Ailly, 2003; Eccles et al., 1993; Soenens & Vansteenkiste, 2005; Studsrod & Bru, 2009). This study aims to increase understanding of how neighborhood disadvantage relates to the well-being and academic success by considering the mediating role of adolescents' sense of autonomy over time.

The Importance of Exploring Adolescent Autonomy at the Macro Social Level

Although autonomy is widely accepted as central to adolescent development, there is a great deal of controversy with respect to the conceptualization of autonomy (see Deci & Ryan, 2006; Kagitcibasi, 2005 for discussions). Autonomy has been operationalized in terms of multiple different phenomena—from attachment, individuation, independence and reasoning (Steinberg & Silverberg, 1986) to self-regulation, choice, control and agency (Ryan & Deci, 2006). Despite these relatively broad conceptualizations of autonomy, however, the scope of the body of research investigating autonomy remains quite limited, focusing largely on the parent context. Research on autonomy often positions parents as the 'gatekeepers' of autonomy, examining the relation of autonomy-granting or autonomy-supportive behaviors of parents to adolescent development. As such, relatively little consideration is given to a socio-ecological framework for understanding adolescent development (Bronfenbrenner, 1986) and the ways in which environmental contexts outside the parent context may function to either constrain or foster adolescents' feelings of autonomy.

The few studies that have examined autonomy-support at a macro level have largely involved cross-cultural examinations of different global societies, rather than examining variations in autonomy-support *within* societies at the macro level. For example, Downie, Koestner and Chua (2007) find individual well-being to be higher in

those societies “rich in civil liberties and individual rights,” that allow citizens the right to vote, apply laws equally to all citizens and emphasize the importance of equality, compared to those societies that are not similarly autonomy-supportive and do not emphasize individual rights. Although U.S. society may rank lower on the scale of supporting hierarchical (rather than egalitarian) political practices compared with other nations (Downie et al., 2007), many social institutions in the U.S. (e.g. schools, businesses) still operate in a hierarchical manner (Reeve & Assor, 2011). Similarly the allocation of resources within U.S. society is enormously hierarchical (Neckerman & Torche, 2007). As such, despite the United State’s emphasis on egalitarian political practices which foster freedom and autonomy, many adolescents’ social environments are characterized by institutionalized hierarchies and related forms of inequality, thus serving to limit adolescent autonomy and contribute to experiences of oppression.

Vital to understanding how macro social factors may relate to autonomy, empowerment theory considers the relationship of the individual to the larger social and political environment, viewing problems as rooted in the environment (Perkins & Zimmerman, 1995). An empowerment perspective acknowledges that individuals’ experiences of oppression are not unique, but are part of a larger socio-political system of generalized oppression (Gutierrez & Ortega, 1991). Oppression can be defined as a state of asymmetrical or hierarchical power relations in which some social groups hold a greater share of privileges and resources compared to other groups. Linking the concepts of autonomy-suppression and oppression, an empowerment perspective identifies autonomy as a key quality of empowered individuals (Bolton & Brookings, 1996). In this view, autonomy involves a sense of freedom and power to control one’s destiny.

Related to the concepts of autonomy suppression and oppression, one important point upon which different empirical traditions focusing on adolescent autonomy tend to agree is that autonomy entails freedom from a controlling environment (Deci & Ryan, 2000; Steinberg, 2001). However, in these studies, *control* is typically positioned as the counterpoint to autonomy (*having* ‘controlled’ versus autonomous motivations and behaviors; Deci & Ryan, 2000; *being* controlled by psychological manipulation or behavioral restriction of parents, Deci & Ryan, 2000; Steinberg, 2001), rather than in terms of *having control* or *feeling in control*. Similar to the studies noted above, these studies tend to concentrate on the parents’ role in autonomy-suppression rather than allowing for environmental factors that may contribute to adolescents’ feelings of control. This study focuses on the extent to which the macro social context may engender adolescents’ feelings of control, with the aim of discovering whether adolescent autonomy may help to explain the association between neighborhood disadvantage and adolescents’ well-being and academic success.

Neighborhood Quality and Adolescent Autonomy

Research finds that adolescents living in low-income neighborhoods and who are faced with chronic stressors typical of these environments experience feelings of constrained choice (Rieker & Bird, 2005) which may limit adolescents’ perceived autonomy to choose education as a priority. Additionally, Durlauf (2003) argues that those behaviors individuals perceive to be within the realm of choice tend to mirror those behaviors most often observed or modeled within the neighborhood context. As such, individuals may fall victim to a “poverty trap” (p. 5) constrained by the lack of social and economic resources in their communities. While these studies point to the potential

importance of neighborhood disadvantage to adolescents' perceived choice, few studies directly the association between neighborhood disadvantage and adolescents feelings of control.

In a recent study, Maurizi, Ceballo, Epstein-Ngo and Cortina (*revise and resubmit*) found that higher feelings of belonging to an impoverished neighborhood were associated with lower academic aspirations and expectations suggesting that a sense of belonging to a low-income neighborhood may limit individuals' perception of the academic opportunities open to them (i.e. certain characteristics of a low-income neighborhood may decrease feelings of academic autonomy). Additionally, Coley & Hoffman (1996) find that neighborhood stressors, typical of disadvantaged neighborhoods, are associated with an external perceived locus of control. Although these studies suggest that neighborhood disadvantage may be associated with adolescent autonomy and feelings of control, additional research is necessary to further explore these relationships.

Operationalization of Neighborhood Conditions. Although neighborhood effects have been operationalized in numerous ways, from examination of neighborhood collective efficacy and peer groups to neighborhood crime and housing values, the majority of studies focus on objective census-based neighborhood characteristics (e.g. poverty levels, unemployment rates). However, Plunkett, Abarca-Mortensen, Behnke and Sands (2007) find that positive perceptions of the neighborhood (e.g. high levels of employment, education and wealth of most families) mediate the association between measures of census neighborhood variables and adolescent outcomes. Other studies find that both subjective and census-based measures of neighborhood are associated with

adolescent outcomes (e.g. Woolley & Grogan-Kaylor, 2006). Murry et al. (2011) and suggest that inconsistent findings with respect to the relation between neighborhood factors and adolescent internalizing symptoms may be due, in part, to the tendency for depressed individuals to perceive their neighborhoods as more disadvantaged. Together these findings indicate that multiple measure of neighborhood disadvantage may be useful to best understand the association between neighborhood factors and adolescent outcomes. As such, this study includes both individual reports of neighborhood safety and quality and census measures of neighborhood disadvantage in addition to observer-rated measures of neighborhood.

Isolating Neighborhood Effects. Related to neighborhood disadvantage, numerous studies over the past several decades have indicated that family income is of critical importance to adolescents' well-being and academic success (e.g. Haveman & Wolfe, 1995; Neckerman & Torche, 2007; Taubman, 1989). Recent research, however, indicates that family wealth may be a better indicator of family economic circumstances than income (Conley, 2001; Keister, 2000; Spilerman, 2000) and that analysis of wealth *distribution* may be a more robust indicator of *inequality* than income (Cagetti & De Nardi, 2008).

Although studies historically examined family income as a social address indicator of neighborhood quality, researchers have advocated for the need to examine family resources and neighborhood quality as distinct constructs (Leventhal & Brooks-Gunn, 2000) in order to more accurately measure "neighborhood effects" and to disentangle the mechanisms by which neighborhood conditions versus economic circumstances may impact development. As such, in addition to investigating the

association of neighborhood disadvantage to adolescent autonomy, well-being and academic success, this study includes examination of both family wealth and socioeconomic status.

Exploring Variation in the Meaning of Autonomy According to Economic Circumstance

Further emphasizing the need to consider family wealth in addition to neighborhood disadvantage in studies examining adolescent autonomy, research suggests that social class may also be associated with different meanings for and values regarding autonomy (Bowman, Kitayama & Nisbett, 2009). Markus and Schwartz (2010) find that the while middle- and upper-class populations place a high value on choice, working class populations place less emphasis on choice. With respect to control, Kusserow (1999, 2004) suggests that working class Americans may display a greater need for control, that is, contingency between hard work and outcomes, whereas middle-class American may display a greater need for choice. In contrast, Nucci, Camino & Sapiro (1996) found that lower-class children valued control to a lesser extent than children from middle-class backgrounds. Given discrepancies in the importance of control to members of different social classes, the second aim of this study was to examine whether the association between neighborhood disadvantage, adolescent control and subsequent well-being and academic success varies according the position of adolescents' families along the distribution of wealth.

Accounting for Parenting

Review of literature on neighborhoods finds that the size of neighborhood-level effects is usually much smaller than the size of family-level effects (Brooks-Gunn,

Duncan, Leventhal & Aber, 1997; Murry, et al., 2011). In their review of neighborhood studies in 2000, Leventhal and Brooks-Gunn argued that family- and individual-level variables should be taken into account when studying neighborhood effects to avoid misinterpretation of results and an inflated view of the importance of neighborhood. However, some recent research suggests that neighborhood risk may actually be more important to certain educational outcomes, such as grades, than some measures of parenting (Henry, Merten, Plunkett & Sands, 2008). Thus, the final aim of this study was to examine both the association of neighborhood disadvantage and adolescents' sense of control in addition to the longitudinal influence of neighborhood disadvantage on adolescent outcomes while controlling for the relation of parenting to these variables. Consideration of how multiple contexts influence adolescents' sense of autonomy and related academic and mental health outcomes further allows for investigation of how these contexts may compete to foster or impede autonomy.

Method

Procedure

This study used data from the Panel Study of Income Dynamics (PSID), focusing on the Child Development Supplement (CDS-II) collected in 2002 and Transition to Adulthood (TA-II) collected in 2007. The PSID collected demographic information and socioeconomic characteristics from a nationally representative sample of nearly 18,000 individuals living in approximately 5,000 families annually from 1968 to 1997 and biennially thereafter. The CDS includes rich developmental data for children of the original PSID, including measures of neighborhood characteristics, family resources, parenting, mental health, and educational attainment. Starting in 1997, developmental

data was collected from PSID children aged 0-12 (N=3196) and their caregivers. In 2002, these same children aged 5-17 and their caregivers (N=2904) were surveyed again. In 2005, the Transition to Adulthood (TA) began data collection on children from the CDS who were 18 and older and had begun to “age-out” of the CDS. Thus, the 2005 TA included data on developmental outcomes for 936 young adults (18-21 years old) for whom data had previously been captured in CDS-I and II. In 2007, data was collected on the remaining children from the original CDS, then aged 10-18 (N=1752) and their caregivers. In 2007, a second wave of TA data (TA-II) was also collected, surveying the same young adults from the first wave of TA (TA-I), with the addition of young adults who had “aged out” of the CDS between 2005 and 2007 (N=1115). The PSID collected household wealth data every five years between 1984 and 1999, and every two years thereafter. The wealth data in the PSID is considered to be of high quality compared to other survey data (Curtin, Juster & Morgan., 1989; Ratcliffe et al., 2008).

In addition to adolescent and family data from the PSID, this study uses National Census Data from 2000 providing information on neighborhood disadvantage including statistics on poverty, unemployment rates, female-headed households, and population educational level. All census financial measures were adjusted for inflation to better reflect 2002 family circumstances. The present study underwent a complete IRB review including a data protection plan in order to gain access to restricted data identifying the specific census tracts in which participants lived during 2002. Restricted data containing geocodes for linking census data to study data were obtained from the Institute for Social Research at the University of Michigan, where the PSID data is housed. Additional

information on the PSID-CDS methodology and measures used in the study can be found at: <http://psidonline.isr.umich.edu/Guide/documents.aspx>.

Participants

This study focuses on an adolescent subset of the CDS-II, aged 13-19 and in 9th through 12th grades in 2002/2003 (N=852). These same adolescents completed the TA-II in 2007/2008 when they were young adults aged 18-23. Although 1115 young adults were sampled for the TA-II data collection, 152 of these individuals were only sampled for the CDS-I data collection and not included in the CDS-II. An additional 111 individuals were not in grades 9 through 12 at the time of the CDS-II data collection. For ease of discussion, data collected in 2002 will be referred to as Time 1 (T1) while data collected in 2007 will be referred to as Time 2 (T2).

Adolescents ranged in age from 13-19 years ($M=15.96$, $SD=1.43$) at Time 1 and 18-23 ($M=20.41$, $SD=1.43$) at Time 2. The sample was 47.5% male ($n=405$) and 52.5 % female ($n=447$). Forty-nine percent of adolescents were European-American ($n=415$), 42% were African-American ($n=357$) and 9% identified as an “other” ethnicity ($n=77$). Data on ethnicity was missing for 3 participants.

Adolescents lived in a total of 780 census tracts. The fact that each census tract only had an average of 1.09 participants precluded the possibility of conducting hierarchical linear modeling. Thus, census variables were treated as individual-level data. In the census tracts where participants lived, an average of 12% (Range: 0% to 66%) of population was below the poverty line, 16% (Range: 0% to 62%) of the population lived in female-headed household, 22% (Range: 1% to 75%) of the population under the age of

25 had less than a high school degree, and 7% (Range: 1% to 35%) of the population was unemployed.

Measures

Control Variables. Adolescents' sex, age, ethnicity, and SES were used as demographic control variables in all analyses. Primary caregivers indicated their child's ethnicity for the CDS-I data collection in 1997. Because all individuals who participated in either the CDS-II or TA-II had data collected at the CDS-I time point and this was the only year for which complete data on child ethnicity was available, data from the CDS-I was used to establish adolescent ethnicity. Response options were: *1 = White, non-Hispanic, 2 = Black, non-Hispanic, 3 = Hispanic, 4 = Asian or Pacific Islander, 5 = American Indian or Alaskan Native, 7 = Other*. Because less than 10% of adolescents were identified as *Hispanic, Asian or Pacific Islander, American Indian or Alaskan Native, or Other*, these responses were collapsed into one category, "Other" ethnicity.

Mother's educational level was used as a proxy for socio-economic status. Response options ranged from 1 (1st grade) to 17 (graduate school). Responses were recoded 1 (1-8: less than high school), 2 (9-11: some high school), 3 (12: high school graduate), 4 (13-15: some college), 5 (16: college graduate), 6 (17: at least some graduate school). Mothers reported a mean level of schooling of corresponding roughly to one year of college post high school graduation.

Well-being (T1). Well-being was assessed using an evaluation of emotional well-being, psychological well-being and social well-being from the Midlife in the United States (MIDUS) study. Together these three subscales assess overall 'flourishing' versus 'languishing.' The emotional well-being subscale consisted of 3 items; a sample item

was, “During the past month... how often did you feel interested in life?” The psychological well-being subscale consisted of 4 items; a sample item was “...how often did you feel confident to think or express your own ideas and opinions?” The social well-being subscale consisted of 5 items, a sample item was, “...how often did you feel that you belonged to a community?” Response options ranged from *1= Never* to *6= Everyday*. Scores from each of the three subscales were averaged to create a composite score with higher scores indicating greater well-being ($\alpha=.79$).

High School GPA. Young adults retrospectively reported their high school GPA at T1 during the TA-II data collection in addition to the highest permissible GPA given by their school. In order to assure that all GPAs were on the same 10-point scale, each adolescent’s reported high school GPA was divided by their reported maximum possible GPA and then multiplied by 10. Data for this item were not collected for individuals who did not graduate from high school or who had a GED (n=156).

Neighborhood Conditions.

Observer-rated Neighborhood Disadvantage. Independent reviewers assessed neighborhood quality and conditions using the HOME-SF assessment (Caldwell & Bradley, 1984). Four items indicated characteristics of the neighborhood surrounding participants’ homes. Sample items included, “Are there drug-related paraphernalia, condoms, beer, or liquor containers or packaging, cigarette butts, or discarded cigarette packages in the street or on the sidewalk?” and “Is there garbage, litter, or broken glass (except beer/liquor bottles) in the street or on the sidewalk (including around the dwelling unit and neighboring houses)?” Response options were *1=none, or almost none, 2=yes,*

but not a lot, 3=yes, quite a bit, 4=yes, just about everywhere. Items were averaged with higher scores indicating more neighborhood disadvantage ($\alpha=.78$)

Census-based Neighborhood Disadvantage. Information from the 2000 census was matched to each study participant. Four items from the census were used to create a measure of neighborhood disadvantage: percentage of families living in poverty, percentage of female-headed households, percentage of unemployed adults, and percentage of the population under age 25 with less than a high school degree. Items were averaged with higher scores indicating more neighborhood disadvantage ($\alpha=.88$).

Caregiver-rated Neighborhood Quality and Safety. One item assessed each primary caregiver's overall rating of the neighborhood they lived in. Response options ranged from *1=excellent* to *5=poor* with higher scores indicating lower neighborhood quality. A separate item asked primary caregivers to indicate how safe they felt walking around their neighborhood. Response options ranged from *1=completely safe* to *4=extremely dangerous* with higher scores indicating less neighborhood safety.

Sense of Autonomy.

Academic Control. Adolescent academic control was defined as the contingency between adolescent educational aspirations and expectations. Response categories were recoded to range from 1 (Finish Some High School) to 6 (Graduate from Graduate School). Expectations were subtracted from aspirations and then reverse coded such that responses ranged from *0 = low contingency between aspirations and expectations* to *5 = high contingency between aspirations and expectations* with higher numbers indicating more control.

Future Control. Future control was assessed by three items asking adolescents to indicate to what extent they worry about or expect negative future events. Sample items include, “How often did you feel discouraged about the future?” and “How often did you worry that you will not get a good job when you are an adult?” Response options were recoded to range from *1=everyday*, *2= almost every day*, *3=2 or 3 times a week*, *4=about once a week*, *5=once or twice a month*, *6=never* with higher scores indicating a greater sense of control over the future ($\alpha=.64$).

Family Context Variables.

Wealth. A measure of family wealth was provided by the NIA-funded PSID Wealth Supplements. The measure for family wealth in 2001 was a composite of non-liquid assets (e.g. farms, businesses, vehicles), liquid assets (e.g. checking, savings, money market accounts), debts (e.g. student loans, personal loans, credit card debt), investments, private annuities, and stocks. This study did not use the measure of wealth including home equity because respondents tend to overestimate home values and therefore home equity (Ratcliffe et al., 2008). Family wealth ranged from -\$310,000.00 to \$42,208,000.00 for this sample with a median of \$16,000.00.

Parental Monitoring. This scale consisted of four items asking adolescents to indicate the extent to which they believed their parents were aware of their behaviors. Sample items included, “Do your parents know what you do during your free time?” and “Do your parents know which friends you hang out with during your free time?” Response options ranged from *1=Never* to *5=Almost Always* with higher scores indicating more parental monitoring ($\alpha=.74$).

Mother Psychological Control. Five items were used to assess the extent to which adolescents' viewed their mothers as psychologically controlling through such means as love withdrawal or guilt induction. Sample items included, "My mother blames me for other family members' problems," "My mother is a person who, if I hurt her feelings, she stops talking to me until I please her again," and "My mother is a person who is always trying to change how I feel or think about things." Response options ranged from *1=not like her* to *3=a lot like her* with higher scores indicating more parental psychological control ($\alpha=.76$).

Young Adult Outcomes.

Academic Success. Academic success was assessed according to the level of schooling completed by young adults at T2. Three separate questions asking about level of schooling were used to create one continuous item. Items were recoded to create a measure of academic success such that *1=never completed high school*, *2=high school graduate or GED*, *3=started a 2-year or 4-year degree but discontinued attendance*, *4=currently enrolled in or completed a two-year degree*, *5=currently enrolled in or completed a 4-year degree*. Because participants were aged 18-23, no distinction was made between individuals who had begun or completed a college degree unless individuals indicated that they had discontinued college attendance.

Well-being. Well-being at Time 2 was assessed using a near-identical evaluation of emotional well-being, psychological well-being and social well-being as at Time 1. At Time 2, the MIDUS scale included two additional items for the psychological well-being subscale, "How often did you feel that you liked your personality?" and "How often did you feel that your life had a direction or purpose?" Response options ranged from *1=*

Never to 6= Everyday. Items for each subscale were again averaged to create composite scores. These composite scores from each of the three subscales were then averaged to create an overall composite score of well-being with higher scores indicating greater well-being ($\alpha=.76$).

Analysis Plan

The data were analyzed in three parts. All analyses employed structural equation modeling using MPlus, Version 6.1 (Muthuen & Muthuen, 2007). MPlus was selected for use due to its efficiency in dealing with missing data and conducting multi-group analyses. Because the PSID initially oversampled low-income and African-American families, all analyses were conducted twice, once without sample weights and once using a sample weight that takes into account differential probabilities of selection due to the original PSID sample design as well as subsequent attrition. Both unweighted and weighted results are presented and discussed due to the fact that results were substantially different using unweighted versus weighted data.

As is a common problem in secondary-data analysis of a national dataset, several study variables had a significant level of missing data; covariance coverage ranged from 84.4% to 99.9%. Study details on missing data and data collection procedures can be found on the PSID-CDS website (above). In order to account for missing data, t-tests were first performed to determine whether those participants who were missing data on study variables differed from those participants who did not have missing data. Comparisons were made for *mother psychological control* and *educational control* due to these variables having the greatest amount of missing data. For mother psychological control, those participants who had missing data were less likely to identify as an “Other”

ethnicity than those participants with complete data. Participants with missing data did not differ from those participants with complete data with respect to any other demographic variables. For educational control, those participants who had missing data were less likely to identify as an “Other” ethnicity and were more likely to be male.

Because it could not be assumed that data were missing completely at random, those participants with missing data were included all analyses. To account for the inclusion of participants with missing data, in addition to controlling for demographic variables that were related to patterns of missing data (i.e. sex, ethnicity), the *auxiliary* command in MPlus was included in all study models to reduce the uncertainty caused by the missing data and improve the precision of the estimation (Asparouhov & Muthen, 2008). Including variables related to missing data in the auxiliary statement has the potential to reduce or eliminate parameter estimate biases due to missing data in cases where the missing data is not missing at random (Asparouhov & Muthen, 2008). However, use of auxiliary variables resulted in study models that did not converge and therefore no auxiliary variables could be included in the final models.

The first set of analyses examined whether neighborhood disadvantage during adolescence was longitudinally associated with well-being and academic success in young adulthood and whether this association was mediated by adolescents’ feelings of control at Time 1 (See Model 1, Figure 3.1). Given previous findings suggesting that family-level effects are stronger than neighborhood-level effects (Brooks-Gunn, Duncan, Leventhal & Aber, 1997; Murry, et al., 2011), the second and third set of analyses examined whether the relationships observed in Model 1 changed when considering additional family factors. Specifically, the second set of analyses tested whether, given

the strong association between poverty and neighborhood disadvantage, neighborhood disadvantage would have a differential relation to adolescents' feelings of control at Time 1 or a well-being and academic success at Time 2 according to family wealth. Finally, the third set of analyses examined whether the association between neighborhood disadvantage and adolescents' feelings of control at Time 1 and well-being and academic success at Time 2 would remain significant when parenting was included in the model. Gender, age, ethnicity and family socio-economic status were used as control variables in all models.

Results

Descriptive Analyses

Correlations between all continuous study variables are included in Table 3.1. T-tests revealed that females reported higher high school GPAs at Time 1 and higher levels of educational success at Time 2 ($M=8.26$, $SD=1.14$; $M=3.74$, $SD=1.37$; respectively) than males ($M=7.76$, $SD=1.24$; $t(648) = -5.39$, $p < .001$; $M=3.47$, $SD=1.43$; $t(844) = -2.75$, $p < .01$; respectively). Females also reported higher levels of parenting monitoring ($M=3.82$, $SD=.87$) than males ($M=3.60$, $SD=.86$; $t(750) = -3.57$, $p < .001$).

Analysis of variance (ANOVA) revealed significant differences between ethnic groups with respect to all study variables. At Time 1, adolescents identifying as European-American, African-American and 'Other' Ethnicity differed with respect to reported levels of socio-economic status ($F(2,774)=61.19$, $p=.000$), well-being ($F(2,766)=5.69$, $p=.004$), high school GPA ($F(2,645)=20.93$, $p=.000$), observer-rated neighborhood quality ($F(2,760)=42.21$, $p=.000$), ($F(2,774)=61.19$, $p=.000$), census-based neighborhood quality ($F(2,838)=212.78$, $p=.000$), caregiver-reported neighborhood

quality ($F(2,841)=51.72, p = .000$), caregiver-reported neighborhood safety ($F(2,840)=35.11, p = .000$), educational control ($F(2,746)=6.83, p=.001$), future control ($F(2,774)=11.43, p = .000$), wealth ($F(2,846)=3.74, p=.024$), parental monitoring ($F(2,746)=17.58, p = .000$), and mothers' psychological control ($F(2,723)=4.12, p = .017$), in addition to well-being at Time 2 ($F(2,845)=3.17, p = .042$), and academic success at Time 2 ($F(2,840)=29.65, p = .000$). Means and standard deviations for all study variables by ethnicity in addition to posthoc tests using Tukey methodology are reported in Table 3.2.

Main Analyses

Part I: Exploring Neighborhood Disadvantage.

Model 1 (Figure 3.1) examined the influence of neighborhood disadvantage and adolescents' feelings of control at Time 1 on academic success and well-being at Time 2. Sex, age, ethnicity and socio-economic status were included as control variables. Modification indices revealed that the measure for observer-rated neighborhood conditions had one item that had a loading below .50, "Are there drug-related paraphernalia, condoms, beer, or liquor containers or packaging, cigarette butts, or discarded cigarette packages in the street or on the sidewalk?" As such, this item was removed from the measure. [In conducting multi-group analyses (below), it was discovered that the variance for this variable in the "high wealth" group was zero, likely contributing to the low factor loading in the overall model.] In addition, the item "female-headed household" was highly correlated with both being African-American and identifying as an "Other" ethnicity, preventing adequate model fit when measure of

ethnicity were included as controls. Thus, “female-headed household” was removed as a predictor of census neighborhood disadvantage.

Unweighted. Model 1 fit the data well (CFI = .948, TLI = .920, RMSEA=.044, SRMR=.033; $\chi^2(187) = 466.16, p = .000$) according to the fit criteria suggested by Hu and Bentler (1999). All significant paths for Model 1 tested with unweighted data are depicted in Figure 3.2. Results from Model 1 indicated that when controlling for demographic variables in addition to the autoregressive path between high school GPA and academic success at Time 2 ($\beta = .12, p < .01$), both observer-rated neighborhood disadvantage and census-based neighborhood disadvantage at Time 1 were related to academic success at Time 2 ($\beta = -.25, p < .001$; $\beta = -.11, p < .05$; respectively). Census-based neighborhood disadvantage was also related to lower levels of future control ($\beta = -.19, p < .01$) at Time 1. In turn, future control at Time 1 was associated with higher levels of academic success ($\beta = .14, p < .001$) at Time 2. Analysis of indirect paths revealed that the path from census neighborhood disadvantage to academic success via future control was significant ($\beta = -.03, p < .05$) indicating evidence of partial mediation. Controlling for demographic variables in addition to the autoregressive path between well-being at Time 1 and well-being at Time 2 ($\beta = .26, p < .001$), future control at Time 1 was also associated with higher levels of well-being at Time 2 ($\beta = .18, p < .001$). Indirect paths from census neighborhood disadvantage to well-being was also significant ($\beta = -.03, p < .05$) indicating a longitudinal association between census-based neighborhood disadvantage and well-being via perceived future control.

Compared to identifying as European-American, observer-rated neighborhood disadvantage was associated with identifying as African-American and an ‘Other’

ethnicity ($\beta = .33, p < .001$; $\beta = .09, p < .05$; respectively), in addition to being related to having a lower socio-economic status ($\beta = -.26, p < .001$). Census-based neighborhood disadvantage was also related to identifying as both African-American and an 'Other' ethnicity ($\beta = .47, p < .001$; $\beta = .29, p < .001$; respectively) in addition to being related to lower socio-economic status ($\beta = -.29, p < .001$). Caregiver report of neighborhood quality and safety were also related to identifying as African-American ($\beta = .25, p < .001$; $\beta = .24, p < .001$; respectively), identifying as an 'Other' ethnicity ($\beta = .18, p < .001$; $\beta = .14, p < .001$; respectively). Caregiver report of neighborhood quality was also associated with having a lower SES ($\beta = -.17, p < .001$). Caregiver measures of neighborhood quality and safety were not related to any other study variables at Time 1 or Time 2.

Being younger was associated with greater feelings of future control at Time 1 ($\beta = -.16, p < .001$). At Time 1, being younger was also associated with greater levels of well-being ($\beta = -.09, p < .05$), as was identifying as African-American ($\beta = .11, p < .05$). At Time 2, well-being was again related to identifying as African-American ($\beta = .10, p < .05$). Having a higher SES was associated with greater feelings of academic control ($\beta = .09, p < .05$). Academic control was not related to any other study variables at Time 1 or Time 2. Being female and having a higher SES were both associated with a higher high school GPA ($\beta = .22, p < .001$; $\beta = .10, p < .01$; respectively), while identifying as African-American was associated with a lower high school GPA ($\beta = -.25, p < .001$). At Time 2, being female, identifying as an 'Other' ethnicity, and having a higher SES were all related to greater academic success ($\beta = .10, p < .01$; $\beta = .15, p < .001$; $\beta = .24, p < .001$; respectively).

Weighted. Including sample weights in the analysis of Model 1 changed the model fit slightly (CFI = .926, TLI = .886, RMSEA=.040, SRMR=.041; $\chi^2(188) = 416.363, p = .000$). Overall, the data fit the model adequately; while there was a reduction in the RMSEA and chi-square coefficient, the SRMR increased and the CFI and TLI decreased such that the TLI was no longer in the optimal range. All significant paths for Model 1 with weighted data are depicted in Figure 3.3. Of note, census-based neighborhood disadvantage was no longer related to future control at Time 1 compared to testing Model 1 with unweighted data. Census-based neighborhood disadvantage was also no longer related to academic success at Time 2 when testing the model with weighted data.

Although, future control at Time 1 remained significantly related to academic success ($\beta = .12, p < .05$) at Time 2, the significant indirect path from census neighborhood disadvantage to academic success via future control was no longer significant when weighted data was utilized. Likewise, the indirect path from census neighborhood disadvantage to well-being via future control was also no longer significant when testing Model 1 with weighted data. Finally, when testing Model 1 with weighted data, there was a previously unobserved significant positive association between adolescents' sense of academic control at Time 1 and academic success at Time 2 ($\beta = .10, p < .05$), while the path between high school GPA at Time 1 and academic success at Time 2 was only marginally significant ($\beta = .11, p < .10$) compared to the model tested with unweighted data.

With respect to demographic variables, the associations between identifying as African-American and well-being at both Time 1 and Time 2 were no longer significant

when using the weighted data to test Model 1. Instead, a higher socioeconomic status was associated with greater well-being at Time 2 ($\beta = .13, p < .05$). Identifying as an “other” ethnicity was associated with lower levels of well-being at Time 1 ($\beta = -.20, p < .01$), while age was no longer associated with well-being at Time 1. When testing Model 1 using weighted data, being female was associated with census-based neighborhood disadvantage ($\beta = .10, p < .05$). Being female was also associated with lower levels of perceived future control when testing Model 1 with weighted data ($\beta = -.20, p < .001$), but was only marginally associated with academic success at Time 2. Finally, SES was no longer associated with perceived academic control.

Ethnicity and Neighborhood. Given the consistently high correlation between ethnic minority status and measures of neighborhood disadvantage, most notably census rates of female-headed households, Model 2 examined the longitudinal influence of neighborhood disadvantage and adolescents’ feelings of control on well-being and academic success without controlling for ethnicity, but including female-headed households as a measure of census-based neighborhood disadvantage. Only results for Model 2 tested using the unweighted data are presented and discussed here. For results for Model 2 with the weighted data, please contact the author. Model 2 fit the data well (CFI= .958, TLI = .939, RMSEA=.041, SRMR=.034; $\chi^2(188) = 438.22, p = .000$). Female-headed household loaded well onto census-based neighborhood disadvantage ($\beta = .90, p < .001$). All other factor loadings for census-based neighborhood disadvantage and other latent study variables remained consistent ($\Delta\beta < .01$).

For the most part, coefficients between study variables remained consistent between Model 1 and Model 2 as well ($\Delta\beta < .02$). One notable exception was that, in

Model 2, census-based neighborhood disadvantage was related to lower levels of academic control ($\beta = -.10, p < .05$). Several changes with respect to control variables were also noted between Model 1 and Model 2. In Model 2, census-based neighborhood disadvantage was related to being older ($\beta = .09, p < .01$), but was no longer associated with being female. Age was no longer related to well-being at Time 1. In Model 2, SES was related to caregiver rated lower levels of neighborhood safety at Time 1 ($\beta = -.15, p < .01$) and well-being at Time 2 ($\beta = .09, p < .01$), whereas SES had not been related to these variables in Model 1. Lastly, the association between several study variables and SES increased between Model 1 and Model 2 with the removal of ethnicity as a control variable: observer-rated neighborhood disadvantage ($\beta = -.34, p < .001; \Delta\beta < -.08$); census-based neighborhood disadvantage ($\beta = -.40, p < .001; \Delta\beta < -.11$); caregiver-rated neighborhood disadvantage ($\beta = -.27, p < .001; \Delta\beta < -.10$); high school GPA ($\beta = .16, p < .001; \Delta\beta < -.06$).

Part II: Family Wealth as a Moderator.

Preliminary Analyses. In order to examine whether the longitudinal influence of neighborhood disadvantage and adolescents' sense of control at Time 1 on well-being and academic success at Time 2 differed by family wealth, the sample was divided into three groups: 1) adolescents with families in the lowest quartile of wealth (less than \$2,400.00); 2) adolescents with families in the middle two quartiles of wealth (\$2401.00 to \$81,750.00); and 3) adolescents with families in the highest quartile of wealth (\$81,751.00 and greater). These groups were labeled *low wealth* (n=214), *middle wealth* (n=425), and *high wealth* (n=213), respectively. Means and standard deviations for all study variables for low, middle and high wealth groups are included in Table 3.3. In

addition this table includes results of posthoc analyses employing Tukey methodology indicating significant group differences. Of note, there were no differences in the age or sex of study participants according to wealth group; these variables are not included in Table 3.3.

Model 3 examined whether family wealth moderated the longitudinal influence of neighborhood disadvantage and adolescents' sense of control on young adults' well-being and academic success using a multigroup structural equation modeling approach. To test for partial measurement invariance across groups, the chi-square from a model with all parameters allowed to be unequal across groups was compared to the chi-square from a model with only the loadings constrained to be equal across groups. The model with all parameters freely estimated in the two groups fit the data well (CFI = .933, TLI = .910, RMSEA=.045, SRMR=.053; $\chi^2(591) = 904.398$, $p = .000$) The partial invariance model with loadings constrained to be equal across groups had a fit that was significantly poorer ($\chi^2(611) = 1007.708$, $p < .001$, $\Delta\chi^2(20) = 103.315$, $p < .001$). The Comparative Fit Index for this model indicated an adequate fit (CFI = .915), but the Tucker-Lewis Index (TLI=.879) and Standardized Root Mean Square Residual (SRMR = .063) suggested the fit could be improved. Further analyses comparing factor loadings construct by construct revealed that all factor loadings for both observer-rated neighborhood disadvantage and census-based neighborhood disadvantage differed between the low wealth group and both the middle and high wealth groups. Thus, the factor loadings for observer-rated neighborhood disadvantage and census-based neighborhood disadvantage were only constrained for the middle wealth and high wealth groups in the final model (Model 3). Analyses further revealed that all factor loadings for adolescent future control and young

adult well-being differed between the high wealth group and both the low and middle wealth groups. Thus, the factors loadings for adolescent future control and young adult well-being were only constrained for the low and middle wealth groups in the final model. Because the measurement of neighborhood disadvantage, adolescents' sense of control and well-being at Time 2 differs across groups, caution may be warranted in comparing these groups and in interpreting the findings below.

Unweighted Multigroup Model. Model 3 fit the unweighted data well (CFI=.928, TLI = .897, RMSEA=.046, SRMR=.057; $\chi^2(603) = 937.77$, $p = .000$). All significant paths for Model 3 are depicted in Figures 3.4 (low wealth), 3.5 (middle wealth) and 3.6 (high wealth). Table 3.4 includes a comparison for all significant beta coefficients by wealth group using the unweighted data. Importantly, very few paths were consistent across all three wealth groups. For low, middle and high wealth groups, observer-rated neighborhood disadvantage had a longitudinal, negative influence on academic success ($\beta = -.24$, $p < .01$; $\beta = -.20$, $p < .001$; $\beta = -.22$, $p < .001$; respectively). Across all wealth groups, being female was associated with having a higher high school GPA, while identifying as African-American was associated with having a lower GPA. Identifying as African-American was also associated with greater census-based neighborhood disadvantage across all wealth groups, while having a higher SES was associated with lower census-based neighborhood disadvantage. Finally, having a higher SES was associated with greater levels of academic success across all wealth groups.

In comparing wealth groups, some interesting differences also emerged. Analyses revealed that the relationship between census-based neighborhood disadvantage and lower levels of adolescents' sense of future control observed with the full sample, was

only significant for the low wealth group ($\beta = -.32, p < .01$). Similarly, although the relationship between adolescents' sense of future control at Time 1 and well-being at Time 2 was significant in the full sample, this relationship was only significant for the low and high wealth groups ($\beta = .27, p < .05$; $\beta = .26, p < .05$; respectively). The indirect path between census-based neighborhood disadvantage at Time 1 and well-being at Time 2 via adolescents' sense of future control at Time 1, previously observed with the full sample, was only present in the low wealth group ($\beta = -.09, p < .10$) and was only marginally significant. Additionally, observer-rated neighborhood disadvantage was associated with adolescents' sense of future control ($\beta = -.22, p < .10$) for only the low wealth group and was similarly marginally significant.

For the low and high wealth groups, census-based neighborhood disadvantage was marginally negatively related to adolescents' sense of academic control ($\beta = -.19, p < .10$; $\beta = -.19, p < .10$; respectively). However, academic control was not longitudinally associated with either well-being or academic success for these wealth groups. In contrast, adolescents' sense of academic control *was* longitudinally associated with well-being for the middle wealth group ($\beta = .12, p < .05$). Conversely, adolescents' sense of future control was longitudinally associated with academic success for both the middle and high wealth groups ($\beta = .15, p < .05$; $\beta = .21, p < .05$; respectively). However, none of the measures of neighborhood disadvantage were associated with adolescents' sense of future control for these groups. Finally, the previously observed relationship between census-based neighborhood disadvantage and academic success observed in the full sample, was only marginally significant and only among the low wealth group ($\beta = -.18, p < .10$).

Interestingly, for the high wealth group, adolescents' sense of future control, but not well-being at Time 1, was longitudinally associated with well-being at Time 2 ($\beta = .26, p < .05$). Also for the high wealth group, adolescents' sense of future control, but not high school GPA, was longitudinally associated with academic success at Time 2 ($\beta = .21, p < .05$). For both the low and middle wealth groups, the autoregressive paths between well-being at Time 1 and Time 2 ($\beta = .24, p < .05$; $\beta = .30, p < .001$; respectively) and between high school GPA and academic success at Time 2 ($\beta = .25, p < .05$; $\beta = .14, p < .05$ respectively) were significant.

There were numerous differences between the low, middle and high wealth groups with respect to the association between control and study variables (Table 3.3). Of note, being female, compared to being male, was only significantly associated with well-being at Time 2 and academic success for the high wealth group ($\beta = .22, p < .01$; $\beta = .20, p < .01$ respectively). Also only for the high wealth group, having a higher SES was associated with a higher high school GPA ($\beta = .21, p < .01$). Finally, identifying as an 'Other' ethnicity was negatively related to well-being at Time 2 only for the high wealth group ($\beta = -.20, p < .05$).

Several of the previously observed associations between control variables and study variables with the full sample were only significant for the middle wealth group (See Table 3.3), however there were three associations between control and study variables for the middle wealth group that were not observed with the full sample. For the middle wealth group, identifying as African-American was associated with lower perceived academic control ($\beta = -.15, p < .05$) compared to identifying as European-American. Also only for the middle wealth group, having a higher SES was associated

with higher levels of well-being at Time 1 ($\beta = .12, p < .05$) and a greater sense of future control ($\beta = .20, p < .01$).

A couple of interesting findings also emerged for the low wealth group. Compared to identifying as European-American, identifying as either African-American or an 'Other' ethnicity was associated with higher academic success ($\beta = .22, p < .05$; $\beta = .33, p < .001$) for the low wealth group. However, despite this association, identifying as African-American or an 'Other' ethnicity was also associated with having a lower high school GPA ($\beta = -.23, p < .05$, $\beta = -.19, p < .05$).

For only the low wealth group, identifying as an 'Other' ethnicity was associated with observer-rated neighborhood disadvantage ($\beta = .21, p < .05$), lower levels of well-being at Time 1 ($\beta = -.18, p < .05$), and (as previously noted) a lower high school GPA ($\beta = -.19, p < .05$). Also only for the low wealth group, having a higher SES was associated with greater feelings of academic control ($\beta = .21, p < .01$) and greater well-being at Time 2 ($\beta = .18, p < .05$).

Weighted Multigroup Model. Model 3 fit the weighted data poorly (CFI= .864, TLI = .804, RMSEA=.056, SRMR=.070; $\chi^2(604) = 1098.958, p = .000$). All significant paths for Model 3 tested with weighted data are depicted in Figures 3.7 (low wealth), 3.8 (middle wealth) and 3.9 (high wealth). Table 3.5 includes a comparison for all significant beta coefficients by wealth group using the weighted data. Similar to the case with unweighted data, very few paths were consistent across all three wealth groups. For low, middle and high wealth groups, observer-rated neighborhood disadvantage had a longitudinal, negative influence on academic success ($\beta = -.37, p < .01$; $\beta = -.19, p < .05$; $\beta = -.35, p < .01$; respectively). Across all wealth groups, having a higher SES was

associated with lower census-based neighborhood disadvantage and greater levels of academic success.

By and large, relationships observed between study variables with the full sample (Model 1), were only significant for the low wealth group. As such, the associations between study variables for the low wealth tended to be much stronger than for the full sample. For example, adolescents' perceived future control was significantly associated with well-being at Time 2 only for the low wealth group ($\beta = .28, p < .05$). Similarly, adolescents' sense of academic control and high school GPA were significantly related to academic success only for the low wealth group ($\beta = .22, p < .05$; $\beta = .29, p < .05$; respectively). (Note: With the unweighted data, these relationships (respectively) were also significant for the high and middle wealth groups.)

Two additional relationships between study variables were observed for the low wealth group only, that were not observed in the full sample. Similar to analyses with the unweighted data, census-based neighborhood disadvantage was associated with a lower sense of future control for the low wealth group ($\beta = -.35, p < .05$). Only with the weighted data, census-based neighborhood disadvantage was also related to adolescents' increased sense of academic control ($\beta = -.34, p < .01$) for the low wealth group. As indicated previously, there were no indirect paths between measures of neighborhood disadvantage and adolescent outcomes with the full sample. However, for the low wealth group, census-based neighborhood disadvantage was marginally indirectly associated with adolescents' academic success at Time 2 via their sense of academic control ($\beta = -.07, p < .10$). The indirect paths observed for the low wealth group from census-based

neighborhood disadvantage via perceived future control to adolescent outcomes using unweighted data were no longer significant when using the weighted data.

Interestingly, higher SES was associated with greater perceived academic control only for the low wealth group. Of note, although adolescents' perceived future control was associated with their academic success at Time 2 in the full model, this relationship was not significant in the multigroup analysis for any of the wealth groups.

For only the low and middle wealth groups, adolescents' well-being at Time 1 was associated with their well-being at Time 2 ($\beta = .38, p < .01$; $\beta = .39, p < .01$); respectively). Similarly, with respect to demographic variables, a number of relationships were present only for the low and middle wealth groups. Although identifying as African-American was associated with having a lower GPA for all wealth groups with the unweighted data, this relationship was only significant for the low and middle groups when using the weighted data. For the low and middle groups, identifying as African-American was also associated with greater census-based neighborhood disadvantage, observer-rated neighborhood disadvantage and caregiver rated neighborhood safety. Identifying as an "other" ethnicity was also associated with census-based neighborhood disadvantage for the low and middle wealth groups.

New to analyses using the weighted data, being female was associated with lower perceived future control for both the low and middle wealth groups. Analyses with the weighted data also revealed a number of new findings indicating conflicting directionality in the relationship between the low and middle wealth groups. For example, identifying as African-American was associated with *higher* levels of academic success for the low wealth group, but *lower* levels of academic success for the middle wealth

group. Similarly, identifying as an “other” ethnicity is associated with higher perceived academic control for the low wealth group, but lower perceived academic control for the middle and high wealth groups. Furthermore, having a higher SES is associated with *lower* well-being at Time 1 for the low wealth group, but *higher* well-being at Time 1 for the middle wealth group.

Importantly, when using the weighted data a number of relationships that had previously been significant for the high wealth group were no longer significant. For example, identifying as African-American was not associated with observer-rated or census-based neighborhood disadvantage for the high wealth group. For only the high wealth group, being female was associated with higher well-being and academic success at Time 2. Notably, caregiver-reported low neighborhood quality was *positively* associated with adolescents’ sense of academic control for the high wealth group only ($\beta = .25, p < .01$).

Part III: Controlling for Parenting

Finally, Model 4 tested the hypothesis that measures of neighborhood disadvantage would be associated with well-being and academic success when measures of parenting were simultaneously taken into account (Figure 3.10). Parental monitoring and mothers’ psychological control were examined as aspects of parenting given their strong association to adolescent autonomy, well-being and academic success (e.g. Aunola & Nurmi, 2004; Bean, Bush, McKenry, & Wilson, 2003; Gray & Steinberg, 1999; Kindap et al., 2008; Loukas, Paulos, & Robinson, 2005; Pittman and Chase-Lansdale, 2001; Studsrod & Bru, 2009; Wang et al., 2007). Given that there were no associations between caregiver assessments of the neighborhood and either measures of adolescent

sense of control or outcomes at Time 2 in Models 1, 2 or 3 of this study, these variables were not included in Model 4. Again, sex, age, ethnicity, and SES were used as control variables in Model 4.

Unweighted Model. Model 4 fit the data well ($\chi^2(376) = 716.222, p < .001$; RMSEA = .034; SRMR = .036; CFI = .949, TLI=.934). Overall, results indicated that the associations between neighborhood disadvantage and both adolescents' sense of control at Time 1 and well-being and academic success at Time 2 did not change when parenting was included in the model (see Figure 3.11). Coefficients between study variables remained consistent between Model 1 and Model 4 ($\Delta\beta \leq .02$) with two exceptions. Compared to Model 1, the association between census-based neighborhood disadvantage and adolescents' future control *increased* with the addition of parenting in Model 4 ($\beta = -.22, p < .001$; $\Delta\beta = +.03$). Additionally the coefficient for the association between well-being at Time 1 and well-being at Time 2 decreased between Models 1 and 4 ($\beta = .19, p < .001$; $\Delta\beta = -.07$). Furthermore, the indirect path from census-based neighborhood disadvantage to well-being via adolescents' future control remained significant ($\beta = -.03, p < .05$), as did the indirect path from census-based neighborhood disadvantage to academic success via adolescents' future control ($\beta = -.03, p < .05$). Together these findings indicated that the longitudinal association between census-based neighborhood disadvantage and adolescent outcomes via perceived future control remain even when controlling for parenting.

When parenting was included in Model 4, the associations between control variables and study variables also remained largely consistent ($\Delta\beta \leq .02$), also with two exceptions. In Model 4, identifying as African-American was more strongly associated

with well-being at Time 2 than in Model 1 ($\beta = .14, p < .01; \Delta\beta = +.04$). Additionally, in Model 4, a higher SES was associated with greater feelings of educational control ($\beta = .09, p < .05$). Of note, the coefficient for this relationship was the same as in Model 1; however, in Model 1, the relationship was only marginally significant.

Weighted Model. Model 4 also fit the weighted data well ($\chi^2(376) = 652.899, p < .001$; RMSEA = .031; SRMR = .044; CFI = .930, TLI=.910). Overall, results indicated that there were few changes in the associations between neighborhood disadvantage, adolescents' sense of control and outcome variables observed in Model 1 when parenting was included in Model 4 (see Figure 3.11). Similar to Model 1, there were no observed relationships between neighborhood disadvantage and either adolescents' perceived future control or academic control. Also similar to Model 1, there was a positive association between adolescents' perceived future control and well-being at Time 2. While the coefficient for the relationship between adolescents' sense of academic control and academic success at Time 2 remained relatively the same between Model 1 and Model 4, the coefficient in Model 4 became marginally significant ($\beta = .08, p < .10; \Delta\beta = -.02$).

The coefficients for several additional paths decreased between Model 1 and Model 4. While it remained significant, the association well-being at Time 1 and well-being at Time 2 decreased in Model 4 ($\beta = .27, p < .01; \Delta\beta = -.08$). The association between observer-rated neighborhood disadvantage and academic success also decreased between Models 1 and 4 ($\beta = -.25, p < .001; \Delta\beta = -.10$). The marginal relationship between high school GPA and academic success at Time 2 also became insignificant. Finally, the path between adolescents' perceived future control and well-being at Time 2 became

insignificant in Model 4. These findings indicated that the longitudinal association between observer-rated neighborhood disadvantage and academic success and between adolescents' perceived future control and well-being remain even when controlling for parenting.

When parenting was included in Model 4, the associations between control variables and study variables also remained largely consistent ($\Delta\beta \leq .03$), with one exception. In Model 4, identifying as African-American was not associated with academic control (it was marginally associated in Model 1).

Discussion

Despite the growing recognition of the importance of the neighborhood context to adolescent development, few research studies have deciphered mechanisms that help to explain the relationship between neighborhood factors and adolescents' developmental outcomes (Leventhal & Brooks-Gunn, 2000; Murry, et al., 2011). Building from research indicating that a sense of autonomy is of vital importance to adolescents' well-being (e.g. Koydemir-Ozden & Demir, 2009; Lokes, et al., 2010; Rudy et al., 2008; Wang, 2009) and academic success (e.g. d'Ailly, 2003; Eccles et al., 1993; Soenens & Vansteenkiste, 2005; Studsrod & Bru, 2009), this study examined the longitudinal relation of four measures of neighborhood disadvantage in adolescence to well-being and academic success in young adulthood and whether this relationship could be explained by adolescents' feelings of autonomy and control during adolescence. Based upon research indicating that individuals' feelings of autonomy may vary according to social class (Bowman et al., 2009; Kusserow, 2004), this study further examined whether the association between neighborhood disadvantage and young adult outcomes differed by

family wealth. Lastly, given that family-level factors are often found to be more predictive of outcomes than neighborhood-level factors (Brooks-Gunn, Duncan, Leventhal & Aber, 1997; Murry, et al., 2011), in addition to critiques of neighborhood research calling for the need to properly distinguish between neighborhood and family effects (Leventhal & Brooks-Gunn, 2000), this study examined whether the longitudinal associations between neighborhood disadvantage and young adult outcomes were above and beyond the typically observed associations between parenting and young adult outcomes.

In keeping with previous research (e.g. Ainsworth et al., 2002; Bowen et al., 2008; Woolley & Grogan-Kaylor, 2006), this study indicated that neighborhood disadvantage was negatively associated with academic success. Importantly, findings from this study provide evidence that the association between neighborhood disadvantage and academic success is robust over time and persists even when controlling for previous achievement, family socio-economic status and parenting, highlighting the importance of the neighborhood context to positive developmental outcomes.

Results further reveal that, in addition to a direct relationship between observer-rated neighborhood disadvantage and academic success over time, adolescents' sense of future control serves as one possible mechanism by which census-based neighborhood disadvantage during adolescence may relate to well-being during young adulthood. Whereas, adolescents' sense of academic control may serve as a mechanism by which census-based neighborhood disadvantage may relate to academic success in young adulthood. These findings suggest that in addition to the direct risk to adolescents' educational attainment conferred by neighborhood disadvantage through limited

resources and services, higher crime and violence and lower quality schools (Murry et al., 2011), living in a context with high rates of poverty and unemployment and being surrounded by individuals with low levels of educational attainment can also impact adolescents' educational attainment through limiting adolescents' sense that a positive future is attainable and increasing adolescents' worry about their future. Indeed, research suggests that neighborhood conditions may have a more distal influence on adolescent mental health through increasing more proximal risk factors, like stress (Cutrona, Wallace & Wesner, 2006; Deardorff, Gonzales, & Sandler, 2003; Murry et al., 2011).

While there was no direct association between measures of neighborhood disadvantage and well-being over time, the longitudinal association between neighborhood disadvantage during adolescence and well-being during young adulthood via adolescents' feelings of future control suggests that neighborhood disadvantage may confer risk to well-being over time by limiting adolescents' belief that a stable life is possible. Previous studies examining the relationship between neighborhood characteristics and adolescent mental health have been inconsistent, with some researchers suggesting that shared method variance may be a reason for controversial findings (see Murry et al., 2011 for a discussion). A strength of this study was the ability to use objective measures of neighborhood disadvantage in addition to caregiver report, thus avoiding having to rely solely upon adolescent report of neighborhood conditions.

Given the different associations of observer-rated neighborhood disadvantage and census-based neighborhood disadvantage to study outcomes, this study further highlights the importance of using multiple measures to assess neighborhood conditions. Measures of the neighborhood were only moderately correlated (r s ranging from .27 to .43)

suggesting that observer-, census-, and caregiver-ratings of the neighborhood may each capture unique aspects of the neighborhood context not captured by the other measures. Indeed, the influence of observer-rated neighborhood disadvantage on academic success over time was stronger than the influence of census-based neighborhood disadvantage. Further, while census-based neighborhood disadvantage was associated with adolescents' sense of future control (using the unweighted data), observer-based neighborhood disadvantage was not. These results suggest that the information captured by each of these measures of neighborhood may be qualitatively different.

It may be that while neighborhood factors such as conditions of housing units and streets in the neighborhood and presence of garbage as assessed in the observer-report of neighborhood conditions are indicative of neighborhood resources and related outcomes, the percentage of the population in the neighborhood experiencing difficulty (poverty, unemployment, low educational attainment) has a more direct impact on the possibilities adolescents see for themselves. Future research should continue to explore and compare the relationship between different measures of neighborhood conditions to individual outcomes to further determine what aspects of the neighborhood are most influential for particular outcomes.

Of note, caregiver report of neighborhood quality and safety were not associated with either adolescents' sense of future control or academic control in the full sample, nor did caregiver report of neighborhood quality and safety longitudinally influence young adult well-being and academic success. It is possible that adolescents' perceptions of their own neighborhood would have been more closely associated with adolescent outcomes given that caregivers and their children may view the neighborhood context

differently. However, as noted previously, some researchers argue that adolescents' perception of their environment may be confounded with other adolescent measures, such as mental health (Watkins, Martin & Stern, 2000). It is also possible that the lack of association between caregiver report of neighborhood quality and safety and study variables is due to the fact that these constructs were assessed with only one question each. Future studies of the neighborhood should, therefore, aim to develop and include more comprehensive measures of both parent and adolescent perception of neighborhood conditions to more accurately assess what subjectively measured components of the neighborhood context are important to adolescent developmental outcomes.

Weighted versus Unweighted Data

While many findings remained consistent when conducting study analyses with weighted versus unweighted data, there were a number of significant discrepancies in study findings. Most notably, when using the weighted data, the relationship between census-based neighborhood disadvantage and adolescents' perceived future control became insignificant. As a result, analysis with the weighted data did not support a robust indirect relationship between census-based neighborhood disadvantage and either well-being or academic success at Time 2. The direct relationship between census-based neighborhood disadvantage and academic success in young adulthood observed with the unweighted data also became insignificant when analyses were conducted with the weighted data.

There are a couple of possible reasons for the observed differences in outcomes between the weighted and unweighted data. Weighting data alters standard errors of variables, which can lead to an increase in the variance of estimates thereby reducing the

precision of estimates. It is therefore possible that in weighting the data, some coefficients become insignificant due to an increase in standard errors.

Another possibility (and as implied by the findings below) is that the models tested in this study are more robust for lower-income samples. Thus, when weights are applied to the data, the over-sampling of low-income and African-American participants gets “weighted down.” In order to further examine this possibility, future studies should examine the models tested in this study with additional low-income samples to determine if the results found in this study for the unweighted data and low wealth samples remain robust.

Comparisons by Wealth

As alluded to previously, examining whether the association between neighborhood disadvantage and young adult outcomes differed by family wealth yielded some interesting findings. Notably, for the weighted and unweighted data the relationship between census-based neighborhood disadvantage and adolescents’ sense of future control was only significant for adolescents in the lowest quartile of wealth. Given the association between wealth, socio-economic status and overall neighborhood conditions, this finding suggests that the association between neighborhood conditions and feelings of control is strongest when neighborhood conditions are on the more extreme end of disadvantage. Although her work has been difficult to verify quantitatively, Lareau (2003) argues that lower class children manifest an “emerging sense of constraint”—a belief that the best they can do is adapt themselves to their limited life circumstances. Neighborhood disadvantage may be one reason for such feelings of constraint.

Also among adolescents in the lowest quartile of wealth, there were associations between census-based neighborhood disadvantage and lower levels of academic control that were not observed in the middle wealth group for both the unweighted (marginal association) and weighted data. A similar (marginal) association between census-based neighborhood disadvantage and academic control was also noted for the high wealth group when using the unweighted data. These findings provide further evidence that the association between neighborhood conditions and adolescents' sense of control may be present only at extreme levels of neighborhood conditions. Variation in neighborhood conditions for adolescents in the middle two quartiles of wealth appears to have no bearing on adolescents' feelings of control. Due to sample size constraints, it was not possible to model the association between neighborhood disadvantage, adolescents' feelings of control, well-being and academic success for adolescents whose families were in the lowest or highest quintiles or deciles of wealth. Future research should test further whether the association between neighborhood conditions and adolescents' sense of autonomy or control is strongest at the extremes of wealth as this research suggests.

Despite the fact that both the association between census-based neighborhood disadvantage and future control and the association between future control and well-being at Time 2 were stronger for the low wealth group than for the full sample, the indirect association between census-based neighborhood disadvantage in adolescence and well-being in young adulthood was only marginally significant for the low wealth group when conducting analyses with the unweighted data. (This indirect relationship was not significant when conducting analyses with the weighted data.) This marginal finding may, however, be due to the sample size of the low wealth group and reflect a lack of

power in the model rather than non-significant relationship. Similarly, there was a marginal indirect relationship between census-based neighborhood disadvantage in adolescence and academic success in young adulthood for the low wealth group when conducting analyses with the weighted data. Additional research is needed to see if these findings can be replicated in larger samples.

Another interesting finding to emerge from comparisons by family's level of wealth was that neither well-being nor academic success at Time 1 were related to well-being and academic success at Time 2 for the high wealth group for analyses conducted with the unweighted data. Instead, the association between adolescents' feelings of future control and well-being and academic success in young adulthood seemed to be paramount for the high wealth group. This finding underscores the fact that for adolescents at the high and low levels of wealth, beliefs about the future and related feelings of control and autonomy are important to developmental outcomes. Notably, when conducting analyses with the weighted data, the model did not fit the data for the high wealth group whatsoever. When using weighted data, the items used to assess adolescents' perceived future control did not load well onto the factor, which may partially account for the lack of model fit. When weighting the data, it is possible that a ceiling effect is taking place whereby the vast majority of young adults report high levels of academic success and well-being; such invariance in the dependent variable may contribute to a lack of model fit. Indeed, percent of female-headed households had to be removed as an indicator of census-based neighborhood advantage due to zero variance in this variable for the high wealth group.

For the middle and high wealth groups, census-based neighborhood disadvantage did not appear to be as important to study outcomes compared to the low wealth group. The only finding to remain consistent across all levels of wealth was the longitudinal association between observer-rated neighborhood disadvantage during adolescence and academic success during young adulthood. This finding was observed across all wealth groups for both the weighted and unweighted data. The fact that this association was significant regardless of family wealth highlights the fact that it may be neighborhood resources, rather than the outcomes of adult individuals in the neighborhood (as measured by census variables) that have the most profound impact on adolescents' academic success across time.

Finally, although census-based neighborhood disadvantage was (marginally) associated with adolescent's feelings of academic control for the low and high wealth groups, feelings of academic control at Time 1 were not related to either well-being or academic success at Time 2 for either of these groups when conducting analyses with the unweighted data. In contrast, when analyses were conducted using the weighted data, there was a significant association between adolescents' feelings of academic control at Time 1 and academic success in young adulthood for the low wealth group.

When conducting analyses with the unweighted data, adolescents' sense of academic control at Time 1 was associated with higher levels of well-being at Time 2 for the middle wealth group. Given comparable levels of academic control reported by low and middle income groups, the lack of a longitudinal association between academic control and well-being among the low wealth group may be due to the low wealth group being more accepting of a discrepancy between educational expectations and aspirations.

In contrast, for adolescents whose parents are in the middle two quartiles of wealth, the reality that desired levels of education may be unattainable may be less acceptable and therefore have serious consequences for feelings of well-being. Given that the model did not fit the data well for the middle wealth group when analyses were conducted with weighted data, however, further emphasizes the need for future research.

Despite the fact that a contingency between values and outcomes reflects individuals' perceived control (Weisz, Francis & Bearman, 2010), as evidenced by variation in the association between adolescents' academic control (contingency between educational aspirations and the level of schooling they actually expect to complete) and well-being between the low and middle wealth groups, the value and meaning of control may, indeed, vary by social class (e.g. Kusserow, 2004; Nucci et al., 1996). Given the universal need for autonomy, therefore, the extent to which adolescents' perceived control with respect to academic outcomes reflects adolescent autonomy may also vary according to individual characteristics. Thus, future research should continue to examine those factors associated with adolescent feelings of control and autonomy in order to best support individuals' academic success and well-being.

Limitations

As with all research studies, this study is not without limitations. Analysis of variables by wealth seemed to indicate that most of the variance in study variables was seen at the "tails" of wealth, that is, at either very high or very low levels of wealth. However, due to sample size constraints, it was only possible to compare the upper quartile and lower quartiles of wealth. Research suggests that some of the largest discrepancies in wealth occur between the highest 10% or 1% of the population

(Neckerman & Torche, 2007). As such, future research should continue to examine the relation between neighborhood conditions and adolescents' sense of control to well-being and academic success with samples that allow for comparisons between more extreme levels of wealth.

Similarly, due to sample size constraints, it was not possible to control for parenting when examining group differences by wealth. Although controlling for parenting did not have a significant impact on the strength of relationships between neighborhood disadvantage and other study variables in the full sample, future research should examine whether controlling for parenting may change the magnitude of similar relationships at different levels of wealth.

Finally, given that measures of neighborhood disadvantage and adolescents' sense of control were all from one time point and it is not possible to definitely establish that neighborhood conditions temporally precede adolescents' feelings of control. However, due to the fact that measures of neighborhood conditions were reported by caregivers and observers other than the adolescent or derived from census data, the assumption that neighborhood conditions influence adolescents' feelings of future and academic control and not vice versa would likely be upheld.

Conclusions and Implications

Findings from this study highlight the importance of considering macro-social influences on adolescent autonomy. Not only were neighborhood conditions associated with adolescents' sense of future control, but the associations between neighborhood conditions and adolescent control varied with respect to adolescents' position along a distribution of wealth. In addition to demonstrating that macro-social factors are

important to adolescents' sense of control, this study provides further evidence that adolescents' sense of control serves as a mechanism by which neighborhood conditions are related to the well-being and academic success of adolescents.

Collectively, these findings suggest that intervention efforts aimed at youth empowerment may help to mitigate the negative impact of neighborhood conditions on adolescents' developmental outcomes through helping to mitigate the association between neighborhood disadvantage and lower feelings of control. Such efforts to empower youth may be particularly important for youth whose families are in the lowest quartile of wealth given stronger associations between neighborhood disadvantage and feelings of control for this group. Despite the promise of targeting adolescents' sense of control as a means to combat the negative effects of neighborhood disadvantage on adolescent well-being and academic success, findings from this study reveal that neighborhood disadvantage also has a direct negative impact on adolescent outcomes, particularly academic success. As such continued efforts to identify further mechanisms by which neighborhood conditions may influence adolescents' development are necessary.

CHAPTER 4

Autonomy, Knowledge, and Value: Understanding the Mechanisms by which Social and Resource Capital Empower Youth to Pursue Post-Secondary Education

Educational Disparities

Over the past several decades, researchers, educators, and policy makers have aimed to address the stark disparities in educational attainment among youth living in the United States. According to the 2008 data from the National Center for Education Statistics [NCES], approximately 68% of high school graduates currently enroll in post-secondary education following high school. Although that percentage has increased substantially from 49% in 1972 (NCES, 2009), ethnicity and socio-economic status continue to be robust predictors of educational success. African-American and Latino youth in particular exhibit lower college attendance rates with just 32% of African-American and 26% of Latino youth aged 18-24 attending college, compared to 44% of European-American youth. With respect to income, between 2000 and 2008 49-57% of high school graduates from families in the two lowest quintiles of the income distribution enrolled in college compared with 77-80% in the highest quintile.

Compounding the risk for lower levels of educational attainment for minority youth is the fact that minority populations in the United States are disproportionately young and poor, and thereby susceptible to the many adverse effects of economic

hardship (Eamon, 2005). Thirty-eight percent of African-American and 33% of Latino children under the age of 18 live below the poverty line compared with 17% of non-Latino White children (U.S. Bureau of the Census, 2010). Although lower rates of college enrollment among minority youth may be partially attributable to poverty, other social factors such as the quality of schools, cultural appropriateness of curriculum, and institutional practices of discrimination also contribute to educational disparities (Eamon, 2005). Given shifts in the U.S. economy, increasing demand by employers for skilled labor, and the related importance of a college degree to securing a living wage, understanding how to best support youth in the pursuit of post-secondary education is imperative.

Empowering Youth to Pursue Post-secondary Education

According to Stanton-Salazar (2001), “people make their way in the world by constantly negotiating both the constraints placed on them and the opportunities afforded them by way of the social webs of which they are a part” (p.18). Emphasizing the importance of social constraints to individuals’ well-being, Social Determination Theory (SDT; Deci & Ryan, 2000) identifies autonomy or freedom from a controlling environment as a universal human need. Research adopting SDT typically views parents and teachers as the gatekeepers to autonomy, dictating whether an environment is either conducive to or restrictive of self-regulation and agency for adolescents. In viewing parents and teachers as both the primary barriers and the access points for life opportunities, research adopting an SDT perspective often views adolescents as either *being* controlled or supported by their parents and teachers, rather than *having control* or *feeling in control*. Conceptualizing control as the *absence* of being controlled (Deci &

Ryan, 2000) adopts a deficit approach in focusing on factors that may constrain, rather than support, academic success. A deficit model is one that focuses on failings and problems of individuals and contexts rather than strengths and assets of individuals and contexts (Cowger & Snively, 2001; Zimmerman et al., 2008).

In contrast, theories of social capital emphasize how social relationships and other social structures function as resources that enable individuals to successfully pursue desired actions (Lin, 2001). The amount of social capital individuals have at their disposal depends largely on the quality of resources and information possessed by individuals' social networks (Coleman, 1988). According to Coleman, factors such as social class and race that impact individuals' position in the social hierarchy also limit their degree of social capital. That is, the more oppressed individuals are, the less social capital they tend to possess. However, bolstering social resources within social networks and fostering social relationships between and across such networks can serve to empower individuals by increasing their social capital (Semenza, March & Bontempo, 2007). Despite such conceptual links between social capital and individuals' feelings of empowerment, few studies have examined how social capital relates to individuals' feelings of control.

In addition to the role of social resources on individuals' choice to enroll or not enroll in post-secondary education, research has also examined how financial resources may influence this decision (Long, 2007). While Coleman's conceptualization of social capital includes resources as a form of capital, some researchers make a distinction between *social* capital and *resource* capital, arguing that factors such as parental education and income should be conceptualized separately from aspects of social

relationships (parental school involvement, parental expectations) that also serve as forms of capital (Mullis, Rathge & Mullis, 2003). As with research on social capital, little research has addressed links between resource capital and adolescents' feelings of control, although investigations of empowerment suggest that capital, feelings of control, and the intersection of the two are important for the positive development of individuals, particularly in the context of social constraints such as poverty.

Empowerment Theory considers the relationship of the individual to the larger social and political environment, adopting a strengths-based perspective in viewing problems as rooted in the larger social context as opposed to the individual (Perkins & Zimmerman, 1995). While oppression involves asymmetric power relations in which some groups accumulate privileges—financial, social and psychological resources—while other groups do not, empowerment involves the realization of this oppression as part of the larger socio-political context (Gutierrez & Ortega, 1991) and the process of effectively harnessing individual and community strengths to combat and overcome barriers imposed by oppression. Specifically, Stanton-Salazar (2001) emphasizes social capital as a means to empowerment and the accomplishment of goals.

Research on empowerment identifies autonomy and feeling in control as key qualities of empowered individuals (Bolton & Brookings, 1996). Yet research on autonomy has often failed to attend to individuals' sense of control or empowerment with respect to life opportunities and decisions. One reason for this is that research on empowerment and research on autonomy have typically been conducted under two different empirical traditions. There has been little interdisciplinary work joining more qualitatively focused studies of empowerment and studies of autonomy that largely

follow quasi-experimental or survey-based research designs. Indeed, in contrast to investigations of empowerment, which prioritize individual feelings and experience, few studies of autonomy have directly measured individuals' sense of control, instead inferring experienced levels of control on the basis of measures of environmental constraints.

Pointing to the importance of directly measuring the relationship between individuals' feelings of control and their academic outcomes, Malian and Nevin (2002) found that when students have a sense of control over their education, they are more likely to be invested in their academic success. Thus, an important contribution of the current study is that it begins to apply an empowerment perspective to examination of adolescents' academic success by investigating how social and resource capital are related to adolescents' feelings of control over their future academic endeavors and the extent to which this sense of control is associated with plans to pursue post-secondary education.

Family and School Capital

A socio-ecological framework for understanding development emphasizes the need to examine the relationship between individuals and the multiple contexts in which they develop. Although Social Capital Theory acknowledges the influence of both economic and social resources on adolescents' developmental outcomes, this work does not often consider the multiple social contexts that serve as sources of social capital in adolescents' lives. Numerous studies attest to the importance of both the family and the school contexts to adolescents' educational outcomes (e.g. Anderman & Maehr, 1994; Eccles et al., 1993; Hill & Tyson, 2009; Parcel, Dufur & Zito, 2010; Steinberg & Morris,

2001). As such, this current study examines both the family and school contexts as sources of social and resource capital that can affect adolescents' decision-making with respect to post-secondary education.

Resource Capital. In differentiating between social and resource capital, several researchers identify parental education and family income as important sources of capital (e.g. Mullis, Rathge & Mullis, 2003; Sandefur, Meier & Campbell, 2006). As indicated previously, family income is an important source of resource capital given its strong association with the educational attainment of youth (NCES, 2009). As a marker of socio-economic status, parental educational attainment is similarly related to enrollment in post-secondary education (Ellwood & Kane, 2000). However, even when income is controlled for, lower levels of parental educational attainment are associated with a lower likelihood of enrolling in post-secondary education. Adolescents whose parents are not college graduates may not be socialized to aspire to attend college or may not have access at home to the information they need to successfully navigate the college application process (Hill & Tyson, 2009; Portes, 1998). Thus, in addition to functioning as a marker of resource capital, parental educational level may also be related to relative levels of social capital in the family context.

In addition to the potential importance of disparities in resource capital in the family context is the finding that low-income youth are found to disproportionately attend schools with limited or no college counseling services and thereby have limited access to college preparatory knowledge (Corwin, Venegas, Oliverez, & Colyar, 2004; Simmons, 2011). Thus, school funding and associated student services emerge as potential sources of resource capital in the school context. However, studies investigating the association

between school resources and academic achievement have remained controversial. In a review of more than 200 such studies, Hanushek (1997) maintained that associations between school funding and student outcomes were either non-significant or weak, particularly when family factors were taken into consideration. In contrast, in a different meta-analysis, Greenwald, Hedges & Laine (1996) found that school resources were positively related to academic outcomes and reported large effect sizes suggesting increases in school funding as a viable means to increase student achievement. The discrepancy in findings between these meta-analyses may reflect differences in the operationalization of school resources in addition to differences in the level of school input allowed (e.g. state, school district, school, classroom) between the two studies. Additionally, Hanushek included outcomes such as school dropout and labor market earning in his analysis, while Greenwald and colleagues limited their meta-analysis to examination of achievement as an outcome. Given inconsistent findings with respect to the effects of resource capital in the school context, further investigation of the relation of school funding to academic outcomes is warranted.

Social Capital. Aspects of social relationships (e.g. parental school involvement, parental aspirations) can also serve as forms of capital (Mullis, Rathge & Mullis, 2003). Traditionally examinations of parental involvement in education have focused on school-based involvement. However, in their meta-analysis of the influence of parental support on youth's educational outcomes, Hill and Tyson (2009) found that parental academic socialization of their children, including communicating the value of education, fostering educational aspirations and discussing learning, were more important to the educational

success of youth than typical measures of home-based and school-based parental involvement (e.g. monitoring homework, attending PTA meetings, talking with teachers).

Indeed, in a meta-analysis, Fan and Chen (2001) reported that parental aspirations for children's education emerged as the strongest predictor of academic achievement. With respect to the socialization of valuing higher education, Hong and Ho (2005) found that parents' own educational aspirations for their children were associated with their children's educational aspirations for themselves. Similarly, parent-child discussions that emphasize the value and importance of education have been found to be directly related to adolescents' future educational plans (Battle & Lewis, 2002; Fan & Chen, 2001). Thus, parent communication of the value of higher education through parent-child discussions and expression of their educational aspirations for their children seem to be particularly salient as types of social capital in supporting adolescents' educational pursuits.

Much research points to the importance of social support from teachers to adolescents' academic success. Indeed, in a nationally representative study of 11,000 10th grade adolescents, Croninger and Lee (2001) found that students who discussed both academic and personal issues with their teachers were more likely to graduate from high school than students who did not engage in such discussions. Research has further found that emotional support received from teachers and school staff is often accompanied by advice pertaining to adolescents' future educational plans (Ceballos, Huerta, & Epstein-Ngo, 2010), thus emphasizing the association between social capital in the school context and the provision of college preparatory knowledge. Similarly, Anyon (1995) found that lower levels of teacher support and low teacher expectations are associated with limited

or no access to college preparatory information further emphasizing the importance of social capital not only directly to academic outcomes, but also to factors, such as knowledge, that may contribute to successful pursuit of these outcomes.

Relationship between Social and Resource Capital. Not surprisingly, parents' financial resources have been found to influence the type and degree of their parental involvement in education. Across racial/ethnic groups, having more highly educated parents is associated with greater parental involvement in middle school and at the start of high school (Crosnoe, 2001; Grolnick & Slowiaczek, 1994; Shumow & Miller, 2001). Among financially disadvantaged families, an increase in parental involvement was associated with an increase in adolescents' academic orientation (Cooper & Crosnoe, 2007). Relatedly, in the school context, higher levels of social capital have been found to help buffer youth from the disadvantages conveyed by limited resources in the schools they attend (Ryabov & VanHook, 2007) suggesting that social capital may also help to offset deficits in resource capital in the school context. These findings underscore the potential for different types of social capital to serve as protective factors, bolstering the academic attainment of adolescents subject to economically disadvantaged contexts. Given this and other research documenting several ethnic and socioeconomic differences in levels of social capital as well as in the relation between social capital and various academic outcomes (Fan, Williams, & Wolters, 2012; Henry, Cavanagh & Oetting, 2011; Hill et al., 2004; Hill & Tyson, 2009; Seginer, 2006; Shumow & Miller, 2001), it is important to control for both ethnicity and father's educational level in investigations of social and resource capital.

Control, Knowledge, and Value

As the previously cited studies indicate, research seeking to uncover mechanisms that may help to explain disparities in adolescents' pursuit of higher education can be informed through investigation of social capital. Although these studies offer evidence of direct associations between measures of capital and adolescents' intent to pursue post-secondary education, fewer studies have examined the mechanisms by which social and resource capital may be linked to educational outcomes. Research examining factors associated with the pursuit of post-secondary education suggests that both valuing post-secondary education and having college preparatory knowledge emerge as two possible factors that may help to explain the mechanisms by which social and resource capital are associated with adolescents' plans to pursue post-secondary education (Auerbach, 2004; Battle & Lewis, 2002; Kiyama, 2010; Simmons, 2011; Staton-Salazar, 2001; Tornatzky, Cutler & Lee, 2002; Valenzuela, 1999). Yet, little research has directly examined either valuing higher education or having college preparatory knowledge as mediators in the relationship between capital and educational outcomes.

As previously discussed, studies of empowerment suggest that adolescents' feelings of control may be another such mechanism. According to cognitive developmental theory, adolescents are increasingly able to engage in abstract reasoning as they age (Feldman, 2004; Lerner, 2002). As such, they are increasingly able to evaluate the world around them and the possibilities and limitations it presents with respect to educational and occupational decisions (Howard & Walsh, 2010). Particularly, at this stage of development, adolescents are able to deduce which educational or occupational outcomes are *accessible* compared to those that might be preferred (Furlong

& Cartmel, 1995; Gottfredson, 1981). Therefore, adolescents' *perception* of post-secondary education as a viable option will directly reflect how autonomous they feel.

Aside from the relationship between social and resource capital and adolescents' evaluation of their world and the related feelings of control over their chances of pursuing post-secondary education, the extent to which adolescents value and possess a critical understanding of the college process may also relate to their feelings of autonomy and control (Assor, Kaplan, & Roth, 2002; Katz & Assor, 2007). Indeed, students' valuing education has been found to be an important predictor of the level of education they feel it is possible to achieve (Viljaranta, Nurmi, Aunola & Salmela-Aro, 2009) emphasizing the importance of valuing education to youths' perceived control over their academic destiny. Indeed, Farkas and Grolnick (2010) contend that a contingency between behaviors and values is a central component of feelings of autonomy. Less research links individuals' perceived knowledge with perceived control (e.g. Frewer, Shepherd, & Sparks, 1994) emphasizing the need to investigate the association between college preparatory knowledge and adolescents feelings of control further.

Academic Self-Efficacy

Related to the concepts of empowerment and control, self-efficacy has been identified by Bandura (2001) as the foundation of human agency. Defined as the ability to "influence intentionally one's functioning and life circumstances," agency refers to the control individuals have over their own lives (Bandura, 2006, p.164). Self-efficacy entails "personal judgments of one's capabilities to organize and execute courses of action to attain designated goals" (Zimmerman, 2000, p. 83). Thus, in order to have or perceive a sense of control over their academic destiny, adolescents must also feel that they possess

the wherewithal to pursue their goals. In keeping with this observation, Bandura and colleagues found that students choose future careers and plan future educational objectives based, in part, on perceptions of how successful they feel they will be in these pursuits (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). Such findings suggest that adolescents' perceived self-efficacy is another factor likely to be related to both to their feelings of control and their plans to pursue post-secondary education.

Although some researchers maintain that self-efficacy is closer to the conception of competency than autonomy (Ryan & Deci, 2006), self-efficacy entails both efficacy expectations and outcome expectations. In other words, the decision to pursue post-secondary education not only entails the belief that one has the capability or knowledge to successfully apply to and be accepted into college or be academically successful once in college, but also the belief that attending college is a viable option, that possessing the capability of knowledge to be successful will definitively translate into the goal of college being reached. Thus, in addition to investigating the relationship of social and resource capital to adolescents' academic pursuits, the current study examines adolescents' feelings of control as a potential mediator in the relationship between academic self-efficacy and plans to pursue post-secondary education.

Current Study

The current study investigated the mechanisms by which both social and resource capital empowered adolescents' among a sample of African-American and European-American youth to pursue post-secondary education. Specifically, this study examined how adolescents' perceived autonomy with respect to graduating from college, along with their having college preparatory knowledge, valuing college education and

possessing academic self-efficacy, may help to explain adolescents' plans to pursue post-secondary education. Understanding the pathways by which youth may feel empowered to pursue post-secondary education is an important step in promoting the educational success of adolescents.

To this end, the current study tested a series of five models examining the associations between a number of variables—social and resource capital in the school and family contexts, academic self-efficacy, college preparatory knowledge, valuing higher education, and adolescents' sense of control— and adolescents' future educational plans (See Figure 4.1). Model 1 examined social and resource capital in the school and family contexts and their relationship to adolescents' future educational plans. Drawing from Social Capital Theory (Coleman, 1988), I predicted that financial and social resources would be positively associated with adolescents' future educational plans.

Drawing from previous studies suggesting both valuing education and having college preparatory knowledge as mechanisms by which social and resource capital may be related to educational outcomes (Auerbach, 2004; Battle & Lewis, 2002; Kiyama, 2010; Simmons, 2011), Model 2 examined these variables as mediators in the association between measures of capital and adolescents' plans to pursue post-secondary education.

Model 3 expanded upon Model 1 to examine whether adolescents' academic self-efficacy beliefs (along with measures of capital) were associated with adolescents' future educational plans. Building from Bandura's work (2001), Model 4 tested adolescents' sense of control over their academic destiny and future control as mediators in the association between self-efficacy and future educational plans. Drawing from Empowerment Theory, Model 4 also examined adolescents' feelings of control as

mediators in the association between measures of capital and adolescents' plans to pursue college.

Finally, Model 5 combined results from Models 1-4 to simultaneously consider how adolescents' academic self-efficacy, valuing higher education, having college preparatory knowledge and feelings of control relate to their post-secondary educational plans and help to explain the association between social and resource capital and those future educational plans.

Method

Procedure

Data are from the Panel Study of Income Dynamics (PSID), an ongoing study of a nationally representative sample of more than 18,000 individuals living in approximately 5,000 families in the United States. The PSID collected demographic information and socioeconomic characteristics from a nationally representative sample of individuals and their families annually from 1968 to 1997 and biennially thereafter. In 1997, the Child Development Supplement (CDS) obtained information on children, aged 0-12, of PSID participants through extensive interviews with the children, their primary caregiver, secondary caregiver, absent parent, teacher, and school administrator. Information was collected again in 2002/2003 and 2007/2008 for children in this cohort who remained under 18. Interviews included a broad array of developmental outcomes including family resources, child intellectual and academic achievement, social relationships within the family, and child educational aspirations and plans for the future.

The present study underwent a complete Institutional Review Board review including a data protection plan in order to gain access to restricted data identifying the

school district of each student in the CDS. National Center for Educational Statistics (NCES) codes for participants' school districts were obtained from the Institute for Social Research at the University of Michigan, where the PSID data are housed. These NCES codes were linked with the Common Core Data provided including information on school expenditure per pupil and graduation rates in the districts where students in the study sample attended school.

Participants

This study focuses on an adolescent subset of the Child Development Supplement (CDS-III) collected in 2007/2008 using data from interviews with the children and their primary caregiver. The entire CDS-III sample consists of 1752 children and adolescents aged 10 to 18. However, because data on adolescents' knowledge of college preparatory information was collected only for 11th and 12th graders in the CDS-III, this study was limited to a cross-sectional design of 352 high-school adolescents for whom college preparatory information was available. Adolescents ranged in age from 14 to 19 ($M=16.83$, $SD=.72$). The sample was 46.8% European-American ($n=165$), 41.1% African-American ($n=145$) and 11.9% identified as an "other" ethnicity ($n=42$); 45.5% of the sample was male ($n=160$) and 54.5 % of the sample was female ($n=192$).

Measures

Family Financial and Social Resources.

Family Income. Primary caregivers reported total family income from the tax year 2006. This variable included the sum of all income (wages, social security, losses) from the head of household, "wife," and other family members. Family incomes ranged from \$5,224.00 to \$1,067,300.00 ($M=\$87,317.98$, $SD=\$107,492.13$). Family income was

recoded as follows: 1 (\$0 to \$5,000), 2 (\$5,001 to \$10,000), 3 (\$10,001 to \$15,000), 4 (\$15,001 to \$20,000), 5 (\$20,001 to \$25,000), 6 (\$25,001 to \$30,000), 7 (\$30,001 to \$35,000), 8 (\$35,001 to \$40,000), 9 (\$45,001 to \$50,000), 10 (\$50,001 to \$60,000), 11 (\$60,001 to \$75,000), 12 (\$75,001 to \$95,000), 13 (\$95,001 to \$120,000), 14 (\$120,001 to \$150,000), 15 (\$150,001 to \$185,000), 16 (\$185,001 to \$225,000), 17 (\$225,001 to \$9,999,999).

Father Education Level. Data were collected asking the head of household to indicate his own level of schooling completed and his wife's level of schooling completed. Response options ranged from 1 (1st grade) to 17 (graduate school) ($M=13.00$, $SD=2.63$). Responses were recoded 1 (1-8: less than high school), 2 (9-11: some high school), 3 (12: high school graduate), 4 (13-15: some college), 5 (16: college graduate), 6 (17: at least some graduate school) ($M=3.59$ ($SD=1.27$)). Fathers reported a mean level of schooling corresponding roughly to one year of college post high school graduation. Due to missing data, mothers' education was not included as a study variable.

Parent Valuing of Education. A single item indicating parents' educational aspirations for their children was used to assess the extent to which primary caregivers valued post-secondary education, "In the best of all worlds, how much schooling would you like [your child] to complete?" Response options were 1 (11th grade or less), 2 (graduate from high school), 3 (post-high school vocational training), 4 (some college), 5 (graduate from a 2-year college with associate's degree), 6 (graduate from a 4-year college), 7 (master's degree or teaching credential program), 8 (MD, law, PhD, or other doctoral degree). Responses were recoded 1 (11th grade or less), 2 (graduate from high school), 3 (post-high school vocational training), 4 (some college) or (graduate from a 2-

year college with associate's degree), 5 (graduate from a 4-year college), 6 (master's degree or teaching credential program) or (MD, law, PhD, or other doctoral degree) to better match adolescents' responses to a similar question about educational aspirations (see below). Parents reported desiring a mean level of education for their children of 5.01 (SD=.99) corresponding to a desire for their children to graduate from a 4-year college.

Parent School Engagement. Three items assessed how often parents discussed different aspects about school with their children during the preceding 12 months. Items were, "How often did you discuss things [your child] has studied in class?" "How often did you discuss [your child's] experiences in school?" and "How often did you discuss school activities or events of particular interest to [your child]?" Response options ranged from 1 (*never*) to 6 (*every day*). Items were averaged with higher scores indicating more frequent discussions about school ($M=4.75$, $SD=1.02$, $\alpha=.78$)

School Financial and Social Resources.

Instructional Expenditure per Pupil. Instructional expenditure per pupil at the district level was obtained from the National Center for Education Statistics (NCES) Common Core Data. Expenditure per pupil ranged from \$3,557.00 to \$ 15,598.00 ($M=\$6,100.62$, $SD= \$1,831.52$). Expenditure per pupil was recoded as follows: 1 (*\$0 to \$1,000*), 2 (*\$1,001 to \$2,000*) ... 16 (*\$15,001 to \$16,000*) so that, similar to family income, it was on a scale ranging from 1 to 16.

Graduation Rate. The graduation rate from high school at the district level was obtained from the NCES Common Core Data for each student in the study sample. Graduation rate ranged from 26.5% to 100.0% ($M=71.33\%$, $SD=16.53\%$). Graduation

rate was divided by 10 so that it would be on a scale from 1 to 10, similar to other study variables and appropriate for analysis with Mplus.

Engagement with School Teachers and Staff. Adolescents' engagement with school teachers and staff was assessed with five items asking adolescents to indicate how often they talked with adults at school and participated in class discussions. Sample items were, "How often do you... have conversations with adults (like teachers, staff) at the school?" "...talk to teachers and other adults about things other than class?" and "...join in class discussions?" Response options ranged from 1 (*never*) to 6 (*every day*). Items were averaged with higher scores indicating a greater engagement ($M=3.93$, $SD=1.26$, $\alpha=.84$).

Adolescent Academic Self-Efficacy.

Math Self-Efficacy. Adolescents' beliefs about their math abilities were assessed using ten items asking adolescents to indicate to what extent they felt competent to learn and perform well in math. Sample items included, "How good at math are you?" "How well do you expect to do in math this year?" and "How good are you at learning something new in math?" Response options range from 1 (*not well/not good*) to 7 (*very well/very good*). Items were averaged with higher scores indicating greater math self-efficacy ($M=5.16$, $SD=$, $\alpha=.78$).

Reading Self-Efficacy. Adolescents' beliefs about their reading/English abilities were assessed using ten items asking adolescents to indicate to what extent they felt competent to learn and perform well in reading/English. Sample items included, "How good at reading/English are you?" "How well do you expect to do in reading/English this year?" and "How good are you at learning something new in reading/English?" Response

options range from 1 (*not well/not good*) to 7 (*very well/very good*). Items were averaged with higher scores indicating greater reading/English self-efficacy ($M=4.06$, $SD=$, $\alpha=.82$).

Adolescent Valuing of Education.

A single item indicating adolescents' educational aspirations was used to assess the extent to which adolescents valued higher education: "How far would you like to go in school?" Response options were 1 (leave high school before graduation), 2 (graduate from high school), 3 (graduate from a 2-year community college), 4 (graduate from a vocational school, such as beauty school), 5 (attend a 4-year college), 6 (graduate from a 4-year college), 7 (get more than 4 years of college). To better match parental responses to a similar question about educational aspirations, responses were recoded 1 (leave high school before graduation) 2 (graduate from high school) 3 (graduate from a vocational school, such as beauty school), 4 (graduate from a 2-year community college) or (attend a 4-year college), 5 (graduate from a 4-year college), 6 (get more than 4 years of college). Adolescents reported desiring a mean level of education of 4.81 ($SD=1.17$) corresponding to a desire to graduate from a 4-year college.

Adolescent College Preparatory Knowledge.

A series of sixteen items assessed the extent to which students' high schools provided them with information about attending college. Item analysis revealed that items could be thematically divided into five groups based on the content of the question: college preparatory information, college financial information, college application and registration information, information on how to choose a college, and information on college details. A principal components factor analysis applied to all sixteen items. Results of the PCA using Kaiser (eigenvalue-one) criterion (Kaiser, 1960) revealed four

principal components with eigen values greater than 1.0. However, analysis of the scree plot revealed only one eigen “break” of 1.9 between the first (eigenvalue = 3.31) and second (eigenvalue = 1.43) components. Given that eigen values leveled off following this first break, a one factor solution was retained (Cattell, 1966). All items were summed to create a composite score for college preparatory knowledge with higher scores indicating greater knowledge ($M=3.89$, $SD=2.98$, $\alpha=.73$).

Adolescent Perceived Autonomy.

Future Control. Future control was assessed by three items that asked adolescents to indicate to what extent they worried that negative future events would occur. Sample items for worry about negative future events included, “How often do you worry that your family may not have enough money to pay for things?” and “How often do you worry that you will not get a good job when you are an adult?” Response options ranged from 1 (*not in the last month*) to 6 (*every day*). Items were reverse-coded and averaged with higher scores indicating a greater sense of control over the future ($M=4.91$, $SD=1.07$, $\alpha=.73$).

Academic Control. Two items asked participants to indicate how likely they thought it was that they would graduate from a two- or four-year college. The items were, “What are the chances that you will graduate from a four-year college?” and “What are the chances that you will graduate from a two-year college?” Response options ranged from 1 (*no chance*) to 5 (*it will happen*). Higher scores indicated greater perceived control over graduating from a two-year ($M=3.41$, $SD=1.60$) or four-year ($M=4.15$, $SD=1.09$) college.

Future Educational Planning.

Vocational Course Track. A group of eight questions asked adolescents to indicate courses taken during the previous two semesters. Specifically, adolescents were asked if they had taken English, math, science or vocational classes. The number of vocational courses taken in the previous two semesters were summed to create a “vocational track” variable with higher scores indicating a greater number of vocational courses taken ($M=.61$, $SD=.76$).

Plan SAT or ACT. One item asked adolescents to indicate whether or not they planned to take the SAT or ACT. Response options were 0 (no) 1 (yes). Eighty-nine percent of the sample indicated plans to take the SAT or ACT ($n=313$).

Plans to Attend College. Adolescents answered three separate questions about their future plans for college. The first question asked adolescents to indicate (*yes* or *no*) whether they planned to go to college. Adolescents indicating plans to attend college were further asked, “Do you plan to attend a two-year or four-year college?” Responses to these questions were coded to create three dichotomously coded outcome variables: 1) Plans to attend a two-year college (*yes* or *no*), and 2) Plans to attend a four-year college (*yes* or *no*), and 3) Does not plan to attend college (*yes* or *no*). Twenty percent of the sample ($n=70$) indicated plans to attend a two-year college. Sixty-nine percent of the sample ($n=243$) indicated plans to attend a four-year college. Finally, 11% of the sample ($n=37$) indicated no plans to attend college.

Analysis Plan

The data were analyzed in two stages. First, t-tests and ANOVAs were conducted to examine whether there were any differences in key study variables according to sex

and ethnicity. In the second stage, path analysis using a structural equation modeling approach (SEM) was used to examine: 1) whether having college preparatory knowledge and valuing of higher education mediated the relationship between social capital and plans to pursue post-secondary education, 2) to what extent social and resource capital in the school and family contexts were associated with plans to attend college and fulfill college entry requirements, 3) whether adolescents' feelings of autonomy mediated the relationship between social capital and self-efficacy and plans to pursue post-secondary education, and 4) to what extent knowledge of and valuing higher education along with adolescents' feelings of autonomy jointly mediated the associations between social capital and self-efficacy and adolescents' future educational plans.

Results

Preliminary Analyses

Correlations between all continuous study variables are presented in Table 4.1. T-tests revealed that females ($M=5.28$, $SD=1.00$) reported higher levels of reading self-efficacy than males ($M=4.84$, $SD=1.16$; $t(350) = -3.82$, $p < .001$), while males ($M=4.70$, $SD=1.03$) reported higher levels of math self-efficacy than females ($M=4.47$, $SD=1.12$; $t(350) = 1.99$, $p < .05$). Females ($M = 4.37$, $SD = .96$) also reported higher perceived control over graduating from a four-year college than males ($M = 3.87$, $SD = 1.18$; $t(350) = -4.36$, $p < .001$), and females ($M=.73$, $SD=.44$) were also more likely than males to indicate plans to attend a four-year college ($M=.64$, $SD=.48$; $t(350) = -1.96$, $p < .05$).

Analysis of variance (ANOVA) revealed several significant differences between ethnic groups with respect to study variables. Students identifying as European-American, African-American and an "other" ethnicity differed with respect to graduation

rates in the districts where they attended school ($F(2,262)=113.07, p=.000$), family income ($F(2,313)=50.63, p=.000$), fathers' education ($F(2,328)=34.90, p=.000$), parental school engagement ($F(2,339)=4.30, p=.014$), parents' valuing higher education ($F(2,346)=8.67, p=.000$), adolescent engagement with adults at school ($F(2,333)=4.27, p=.015$), and being on the vocational course track ($F(2,326)=3.83, p=.023$).

Post-hoc analyses employing Tukey methodology revealed that African-American students ($M=5.89, SD=1.30$) attended schools in districts with graduation rates lower than the rates in the districts of European-American ($M=8.24, SD=1.11; p<.001$) and "other" ethnicity "other" ethnicity students ($M=7.13, SD=1.65; p<.001$). Rates of graduation in school districts of European-American students were also significantly higher than rates of graduation in school districts of "other" ethnicity students ($p<.01$). Fathers of African-American students ($M=3.38, SD=.97$) and "other" ethnicity students ($M=2.38, SD=1.44$) had lower levels of education than fathers of European-American students ($M=4.04, SD=1.23; both ps<.001$). Fathers of 'Other' Ethnicity students also had lower levels of education than father of African-American students ($p<.001$). Parents of African-American students ($M=7.78, SD=3.44$) and 'Other' Ethnicity students ($M=8.41, SD=4.22$) reported lower family income than did parents of European-American students ($M=11.97, SD=3.54; both ps<.000$). Parents of European-American students ($M=4.91, SD=.94$) reported more school engagement than did parents of "other" ethnicity students ($M=4.61, SD=1.06; p<.05$) and parents of European-American students reported higher levels of valuing higher education for their children ($M=5.22, SD=.77$) than did parents of African-American students ($M=4.76, SD=1.16, p<.001$). European-American students ($M=4.12, SD=1.27$) were more likely than "other" ethnicity students to engage with

adults at school ($M=3.54$, $SD=1.32$; $p<.05$). Finally, although the omnibus ANOVA test was significant for ethnic differences among adolescents enrolled in the vocational track, post-hoc analyses employing Tukey methodology indicated that all ethnicities were equally likely to take courses in the vocational track.

Main Analyses

Main analyses employed a structural equation modeling approach to examine both direct relationships between social and resource capital and academic self-efficacy and adolescents' future educational plans in addition to whether adolescents' college preparatory knowledge and valuing of higher education and adolescents' feelings of autonomy mediated the relationship between social and resource capital in the family and school contexts and academic self-efficacy and adolescents' future educational plans. Models 1-5 (Figures 4.1 and 4.6) were tested using MPlus, Version 6.1 (Muthuen & Muthuen, 2007). Age, sex and ethnicity were included as control variables in all models. MPlus was selected for conducting analyses because of its efficiency in dealing with missing data. Because one of the outcomes was dichotomous (unemployment), MPlus defaulted to use of weighted least square parameter estimates.

Part I: Examining Valuing of Education and College Preparatory Knowledge as Mediators in the Relationship between Capital and Future Educational Plans.

Model 1. Building from social capital theory, Model 1 (baseline model) examined the direct effects of social and resource capital in the school context (expenditure per pupil, graduation rate, engagement with school teachers and staff) and social and resource capital in the family context (family income, father education, parent valuing of higher education, parent school engagement) on adolescents' future educational plans (Figure

4.1). In addition, whether adolescents were on a vocational course track was examined as a mediator between both school and family capital and adolescents' future educational plans.

Model 1 fit the data well (CFI = .996, TLI = .975, RMSEA=.037, $\chi^2(15) = 22.071$, $p = .106$). According to fit criteria suggested by Hu and Bentler (1995), as an index that takes model complexity into account, an RMSEA of .08 or less is considered a reasonable fit, and an RMSEA of .05 or less is considered a good fit. The CFI estimates the relative fit of the target model in comparison to the baseline model where all variables in the model are uncorrelated (Hu & Bentler, 1995). The values of CFI range from 0 to 1, with values greater than .90 indicating a good model fit and values greater than .95 indicating an excellent model fit. The TLI is another index for comparative fit also known as the non-normed fit index and includes a penalty for model complexity. The TLI is more conservative than the CFI, but as in the CFI, values range from 0 to 1, with values greater than .90 indicating a good fit and values greater than .95 indicating an excellent fit. While the significance level of the chi-square is useful as a parameter for model fit in samples of fewer than 200 participants, its utility as a fit criterion is diminished in studies with larger sample sizes.

All significant paths for Model 1 are depicted in Figure 4.2. Results from Model 1 indicated that a greater level of parents' valuing of higher education was related to a higher probability of their adolescents' planning to attend a four-year college ($\beta = .28$, $p < .001$) and planning to take the SAT ($\beta = .29$, $p < .01$). Higher family income and parental engagement in education were also both associated with a higher probability of adolescents' planning to take the SAT ($\beta = .35$, $p < .05$; $\beta = .18$, $p < .05$; respectively). More

engagement with school teachers and staff was associated with a higher probability of planning to attend a four-year college ($\beta = .32, p < .001$) and planning to take the SAT ($\beta = .26, p < .01$), but a lower probability of planning to attend a two-year college ($\beta = -.21, p < .01$). School expenditure per pupil and graduation rate were not related to adolescents' future educational plans.

Higher educational level of adolescents' fathers was related to parent valuing of education ($\beta = .36, p < .001$) and family income ($\beta = .57, p < .001$), suggesting possible indirect paths between fathers' educational level and adolescents' planning to attend a four-year college and take the SAT via parents' valuing of education and between fathers' educational level and adolescents' planning to take the SAT and via both family income and parental engagement. Additionally higher educational level of adolescents' fathers was marginally related to a lower probability of adolescents' planning to attend a two-year college ($\beta = -.28, p < .10$) and taking an increased number of vocational courses ($\beta = -.19, p < .10$).

Taking vocational classes was associated with a higher probability of planning to attend a two-year college ($\beta = .20, p < .01$) suggesting that the relationship between fathers' higher educational level and a lower probability of planning to attend a two-year college may be partially explained by taking fewer vocational classes. Taking more vocational classes was also associated with a lower probability of planning to attend at four-year college ($\beta = -.15, p < .05$).

With respect to control variables, compared to being European-American, being African-American was associated with attending school in a district with a lower graduation rate ($\beta = -.62, p < .001$), lower school engagement ($\beta = -.24, p < .001$), lower

family income ($\beta = -.36, p < .001$), lower fathers' educational level ($\beta = -.26, p < .001$), and lower valuing of education by parents ($\beta = -.14, p < .05$). Being African-American was also associated with a higher probability of planning to take the SAT and planning to attend a four-year college ($\beta = .44, p < .01$; $\beta = .29, p < .01$; respectively). Compared to being European-American, identifying as an "other" ethnicity (not European-American or African-American) was associated with attending school in a district with a lower graduation rate ($\beta = -.13, p < .05$), lower levels of interaction with school teachers and staff ($\beta = -.15, p < .01$), and lower fathers' educational level ($\beta = -.45, p < .001$). Finally being older was associated with lower parental engagement in school ($\beta = -.13, p < .05$) and a lower probability of planning to attend a four-year college ($\beta = -.15, p < .05$).

Model 2. Model 2 began to test the mechanisms through which social and resource capital are related to adolescents' future educational plans. Specifically, Model 2 tested whether adolescents' valuing of education and college preparatory knowledge fully mediated the relationship between school and family resources and adolescents' future educational plans (Figure 4.3). Model 2 fit the data well (CFI = .988, TLI = .965, RMSEA = .039, $\chi^2(44) = 67.563, p < .05$). Analysis of the chi-square difference test comparing full and partial mediation by adolescents' valuing higher education and having college preparatory knowledge indicated that a reduction in degrees of freedom by restricting paths between school and family resources and adolescents' future educational plans did not lead to a better model fit (CFI = .988, TLI = .914, RMSEA = .061, $\chi^2(18) = 41.846, p < .01$; $\Delta\chi^2(26) = 27.276, p = .395$). Therefore, the more parsimonious model with full mediation was accepted. All significant paths for Model 2 are depicted in Figure 4.4.

Model 2 indicated that parental valuing of education was related to adolescents' college preparatory knowledge ($\beta = .19, p < .01$) and adolescents' valuing higher education ($\beta = .44, p < .001$). Parental engagement was positively related to adolescents' having college preparatory knowledge ($\beta = .13, p < .05$), but unrelated to adolescents' valuing higher education. Family income was only marginally related to college preparatory knowledge ($\beta = .19, p < .10$) and was also unrelated to adolescents' valuing higher education. In the school context, engagement with school teachers and staff was positively associated with college preparatory knowledge ($\beta = .28, p < .001$) and adolescents' valuing of higher education ($\beta = .37, p < .001$). Again, school expenditure per pupil and graduation rate were not related to adolescents' valuing of education or their college preparatory knowledge.

College preparatory knowledge and adolescents' valuing of higher education were both associated with a higher probability of planning to attend a four-year college ($\beta = .17, p < .001$; $\beta = .66, p < .001$; respectively) and planning to take the SAT ($\beta = .23, p < .001$; $\beta = .52, p < .001$; respectively), indicating that these factors mediated the relationships found in Model 1 between parental valuing of education, parents' school engagement and adolescents' engagement with school teachers and staff, and adolescents' future educational plans. Further, adolescents' valuing higher education was associated with a lower probability of planning to attend a two-year college ($\beta = -.40, p < .001$), thereby mediating the negative relationship found in Model 1 between adolescents' school engagement and planning to attend a two-year college.

Adolescents' valuing of higher education was also negatively associated with their taking vocational classes ($\beta = -.23, p < .01$). As in Model 1, taking more vocational

classes was, in Model 2, associated with a higher probability of planning to attend a two-year college ($\beta = .18, p < .01$). However, in Model 2, fathers' educational level appeared to be more distally associated with adolescents' taking vocational classes. Instead, taking vocational classes seemed to partially explain the path between adolescents' valuing higher education and planning to attend a two-year college. Unlike valuing of education, adolescents' college preparatory knowledge was positively associated with their taking more vocational classes ($\beta = .21, p < .001$). Finally, in contrast to Model 1 results, in Model 2 taking vocational classes was no longer associated with planning to attend at four-year college.

The educational level of adolescents' fathers was, again, related to family income ($\beta = .57, p < .001$), parental valuing of education ($\beta = .36, p < .001$) and parent school engagement ($\beta = .24, p < .001$), suggesting two possible indirect paths between fathers' educational level and adolescents' future educational plans: first, from fathers' educational level and parents' both valuing higher education and engaging in school to a higher probability of adolescents' planning to both attend a four-year college and take the SAT via college preparatory knowledge; and second, from fathers' educational level to parents' valuing higher education and a higher probability of all three future educational plan outcomes via adolescents' valuing higher education.

Findings in Models 1 and 2 were similar with respect to gender, age and ethnicity. However, in Model 2, once college preparatory knowledge and valuing of higher education were included, identifying as African-American was no longer associated with a higher probability of planning to attend a four-year college or planning to take the SAT in comparison to identifying as European-American. Instead, in this model, identifying as

African-American was associated with taking more vocational courses ($\beta = .13, p < .05$). In this model, being older was also no longer associated with a lower probability of planning to attend a four-year college. However, identifying as an “other” ethnicity was associated with a lower probability of planning to attend a four-year college ($\beta = -.14, p < .05$).

New to Model 2, identifying as African-American or as an “other” ethnicity was associated with a greater valuing of higher education ($\beta = .21, p < .05$; $\beta = .20, p < .01$; respectively), whereas being older was associated with a lower valuing of education ($\beta = -.12, p < .01$).

Part II: Examining Social and Resource Capital in the School and Family Contexts as Predictors of Adolescents’ Future Educational Plans.

Model 3. Given research linking academic self-efficacy to adolescents’ educational outcomes (e.g. Caraway, Tucker, Reinke & Hall, 2003; Pinquart, Juang & Silbereisen, 2003; Saunders, Davis, Williams & Williams, 2004; Zimmerman, 2000) in addition to research suggesting the importance of self-efficacy to adolescents’ feelings of control (Bandura, 1997; Pajares, 1996), Model 3 simultaneously considered social and resource capital along with academic self-efficacy as predictors of adolescents’ future educational plans (Figure 4.1). Model 3 fit the data well (CFI = .989, TLI = .947, RMSEA = .046, $\chi^2(28) = 49.213, p < .01$). All significant paths for Model 3 are depicted in Figure 4.4.

Although associations between social and resource capital and adolescents’ self-efficacy were not hypothesized, modification indices suggested significant pathways between school engagement and both math self-efficacy and reading self-efficacy ($\beta =$

.15, $p < .05$; $\beta = .23$, $p < .001$; respectively). In turn, higher math self-efficacy was associated with a higher probability of planning to attend a four-year college ($\beta = .21$, $p < .05$), while higher reading self-efficacy was associated not only with a higher probability of planning to attend a four-year college ($\beta = .17$, $p < .01$) but also with a higher probability of planning to take the SAT ($\beta = .24$, $p < .01$) and a lower probability of planning to attend a two-year college ($\beta = -.16$, $p < .05$). Together these findings indicated that self-efficacy partially mediated the paths between school engagement and adolescents' future educational plans. Indeed, in Model 3, the direct path between school engagement and a lower probability of planning to attend a two-year college ($\beta = -.15$, $p < .05$), a higher probability of planning to attend a four-year college ($\beta = .25$, $p < .001$), and a higher probability of planning to take the SAT ($\beta = .20$, $p < .05$) was reduced compared to Model 1. In Model 3, reading self-efficacy was also associated with taking fewer vocational courses ($\beta = -.15$, $p < .05$)

Other findings for Model 3 were similar to those for Model 1, except for a few slight variations. With the addition of self-efficacy to Model 3, the previously significant path in Model 1 between taking fewer vocational courses and planning to attend a four-year college became only marginally significant ($\beta = -.13$, $p < .10$). Similarly, the path between parental engagement and adolescents' planning to take the SAT became marginally significant, though the coefficient remained the same ($\beta = .18$, $p < .10$).

With respect to controls, findings for Model 3 were also similar to those for Model 1 except that identifying as African-American was associated with taking more vocational courses ($\beta = .20$, $p < .05$) compared to identifying as European-American. In Model 3, compared to Model 1, identifying as African-American was also no longer

associated with an increased probability of planning to attend a four-year college. New to Model 3, compared to identifying as European-American, identifying as African-American was associated with greater levels of both math ($\beta = .19, p < .01$) and reading self-efficacy ($\beta = .30, p < .001$). Identifying as an “other” ethnicity was also associated with greater levels of math self-efficacy ($\beta = .13, p < .05$). Finally, being male was associated with greater levels of math self-efficacy ($\beta = -.11, p < .05$) while being female was associated with greater levels of reading self efficacy ($\beta = .20, p < .001$).

Part III: Examining Autonomy as a Mediator.

Model 4. Model 4 tested whether adolescents’ perceived autonomy with respect to educational outcomes (perceived control over graduating from a two-year college, perceived control over graduating from a four-year college, perceived future control) fully mediated the relationships between (a) social and resource capital in the school and family contexts and adolescents’ future educational plans and (b) academic self-efficacy and adolescents’ future educational plans (Figure 3.1). Model 4 fit the data well (CFI = .982, TLI = .950, RMSEA=.039, $\chi^2(67) = 103.13, p < .01$).

Analysis of the chi-square difference test comparing full and partial mediation by adolescents’ perceived autonomy indicated that a reduction in degrees of freedom by restricting paths between both resources and self-efficacy and adolescents’ future educational plans did not lead to a better model fit (CFI = .988, TLI = .929, RMSEA=.047, $\chi^2(31) = 54.79, p < .01$; $\Delta\chi^2(36) = 49.54, p = .07$). Therefore, the more parsimonious model with full mediation was accepted. All significant paths for Model 4 are depicted in Figure 4.5.

Model 4 indicated that parental valuing of education was related to adolescents' greater perceived control over graduating from a four-year college ($\beta = .31, p < .001$). Family income was marginally related ($\beta = .18, p < .10$) adolescents' perceived control over graduating from a four-year college. Fathers' educational level was negatively associated with perceived control over graduating from a two-year college ($\beta = .25, p < .05$). Parent school engagement was not related to adolescents' perceived control over graduating from either type of college.

Engagement with school teachers and staff and the graduation rate in the district where adolescents attended school were associated with an increased perceived control over graduating from a four-year college ($\beta = .26, p < .001$; $\beta = .15, p < .10$; respectively). School expenditure per pupil was marginally negatively associated with perceived control over graduating from a two-year college ($\beta = -.10, p < .10$).

As in Model 3, school engagement was related to both math self-efficacy ($\beta = .15, p < .05$) and reading self-efficacy ($\beta = .23, p < .001$). Adolescents' math self-efficacy was associated with adolescents' perceived future control ($\beta = .19, p < .001$) in addition to increased perceived control over graduating from a four-year college ($\beta = .19, p < .01$) and decreased perceived control over graduating from a two-year college ($\beta = -.13, p < .05$). Adolescents' reading self-efficacy was related to adolescents' greater perceived control over graduating from a four-year college ($\beta = .30, p < .001$). Thus, Model 4 suggests that school engagement is indirectly linked to adolescents' future educational plans via both its direct and indirect (through self-efficacy) effects on adolescents' perceived control over graduating from a four-year college.

Adolescents' perceived control over graduating from a four-year college was associated with a higher probability of planning to attend a four-year college and take the SAT ($\beta = .72, p < .001$; $\beta = .60, p < .001$; respectively) and a lower probability of planning to attend a two-year college ($\beta = -.38, p < .001$). Adolescents' perceived control over graduating from a two-year college was associated with a higher probability of planning to attend a two-year college ($\beta = .51, p < .001$) and a lower probability of planning to attend a four-year college and take the SAT ($\beta = -.36, p < .001$; $\beta = -.24, p < .01$; respectively). Adolescents' perceived control over graduating from a two-year college was also associated with taking more vocational classes ($\beta = .14, p < .05$). However, unlike in Models 1 and 2, taking vocational classes was only marginally positively associated with planning to attend a two-year college ($\beta = .13, p < .10$), and unlike Model 1 taking vocational classes was not associated with a lower probability of planning to attend a four-year college. Adolescents' perceived future control was not associated with any future educational plans.

As in Models 1 and 2, the educational level of adolescents' fathers in Model 4 was related to family income ($\beta = .52, p < .001$), parental valuing of education ($\beta = .37, p < .001$) and parent school engagement ($\beta = .22, p < .001$). In Model 4, these relationships suggest two possible indirect paths from fathers' educational level to future educational plans. First, there seems to be a path from fathers' educational level and parental valuing of education to a higher probability of both planning to take the SAT and planning to attend a four-year college and a lower probability of planning to attend a two-year college via adolescents' perceived control over graduating from a four-year college. Second, the path between fathers' educational level and future educational plans also seems to be

mediated by a lower perceived control over graduating from a two-year college ($\beta = -.25$, $p < .05$).

Findings with respect to gender, age and ethnicity were similar to the findings in Models 1, 2 and 3 with respect to school and family resource variables. Similar to Models 2 and 3, but in contrast to Model 1, being African-American was associated with taking more vocational courses ($\beta = .13$, $p < .05$). In contrast to Model 2, and in keeping with Models 1 and 3, identifying as an “other” ethnicity was not associated in Model 4 with a lower probability of planning to attend a four-year college. In keeping with Model 2, but in contrast to Models 1 and 3, age was not associated in Model 4 with a higher probability of planning to attend a four-year college. With respect to self-efficacy, findings with respect to control variables were the same as in Model 3. New to Model 4, identifying as African-American and being female were both associated with a greater perceived control over graduating from a four-year college ($\beta = .35$, $p < .001$; $\beta = .16$, $p < .01$; respectively).

Part IV: Examining Control, Knowledge and Value as Mediators.

Testing Model 5. The final model combined results from Part I and Part II to create the best fitting model for knowledge of, valuing and control over higher education as mediators in the relationship between both social capital and self-efficacy and adolescents’ future educational plans. Model 5, combining Models 2 and 4, tested knowledge of and valuing of higher education as full mediators of the association between social capital and adolescents’ future educational plans, in addition to adolescents’ perceived control as a full mediator in the relationship between both social capital and self-efficacy and adolescents’ future educational plans (see Figure 4.6).

Results indicated that Model 5 fit the data adequately (CFI = .967, TLI = .906, RMSEA=.051, $\chi^2(78) = 149.93$, $p < .001$). In order to determine the best model fit for Model 5, a series of chi-square difference tests were used to examine how allowing for or restricting paths between different variables in Model 5 impacted model fit. For ease of discussion, the examined paths are depicted in Figure 4.6.

Model 5a allowed a path between both math self-efficacy and reading self-efficacy and adolescents' valuing of higher education. Chi-square difference test of nested models using the MPlus `diffest` command indicated that the previously more constrained model fit the data less well than Model 5a ($\Delta\chi^2(2) = 26.69$, $p < .001$). Indeed, in Model 5a, both math self-efficacy and reading self-efficacy were positively associated with adolescents' valuing of higher education ($\beta = .21$, $p < .001$; $\beta = .21$, $p < .001$; respectively). Therefore, Model 5a was preliminarily accepted (CFI = .975, TLI = .927, RMSEA=.045, $\chi^2(76) = 130.15$, $p < .001$).

Model 5b allowed a path between college preparatory knowledge and adolescents' perceived autonomy (perceived control over graduating from a two-year college, perceived control over graduating from a four-year college, perceived future control). Chi-square difference testing revealed that adding this path in Model 5b did not lead to a better fit of the data ($\Delta\chi^2(3) = 1.212$, $p = .750$). As such, Model 5b, allowing a path between college preparatory knowledge and adolescents' perceived autonomy was rejected, and Model 5a, the more parsimonious model was kept. This suggests that college preparatory knowledge does not (either partially or fully) mediate the relationship between social and economic capital and adolescents' perceived autonomy, nor does perceived autonomy (either partially or fully) mediate the relationship between college

preparatory knowledge and adolescents' future academic plans. Indeed, in Model 5c, college preparatory knowledge was not related to adolescents' perceived control over graduating from a two-year college ($\beta = .03$, *ns*), perceived control over graduating from a four-year college ($\beta = .02$, *ns*) or perceived future control ($\beta = -.03$, *ns*).

Model 5c allowed paths between all measures of adolescents' perceived autonomy and adolescents' valuing of higher education. Chi-square difference testing indicated that Model 5a (the more constrained model) fit the data less well than Model 5c ($\Delta\chi^2(3) = 32.925$, $p < .001$). Indeed, adolescents' perceived control over graduating from a four-year college was positively associated with valuing higher education ($\beta = .46$, $p < .001$) suggesting that valuing higher education may mediate the relationship between perceived control over graduating from a four-year college and adolescents' future academic plans. However, adolescents' perceived future control and perceived control over graduating from a two-year college were not associated with valuing higher education ($\beta = .03$, *ns*; $\beta = -.07$, *ns*; respectively), suggesting a direct relationship between lower levels of perceived control (perceived control over graduating from a two-year college) and future academic plans. Model 5a was rejected and Model 5c was preliminarily accepted (CFI = .983, TLI = .946, RMSEA = .039, $\chi^2(73) = 111.38$, $p < .01$).

Finally, Model 5d examined whether adolescents' perceived autonomy fully mediated the relationship between academic self-efficacy and adolescents' valuing higher education, by removing the path between both math self-efficacy and reading self-efficacy and adolescents' valuing of education. Chi-square difference testing indicated that Model 5d (the more constrained model), fit the data less well than Model 5c ($\Delta\chi^2(2)$

=7.341, $p < .05$). Therefore, the final version of Model 5, included a path between self-efficacy and valuing higher education (Model 5c).

Final Model Results. The final version of Model 5 (Figure 4.7) included paths whereby both school and family resources were associated with adolescents' valuing of education, college preparatory knowledge, and measures of adolescents' perceived autonomy. In addition, Model 5 included paths from adolescents' academic self-efficacy to adolescents' valuing of education and perceived autonomy. Model 5 also allowed for paths between measures of adolescents' perceived autonomy and valuing of education. Finally, Model 5 included paths from college preparatory knowledge, perceived autonomy and valuing of education to adolescents' future educational plans.

All significant paths for Model 5 are depicted in Figure 4.8. Findings with respect to social and resource capital in the family context remained relatively unchanged in combining Models 2 and 4 to form Model 5. In keeping with Models 2 and 4, Model 5 indicated that parents' valuing of higher education was related to adolescents' college preparatory knowledge ($\beta = .22, p < .01$), adolescents' valuing of higher education ($\beta = .33, p < .001$) and adolescents' perceived control over graduating from a four-year college ($\beta = .27, p < .001$). Also similar to Model 2, parental engagement was associated with adolescents' college preparatory knowledge ($\beta = .13, p < .05$). Finally, the marginal associations between family income and both college preparatory knowledge ($\beta = .19, p < .10$; similar to Model 2) and perceived chances of graduating from a four-year college ($\beta = .19, p < .10$; similar to Model 4) were also observed in Model 5.

Findings with respect to social and resource capital in the school context also remained relatively unchanged between Models 2 and 4 and Model 5. Of note, the

relationship between school engagement and college preparatory knowledge seemed to be slightly stronger in Model 5 ($\beta = .34$, $p < .001$; $\Delta \beta = .06$) compared with Model 2. In contrast the association between school engagement and adolescents' valuing of higher education appeared to decrease between Models 2 and 5 ($\beta = .15$, $p < .05$; $\Delta \beta = -.22$). In Model 5, the association between graduation rate and adolescents' perceived control over graduating from a four-year college became significant ($\beta = .16$, $p < .05$) although the coefficient remained relatively unchanged. As in all previous models, school expenditure per pupil was not related to any study variables.

With respect to academic self-efficacy, Model 5 results were similar to those of Model 4. New to Model 5, math self-efficacy was positively associated with adolescents' valuing higher education ($\beta = .11$, $p < .01$). This finding along with the slight increase in the relation between school engagement and math self-efficacy observed in Model 5 ($\beta = .19$, $p < .01$) suggests that math self-efficacy partially mediates the relationship between school engagement and adolescents' valuing higher education. Also new to Model 5, adolescents' perceived control over graduating from a four-year college was positively related to adolescents' valuing higher education ($\beta = .46$, $p < .001$).

Similar to Model 2, college preparatory knowledge was associated in Model 5 with a higher probability of both planning to attend a four-year college ($\beta = .14$, $p < .05$) and planning to take the SAT ($\beta = .22$, $p < .01$). Also similar to Model 2, adolescents' valuing of higher education was associated in Model 5 with their planning to attend a four-year college ($\beta = .26$, $p < .01$), although the relationship between valuing higher education and planning to attend a four-year college was much weaker in Model 5.

Unlike in Model 2, valuing higher education was not associated with planning to take the SAT in Model 5.

Model 5 was also similar to Model 2 in that adolescents' valuing of higher education was negatively associated with taking vocational classes ($\beta = -.18, p < .05$), however valuing higher education was unrelated in Model 5 to planning to attend a two-year college. In Model 5, taking vocational classes was, again, associated with an increased probability of planning to attend a two-year college ($\beta = .14, p < .05$), suggesting that the path between adolescents' valuing of higher education and planning to attend a two-year college may be partially explained by their taking vocational classes. In Model 5, as in Model 2, college preparatory knowledge was positively associated with taking vocational classes ($\beta = .20, p < .001$)

Similar to Model 4, adolescents' perceived control over graduating from a two-year college was associated with a higher probability of planning to attend a two-year college ($\beta = .50, p < .001$), but was associated with a lower probability of planning to attend a four-year college ($\beta = -.33, p < .001$) and planning to take the SAT ($\beta = -.23, p < .05$). Also as in Model 4, adolescents' perceived control over graduating from a four-year college was associated in Model 5 with a lower probability of planning to attend a two-year college ($\beta = -.25, p < .01$) and a higher probability of planning to attend a four-year college ($\beta = .46, p < .001$) and take the SAT ($\beta = .37, p < .001$), though all these coefficients decreased substantially in Model 5. This decrease is likely due to the strong direct associations between both college preparatory knowledge and adolescents' valuing higher education on adolescents' future educational plans.

In Model 5, the educational level of adolescents' fathers was, again, related to family income ($\beta = .57, p < .001$), parental valuing of education ($\beta = .37, p < .001$) and parental school engagement ($\beta = .22, p < .001$). Also in previous models, several indirect paths between fathers' educational level and adolescents' future educational plans are possible. In particular, the paths are quite robust between fathers' educational level, parents' valuing of higher education and an increased probability of planning to attend a four-year college via perceived control over graduating from a four-year college and adolescents' valuing higher education.

Findings with respect to gender, age and ethnicity were similar in Model 5 to those in Models 1, 2 and 4 with a few slight variations. Similar to Model 1, but in contrast to Models 2 and 4, identifying as African-American was only marginally associated in Model 5 with taking more vocational courses. Also similar to Model 1, but in contrast to Models 2 and 4, being older was marginally associated with a lower probability of planning to attend a four-year college. New to Model 5 was that age was also marginally associated with lower perceived control over graduating from a four-year college, as well as that age was marginally associated with higher probability of planning to attend a two-year college.

Discussion

Changes in the U.S. economy over the past several decades have led to an increasing demand for a college-educated labor force. Yet, stark educational disparities according to socio-economic and minority status remain with respect to college attendance and completion. This study adopted an empowerment perspective in seeking to identify those factors in the family and school context that may support adolescents'

plans to attend two- and four-year colleges and to take the SAT. Although numerous studies have pointed to the importance of social and resource capital (Coleman, 1988) to adolescents' educational success, fewer studies have examined the mechanisms by which measures of capital are associated with educational outcomes (Dika & Singh, 2002). Existing studies suggest having college preparatory knowledge and valuing higher education as two possible mechanisms (Auerbach, 2004; Battle & Lewis, 2002; Kiyama, 2010; Simmons, 2011; Valenzuela, 1999), yet few studies have empirically tested this. Related to the importance of social capital in supporting positive educational trajectories, research also points to freedom from social constraints and controlling social factors in the environment as important to positive development (Deci & Ryan, 2000; Stanton-Salazar, 2001). As such, adolescents' *feelings* of control and freedom to pursue educational goals emerge as another possible mechanism that may link social capital to academic success. Thus, drawing from empowerment, social capital, and self-determination perspectives, this study examined college preparatory knowledge, valuing higher education and adolescents' feelings of control as potential mechanisms that may explain the association between social capital and adolescents' plans to pursue post-secondary education with the aim of identifying potential points for intervention.

In keeping with previous research (e.g. Ellwood & Kane, 2000; Hill & Tyson, 2009; Mullis, Rathge & Mullis, 2004), both social capital and resource capital were associated with adolescents' future educational plans. However, the relationships between measures of social capital (parental valuing of education, parental school engagement and adolescents' engagement at school) and adolescent outcomes were stronger than the relationships between measures of resource capital and such outcomes,

suggesting that social relationships may be more protective than more financially-related sources of capital. In Models 1 and 3, parents' valuing of higher education was significantly related to their adolescents' plans both to attend a four-year college and take the SAT, while school engagement was significantly related to all three educational outcomes. Importantly, in Models 1 and 3, the relationship between school engagement and adolescents' plans to attend a two-year college was negative, while the association between school engagement and adolescents' plans to attend a four-year college was positive. In subsequent models, a similar pattern emerged with associations between study variables and plans to attend a two- versus four-year college occurring in opposite directions. Collectively, these findings suggest that planning to attend a two-year college differs qualitatively from planning to attend a four-year college underscoring the need to examine these outcomes separately in future educational research. In addition, given the importance of social capital to adolescents' plans to attend college and take the SAT, future research studies should include more expansive measures of social capital in these contexts in order to identify other potential avenues by which to support positive educational trajectories among adolescents.

Valuing of Education and College Preparatory Knowledge as Mediators

In examining the mechanisms by which social and resource capital are related to adolescents' future educational plans, overall findings suggest that both having college preparatory knowledge and valuing of higher education are significant mediators of the relationship between social capital in the parent and school context and adolescents' future educational plans. Not surprisingly, adolescents' valuing higher education mediated the relationship between parents' valuing higher education and adolescents'

plans to attend a four-year college, supporting previous research indicating that parents' aspirations for their children is among one of the most significant aspects of socializing children to do well academically (Hill & Tyson, 2009). With respect to the school context, adolescents' valuing higher education also mediated the relationship between adolescents' school engagement and their plans to attend a four-year college.

In Model 2, but not the final model, adolescents' valuing higher education also mediated the association between parents' valuing higher education and plans to take the SAT. In Model 2, but not the final model, valuing higher education also mediated the path between school engagement and plans to take the SAT. Again in Model 2, but not the final model, valuing higher education mediated the path between school engagement and plans to attend a two-year college, with valuing higher education negatively related to plans to attend a two-year college. These findings suggest social capital is related to adolescents' future educational plans through bolstering adolescents' perceived control as well as efficacy beliefs rather than through the positive relationship of social capital to adolescents' educational value. Indeed, findings from this study seem to indicate that overall, adolescents' perceived control over graduating from college is a more robust predictor of educational plans than valuing higher education.

Parents' valuing of education and school engagement were also related to adolescents' college preparatory knowledge suggesting another mechanism by which social capital may empower youth to pursue post-secondary education. Similarly, parents' engagement in their adolescents' education was also associated with adolescents' college preparatory knowledge. These findings offer another possible mechanism by

which social capital may support both plans to attend a four-year college and take the SAT.

Importantly, having college preparatory knowledge was positively associated with both taking vocational classes, planning to attend a four-year college and planning to take the SAT, suggesting that college preparatory knowledge may be protective for multiple different educational trajectories. In contrast, adolescents' valuing higher education was associated with taking fewer vocational classes reinforcing that valuing higher education is only protective for plans to attend a four-year college. Taking a greater number of vocational classes was associated only with planning to attend a two-year college and was not related to planning to attend a four-year college or take the SAT.

The weak (marginal) path between family income and college preparatory knowledge in Model 2 and the final model suggests that resource capital in the family context may be related to adolescents' plans to both attend a four-year college and take the SAT. Family income may help to empower adolescents to pursue post-secondary education through allowing them to enroll in better quality schools, have access to tutors and counselors, or enjoy other such advantages that may contribute to increased college preparatory knowledge. Yet, as mentioned previously, the association between resource capital and adolescents' future educational plans is much weaker than the associations between measures of social capital and future educational plans.

In contrast to previous research indicating that informational aspects of the social environment are supportive of adolescents' autonomy, the association between college preparatory knowledge and perceived control over attending a two- or four-year college was not significant. Although social capital was associated with higher perceived control

over attending a four-year college, the provision of college preparatory through sources of social capital does not appear to be a mechanism by which social capital is related to increased levels of adolescent autonomy, at least in this sample.

Control

In addition to valuing higher education and having college preparatory knowledge, adolescents' feelings of control over the possibility of graduating from a two- or four-year college emerged as an additional mechanism by which social capital and resource capital are related to adolescents' future educational plans. Similarly, parents' valuing higher education and their school engagement also emerged as important sources of social capital in supporting adolescents' perceived control over graduating from a four-year college. In turn, perceived control over graduating from a four-year college was related to a higher probability of planning to attend a four-year college and a lower probability of planning to attend a two-year college. Additionally, perceived control over graduating from a four-year college was positively associated with plans to take the SAT. Collectively, these findings suggest that perceived control may serve as an important protective factor in adolescents' educational trajectories.

Although in this study parental engagement was not related to adolescents' perceived control over graduating from college, previous research suggests that parents' involvement in their children's education is a significant and important protective factor for academic success (for a review see Hill & Tyson, 2009). Thus, future studies should aim to elucidate other mechanisms (aside from the effects of having college preparatory knowledge observed in this study) by which parental engagement may be related to adolescents' (plans to take the SAT or other) future educational plans.

In contrast to the previously discussed lack of association between measures of resource capital and adolescents' valuing higher education and having college preparatory knowledge, resource capital did appear to be associated with adolescents' perceived control over graduating from college. Specifically, family income and high school graduation rate were both positively associated with adolescents' perceived control over graduating from a four-year college. Given the association between family income and graduation rate, these findings suggest that family income may serve to bolster adolescents' perceived control over their academic destiny by providing access to better quality school districts with higher graduation rates and possibly other (unmeasured) resources that support college attendance. Future studies should include other measures of resource capital in the school context in order to better understand the association between family income and school resources.

Of note, similar to results in the meta-analysis conducted by Hanushek (1997), expenditure per pupil was not strongly associated with adolescents' future educational plans in any of the tested models. In Model 5, higher per pupil expenditure was only marginally negatively related to adolescents' perceived chances of graduating from a two-year college but was unrelated to perceived control over graduating from a four-year college. This finding suggests that, although more school spending may lead to fewer youth including graduation from a two-year college as part of their academic destiny (see below), spending does not impact feelings of control with respect to graduating from a four-year college. Importantly, both family income and per pupil expenditure were only marginally related to measures of adolescents' perceived control, underscoring the tendency for social capital to be more predictive of study variables than resource capital.

Fathers' educational level was another source of resource capital that was associated with adolescents' perceived control over graduating from college. Fathers' completion of a higher level of schooling was negatively associated with adolescents' perceived control over graduating from a two-year college. Given that perceived control over graduating from a two-year college is negatively associated with measures of social and resource capital while perceived control over graduating from a four-year college is positively related to these measures, it seems that adolescents consider graduating from a two-year college and four-year college to be two distinct outcomes. The negative relationship between planning to attend a two-year college and planning to attend a four-year college emphasizes that adolescents view these outcomes as orthogonal, as opposed to viewing graduating from two-year college as potential requisite for attendance at a four-year college at some later time point. As such, it may be that lower perceived chances of graduating from a two-year college actually reflects greater perceived control over future educational pursuits, rather than lower perceived control as originally conjectured. In revisiting the negative relationship between pupil expenditure and chances of graduating from a two-year college, it may be that greater pupil expenditure is, instead, associated with greater perceived control over *not* graduating from a two-year college.

With respect to academic self-efficacy, findings supported the conjecture that adolescents' perceived control with respect to graduating from college fully mediates the association between both math and reading academic self-efficacy and future academic plans. Specifically, reading self-efficacy was strongly associated with adolescents' perceived control over graduating from a four-year college, while math self-efficacy was

both positively associated with adolescents' perceived control over graduating from a four-year college and positively associated with perceived control over *not* graduating from a two-year college. Adolescents' math self-efficacy was also associated with adolescents' perceived future control, although future control was not associated with any future educational plans. Thus, adolescents' perception of control over the future more generally did not seem to affect their educational trajectories suggesting that the relationship between perceived control and adolescents' future educational plans may be domain specific. Future studies should examine other measures of adolescents' perceived control to further elucidate these relationships.

Adolescents' academic self-efficacy was further shown to partially mediate the association between school engagement and adolescents' perceived control over graduating from a four-year college. Thus, supporting self-efficacy beliefs is one potential mechanism by which school teachers and personnel may help adolescents to feel in control of their academic destinies. Inclusion of adolescents' perceived control over graduating from college as well as their academic self-efficacy, along with having college preparatory knowledge and adolescents' valuing of higher education in the final model, led to a reduction in the strength of the relationship between both parents' valuing of higher education and their school engagement in addition to adolescents' valuing of higher education. This finding suggests that perceived control over graduating from college may partially mediate the association between social capital and adolescents' valuing of higher education. Indeed, perceived control over graduating from a four-year college was positively related to adolescents' valuing higher education. In keeping with theories of cognitive dissonance, it may be that adolescents place greater value on goals

they believe are accessible, further pointing to the potential importance of adolescents' feelings of control to their educational outcomes.

Race/Ethnicity

It is important to consider these findings in light of the observed differences between the European-American, African-American and "other" ethnicity students in this sample. African-American students in this study disproportionately attended schools with lower graduation rates and reported less engagement with teachers and staff at school. Indeed, research finds that African-American students often have less access to educational resources and supportive teachers compared with their European-American counterparts, with students from minority backgrounds often overrepresented in low-ability groups or vocational, non-college preparatory tracks regardless of the ability level of the students (Kao & Thompson, 2003; Lucas & Berends, 2002) and having less access to supportive and qualified teachers (Clotfelter, Ladd, & Vigdor, 2005; Van de Werfhorst & Mijs, 2010). Terms such as "subtractive schooling" and "counterfeit social capital" are used to describe such discrepancies in access to the types of social and resource capital in the school context (e.g. college preparatory curricular tracks, college preparatory information) that might empower youth to pursue post-secondary education.

Further, African-Americans in this sample also reported lower family income, lower father educational level, lower parental valuing of education and lower levels of parental school engagement indicating lower levels of both social and resource capital in the family context as well. Despite these deficits in social and resource capital, African-American students reported higher levels of both math and reading self-efficacy in addition to greater perceived control over graduating from a four-year college and having

college preparatory information. Yet higher levels of self-efficacy, perceived control and college preparatory information did not seem to translate into plans to attend a four-year college. Given that measures of social and resource capital seem to imply that African-American youth are less likely to plan to attend a four-year college and take the SAT, it may be that high levels of self-efficacy, perceived control and college preparatory knowledge, instead, compensate for lower levels of social capital. However, the factors that support these increased levels of self-efficacy, perceived control and college preparatory knowledge remain unclear. Future research studies should, therefore investigate other measures of social and resource capital in aiming to decipher what types of capital may be supportive of college trajectories among African-American youth.

Limitations

As with all research studies, this study is not without limitations. First, because of sample size constraints, path analysis was used for all SEM analyses limiting the ability to control for issues of biased measurement error (Bagozzi & Heatherton, 1994; Coffman & MacCallum, 2005). Another limitation of the study is that, because of missing data, the association between mothers' educational level and study variables could not be established. It is possible that mothers' educational level has a more direct association with mediating and outcome variables than fathers' educational level, for which associations were more distal. A third limitation is that statistics for per pupil expenditure and graduation rate were at the district level. It is possible that the lack of significant findings between these study variables and mediating and outcome variables may be due to a lack of information at the school level. Although school funding for schools is similar across districts, examination of pupil expenditure and graduation rates at the

district level neglects between-school variability and the potential variability in resource capital from school to school within districts. Another limitation concerns the operationalization of adolescents' sense of control over graduating from college. As indicated previously, adolescents' chances of graduating from a two-year college seem to reflect lower levels of perceived control, rather than higher levels of perceived control as originally conjectured. In adopting a strengths-based perspective, this study examined plans to attend a two-year college, plans to attend a four-year college, and plans to take the SAT as outcome variables. It may be that examination of plans *not* to attend college may help to determine whether perceived control over attending a two-year college does indeed reflect a negative outlook with respect to future educational endeavors on the part of adolescents.

Finally, because this study is cross-sectional, the directionality of relationships could not be established. Therefore, it is possible that increased feelings of control, academic self-efficacy and valuing of higher education lead adolescents to seek out more social capital that will support their goals of attending college. Future research testing the inter-relationships between these factors longitudinally may improve understanding of how to best support college attendance among adolescents. Irrespective of the direction of relationships, however, this study indicates that adolescents' perceived control over the possibility of graduating from college, valuing higher education and level of college preparatory knowledge are important mechanisms that help to explain adolescents' plans to apply to and attend college. Future studies should examine to what extent planning is followed up with attending college and taking the SAT and whether the observed

associations between study variables and planning to attend college and take the SAT are the same as for actually engaging in these behaviors.

Conclusions

Crosnoe (2004) finds that adolescents who have more social capital at home tend to benefit more from social capital at school suggesting that social capital in the family context may be necessary for adolescents to fully benefit from resources at school. In contrast, Hoffman and Dufur (2008) argue that social capital in the school context can buffer adolescents from the negative outcomes associated with having a family with low social capital. Notably, in addition to fathers' education being significantly related to measures of both social and resource capital in the family context, it was also significantly related to school engagement. Additionally, modification indices also suggested an association between family income and school graduation rate, further suggesting that sources of capital in the family and school contexts may be interrelated. However, associations between measures of social capital in the family and school contexts do not indicate that these measures of social capital are contingent on one another.

In empowering youth to pursue a four-year college degree, parents' valuing higher education and their school engagement seem to be paramount. Importantly, each of these aspects of social capital contributes to adolescents' valuing of education as well as their perceived control over graduating from a four-year college. Of note, comparisons of Model 2 to Model 5 indicate that perceived control over graduating college better explains the association between social capital and adolescents' future educational plans than their valuing of higher education. The positive relationship between adolescents'

perceived control over graduating from a four-year college and their valuing higher education further emphasizes the importance of adolescents' perceived control to future educational plans. Though planning to attend a four-year college seems to be contingent on both wanting to attend a four-year college and believing graduating from a four-year college is possible, belief that graduating from a four-year college is possible may be paramount.

Overall, findings from this study suggest that intervention efforts seeking to increase college attendance rates of adolescents may benefit from focusing on parents' involvement in their adolescents' education and adolescents' engagement with teachers and staff at their schools. Fostering such relationships may help adolescents not only to feel a greater sense of control and autonomy over the possibility of graduating from college, but also to internalize the importance of college education. In addition, such relationships seem to play a key role in providing adolescents with information about the steps that need to be taken in order to effectively pursue a college degree.

CHAPTER 5:

Unpacking Adolescent Autonomy, Well-being and Academic Success

Due largely to the work of Erikson (1950) and Freud (1958), the investigation of autonomy as a primary developmental milestone has persisted for over half a century. Though Erikson's theory of psychosocial development highlights the importance of autonomy during toddlerhood to individuals' feelings of control and sense of independence, a Freudian view of autonomy (1958) emphasizes the necessity for disengagement from parental ties and control during the adolescent years. It has largely been this Freudian view of autonomy emphasizing individuals' need for independence and individuation during adolescence that has permeated even lay conceptions of what it means to "come of age" in the United States. Many researchers characterize adolescence as a period of "storm and stress" complicated largely by a renegotiation of the parent-child relationship spurred by adolescents' increasing capacities for self-regulation and identity formation (Greenberger, 1984; Steinberg & Silverberg, 1986). However, in the 1970s, Deci and Ryan began to challenge conceptualizations of autonomy that viewed autonomy as a characteristic synonymous with independence and singular to adolescence. In contrast to most developmental views of autonomy, Deci and Ryan (2000) maintain that autonomy is a fundamental *human* need synonymous to "self-rule" that endures throughout the lifespan.

Due to the identification of autonomy as central to the positive development of individuals by both these empirical traditions, studies highlighting the importance of autonomy to adolescents' well-being and academic success have been numerous (e.g. Koydemir-Ozden & Demir, 2009; Lokes, Gingras, Phillippe, Koestner & Fang, 2010; Rudy et al., 2008; Wang, 2009) and academic success (d'Ailly, 2003; Eccles et al., 1993; Soenens & Vansteenkiste, 2005; Studsrod & Bru, 2009). Yet stark differences in conceptualizations of autonomy have obscured understanding of exactly how autonomy relates to positive adolescent development and what aspects of the social environment may best support adolescent autonomy. Yet the sheer number of studies linking these various conceptualizations of autonomy to both adolescent well-being and academic success suggests that investigation of autonomy holds great promise for promoting positive developmental outcomes. Were it possible to join all existing research on autonomy under one multidisciplinary framework, deciphering the most effective means to support this fundamental need (be it human or developmental) might be made more clear.

To this end, the first goal of this dissertation was to provide an in depth review of the current literature on autonomy as it relates to adolescents' well-being and academic success with the aim of organizing the literature in such a way that might help to identify not only gaps in the literature on autonomy, but also potential common ground between the different empirical and disciplinary interpretations of autonomy that might contribute to the development of a common framework for understanding autonomy.

Review of the literature on autonomy revealed major limitations not only in how autonomy is conceptualized, but also in the breadth of contextual factors researchers

assume to be related to adolescents' autonomy. Research on autonomy largely focuses on examining how micro-social contexts (e.g. teachers, parents) relate to adolescent autonomy, largely neglecting consideration of meso- and macro- social contexts (e.g. schools, neighborhoods, society, culture). Furthermore, although conceptualizations of autonomy between the psychoanalytic and humanistic views of autonomy diverge quite substantially, a point on which both empirical traditions seem to agree is that autonomy, at least in part, entails freedom from a controlling environment. Yet, most examinations of autonomy do not include consideration to issues of control and power thereby neglecting consideration of the relationship of empowerment to autonomy and examination of how structural inequality at the social and political levels relates to autonomy.

The empirical portion of this dissertation sought to begin to address each of these limitations. Due to the fact that both the psychoanalytic and humanist views of autonomy include *control* in their conceptualizations of autonomy, these empirical studies operationalized autonomy in terms of control with the aim of building toward a common theoretical framework. In so doing, these analyses expanded upon traditional conceptualizations of autonomy within social science research which focus mainly on environmental factors that promote intrinsic motivation and "choicefulness" (Sonensens & Vansteekiste, 2005). Exploration of how youth's *sense of control* in parent, school, neighborhood and socio-cultural contexts operates to influence the well-being and academic success of youth and young adults further expanded upon previous investigations of autonomy in viewing adolescents as an active participants in their lives, capable of seeking out support and other resources, yet constrained by both micro and

macro environmental factors. Thus, operationalizing autonomy in terms of control allowed for a more seamless integration of current literature on empowerment, thus moving toward overcoming one of the current limitations of autonomy literature.

Overall, findings from the empirical portion of this dissertation confirmed previously research attesting to the importance of autonomy to adolescents' well-being and academic success. In contrast to previous studies which have largely focused on the behavioral dimension of autonomy (i.e. self-regulation, intrinsically motivated behaviors), these studies added to previous research by providing evidence that the cognitive dimension of autonomy (i.e. *feelings* of autonomy) is important to positive developmental outcomes among youth. Specifically, in addition to the typically observed associations between parental control and adolescents' sense of autonomy, this study provides evidence that parents' own sense of autonomy may be an important, previously unexamined, aspect of parenting that is also important to adolescents' sense of autonomy. Study findings further indicate that even when controlling for the association between parenting and adolescents' feelings of autonomy, neighborhood conditions are important to adolescents' sense of autonomy providing evidence of environmental influence on adolescent autonomy outside the typically investigated micro-social contexts. Moreover, results indicate that the association between neighborhood conditions and adolescents' sense of autonomy varies according to family wealth, further suggesting that structural inequalities at the societal level may have implications for the processes by which adolescent autonomy supports positive psychological and academic trajectories. In consideration of those factors which may support adolescent autonomy, study findings additional indicate that social capital in both the family and school

contexts is important to adolescents' sense of control over graduating from college. Importantly, this sense of control seems to be paramount to adolescents' valuing of higher education in predicting adolescents' future educational plans. Results from this dissertation indicate that adolescents' sense of control is an important predictor of well-being and academic success in young adulthood, in addition to being related to plans to pursue higher education. Importantly, studies offer evidence of several environmental factors that may be targeted in efforts to empower youth through increasing their sense of control.

One of the goals of this dissertation was to move toward the creation of a multidisciplinary framework for understanding adolescent autonomy as it relates to adolescent development. Although this dissertation makes some headway toward the development of such a framework, much more research is needed to fully understand the interplay between social factors at the micro- and macro-social contexts and how these operate over time to impact adolescents' autonomy. Directions for future research are discussed in the sections below.

Understanding Adolescent Autonomy

Domains of autonomy. While few research studies make a distinction between different dimensions of autonomy, some theoretical work has suggested that the behavioral, cognitive and emotional aspects of autonomy may be distinct from one another (Steinberg & Silverberg, 1986). Whereas behavioral autonomy entails active functioning (e.g. self-regulation of behavior), cognitive autonomy entails "a belief that one has control over his or her own life" (Sessa & Steinberg, 1991, p. 42). Due to the fact that previous research has largely focused on behavioral autonomy, assuming an

unmeasured congruence between behavioral autonomy and cognitive autonomy, this dissertation aimed to further understanding of adolescent autonomy by focusing on the cognitive aspect of autonomy (i.e. adolescents' *feelings* of autonomy).

Operationalizing cognitive autonomy. The absence of studies on autonomy investigating the concept of control is unexpected given that in their seminal article describing SDT, Deci and Ryan (2000) cite the work of deCharms (1968) as the basis for their definition of autonomy. DeCharms argues that both control and choice are central to individuals' motivations, decision-making and ultimate success in life. Specifically, DeCharms maintains that individuals lie somewhere along the continuum between being a "pawn" or an "origin" (deCharms, Carpenter & Kuperman, 1965). Drawing from Heider's discussion of locus of causality, deCharms maintains that *origins* freely initiate their behavior, while *pawns* are constrained by some external force. Thus, according to deCharms, the concepts of control and freedom are at the very core of autonomy.

Deci and Ryan (2000) incorporate the concept of agency into their definition of autonomy, emphasizing the need for individuals to be the *origin* of their own behaviors. Similarly, they argue that autonomy requires freedom from control. However, absent from their conceptualization of autonomy is the notion of power. DeCharms argues that, "a pawn is relatively powerless compared to an origin, and power relationships are most certainly entailed when inferences are made along the origin-pawn dimension" (p. 242). If the need for autonomy entails the "striving to develop and realize personal goals, values and interests" (Assor, Kaplan & Roth, 2002, p.272), then, by extension, feelings of autonomy should involve the perception that one can develop and realize personal goals, values and interests.

However, Deci and Ryan (2000) maintain that the concept of *competency* reflects the perceived contingency between behaviors and outcomes. Their conceptualization of autonomy does not include separation between behavioral autonomy and cognitive autonomy, instead maintaining that the concept of competency captures the perceived contingency between actions and outcomes and a perceived internal locus of control. I argue that the concept of control also applies to the concept of autonomy and that individuals' perceived control also reflects the perceived contingency between values or desires and the realization of related goals. Thus, while competency involves *capability* to be an agent, control involves the *power* to be an agent.

Although this distinction is subtle, it is an important one. For example, an adolescent may perceive that she possesses the capability to succeed in college, but due to other constraints (e.g. inability to fund college attendance) may not believe that the pursuit of college is a goal that can be realized. To label this as low competency beliefs suggests that an inability to attend college results from factors *internal* to the adolescent, rather than constraints in the environment. As Saleeby (2001) points out, such practices of “context stripping” –lack of regard for the environment contexts individuals live in—is a key aspect of a deficit-based model. In contrast, empowerment or strengths-based perspectives give an ecological account of individuals' problems. In other words, the perception that one cannot attend college may actually reflect a realistic assessment of one's contextual constraints, not low competency beliefs.

Criticisms of the study of resilience have been levied for similar reasons. To assign the ability to overcome environmental constraints to resilience, or worse, competence, blames the individual who *cannot* succeed in the face of environmental

constraints (e.g. poverty, discrimination) instead of looking to failings of the larger social environment. If one accepts Deci and Ryan's (2000) operationalization of competency, then is one to believe that all disenfranchised individuals have low competency beliefs? Or, would these individuals be more aptly described as disempowered? Examining how adolescent autonomy relates to both well-being and academic success over time, requires investigation of the role of the social environment both constraining and supporting adolescents' feelings of control and power that moves beyond a focus on individual capabilities.

In this dissertation, in aiming to assess adolescents' sense of future control, I made the assumption that excessive worry about the future reflected adolescents' lower perceived power to realize goals. Although the focus on adolescents' feelings of control is a major strength of this dissertation, due to the use of secondary data, I was confined to attempting to operationalize cognitive autonomy using questions that were not originally designed to assess this construct. The measure I used to assess academic control (contingency between educational aspirations and expectations) more likely reflects adolescents' perceived control, though it is possible that this measure captures perceived competency in addition to perceived control. That is, some adolescents' may report a low contingency between the amount of education they would like to receive and the amount they would expect to receive due to either feeling disempowered due to environmental constraints or beliefs about their academic aptitude and likelihood of being able to succeed at an institute of higher education.

Future research examining adolescents' autonomy should work toward developing measures of cognitive autonomy that better reflect adolescents' perceived

control and power in their lives and incorporate both and empowerment and socio-ecological perspective. In doing so, it will be important not only to consider adolescents' feelings of power and control with respect to their current behaviors and actions, but also their feelings of power or control with respect to future and planned behaviors. Current measures of autonomy assume that feelings of autonomy are reflective, rather than pre-emptive. In their Cognitive Evaluation Theory, Ryan and Deci (2006) argue that if, *upon reflection*, an individual evaluates his actions as in accordance with his values and beliefs, the actions were autonomous. However, this does not seem to take into consideration the cognitive evaluation processes involved in *planned* behavior and the extent to which individuals believe they will be able to act in accord with values and beliefs in the future. This distinction is potentially important to studies of mental health. If individuals feel that their current needs for autonomy are not being fulfilled, but believe that there will be a greater contingency between their values and goals in the future, these feelings of future control may serve as a buffer for well-being. Of course, future research is needed to investigate this further.

Constraints on Autonomy

Exploring the Micro-Social Context. Much of the research on autonomy has centered on examination of parents and teachers as either autonomy-supportive or controlling and the extent to which different parenting and teaching practices are associated with adolescent autonomy. However, investigation of how parenting relates to autonomy has been limited by variation in how researchers operationalize parental control. Building from the work of Farkas and Grolnick (2010), Chapter 2 of this dissertation found preliminary evidence to suggest that parental monitoring may not

directly relate to adolescents' feelings of autonomy and may be better conceptualized as a structural, rather than autonomy-supportive or controlling aspect of parenting.

As alluded to in the discussion section of Chapter 2, one potential reason that analyses from this study did not find a direct relationship between parental monitoring and adolescents' feelings of autonomy concerns the operationalization of adolescent autonomy used in this study. It may be that while parental monitoring is not related to adolescents' *feelings* of future control, parental monitoring is related to the extent to which adolescents *act* freely and in accordance with their own beliefs and values. That is, parental monitoring may impact adolescents' behavioral autonomy, but have little bearing on cognitive autonomy.

Alternatively, and as Farkas and Grolnick (2010) point out, knowing that parents engage in parental monitoring in and of itself does not provide any information as to the extent to which their monitoring techniques are controlling versus autonomy-supportive. If one buys into the premise that parental monitoring is simply a structural aspect of parenting, then there is no reason to think that the act of monitoring would have any bearing on adolescents' autonomy. Instead, what would matter to autonomy would be *how* parents monitored their children; that is, the extent to which monitoring is conducted in a punitive, coercive or manipulative way compared to a manner that included adolescents' in decision-making, explained reasons for behavioral restrictions and other autonomy-supportive parenting techniques. Such information as to *how* parents parent is often captured in measures of parent psychological control. Though we generally think of parental monitoring in a positive light, Farkas and Grolnick (2010) argue that we cannot

make any inferences as to whether parental monitoring is autonomy-supportive or controlling without specific information as to *how* the parental monitoring is carried out.

Although a parenting practice such as discussion of family rules might appear to be autonomy-supportive, Study 1 observed a negative relationship between discussion of family rules and adolescents' feelings of control. It is important to point out that due to the limitation of only having one question to assess this item, there is actually very little information with respect to *how* parents are parenting in this instance. As such, similar to the case with parental monitoring, discussion of family rules may more accurately represent an example of structure in this instance, with little information as to the extent to which this behavior is actually autonomy-supportive versus controlling.

The context of time. Building from this study and in aiming to reconcile the psychoanalytic and humanist views of autonomy, I propose that it is not the *need* for autonomy that is age-dependent, but rather what it *means* to be autonomous that is age-dependent. Relatedly, what is perceived as autonomy-supportive also changes with time. Growing awareness (cognitive development) causes individuals to perpetually redefine what environmental factors are sufficient to support autonomy. When you are younger, it takes less to feel autonomous. As adults age, the dynamic between parents and adolescents has to change for adolescents to feel autonomous.

Part of the reason for the numerous operationalizations of autonomy, then, may be due to the fact that as individuals age, autonomy becomes more complicated. As the base level, individuals still require freedom from a controlling environment, but the capacity to feel this sense of freedom increasingly hinges on other factors as individuals further refine aspects of their self such as their values and goals.

To illustrate, certainly, the need for certain parental structures that support autonomy (such as parental monitoring) is age-dependent. As indicated above, if such parental restriction of adolescent behavior is excessive, punitive, coercive, and the like, it will limit autonomy. Alternatively, if it is coupled with explanation, opportunities for joint decision-making, and similar practices, it will promote feelings of autonomy. However, there will come an age when parental efforts to restrict their children's behavior in any form (controlling *or* autonomy-supportive) will likely be viewed as excessive, and therefore run counter to autonomy. That is to say, at some point autonomy or freedom from control will entail *freedom from a time* when it is appropriate for parents to largely dictate the behavioral actions of their children. Thus, in this view, another explanation for the lack of association between parental monitoring and adolescents' feelings of autonomy is that parental monitoring was not viewed by the adolescents as limiting their autonomy, but rather was accepted as an age-appropriate aspect of parental structure.

Of course, and as suggested by the findings in Chapter 2, other aspects of parenting, such as psychological control may have a negative influence on individual autonomy regardless of life stage. Unlike structure, there is no developmentally appropriate time for parental manipulation and coercion of their children. Thus, an important consideration for future research examining parenting is whether there may be certain parenting behaviors that universally limit adolescent autonomy versus those that have an age-specific impact.

Exploring the Meso-Social Context. Findings from Chapters 2 and 3 of this dissertation have implications for how the meso-social context is related to adolescents'

feelings of autonomy. As indicated in Chapter 1, research on autonomy has largely focused on the micro-social context calling for a need to consider how other aspects of adolescents' social environments relate to autonomy.

Parents are more likely to engage in psychological control when they are not having their own needs for autonomy, competency and relatedness met (Grolnick, 2003) thus emphasizing the interactions between parents and the social environment (meso-social context) may also have bearing on adolescent autonomy. Specifically, Grolnick describes three types of pressure on parents. Pressure from "above" includes social-contextual factors, pressure from "within" includes parents' personality characteristics, and pressure from "below" includes children's behavior.

Study 1 provided preliminary evidence that parents' feelings of control are related to adolescents' feelings of control. Two explanations for this finding are possible. First, association between parental feelings of control and adolescents' feelings of control could suggest intergenerational transmission of traits that support the perception that the world is controlling. If, for example, there is an association between mental health and individuals' feelings of control, then it is possible that parents and their children share risk factors for viewing their world as being controlled. (The possible association between perceived control and mental health will be discussed in more detail below). On the other hand, however, a shared view of feeling controlled or of lacking control could also reflect a shared environment. That is, parents and their children may report similar levels of autonomy due to experiencing similar sources of environmental constraint (e.g. disadvantaged neighborhood context, prejudice, discrimination). Using Grolnick's (2003) terminology, it is likely that adolescents and their parents share constraints from

above (environmental) in addition to the possibility that they share constraints from within (mental health).

Given the association between parental control and parents experiencing pressure and constraints within their environment and the likelihood that parents and adolescents share, at least to some extent, some key aspects of their environment (e.g. the neighborhood they live in), It would be interesting to establish whether there is evidence that the different contexts of adolescents lives tend to be characterized by control versus autonomy. In other words, do shared constraints from above contribute to a tendency for controlling or autonomy-supportive contexts to exist together? Or, do contexts operate as either controlling or autonomy-supportive independent of each other?

Although modification indices in Study 2 did not suggest any direct relationships between neighborhood disadvantage and either parental monitoring or mother psychological control, future research should examine other potential associations between different environmental sources of control or autonomy-support. For example, does neighborhood disadvantage influence other types of parenting aside from parental monitoring and parental control? Or, is there an association between neighborhood disadvantage and either parental monitoring or parental control at either extremely low or extremely high levels of neighborhood disadvantage?

Exploring the Macro-Social Context. In addition to expanding upon current investigations of autonomy at the micro-level to consider how parents' own feelings of control are related to adolescent feelings of autonomy, well-being and academic success over time, another contribution of the empirical portion of this dissertation was to begin to consider the potential role of sources of autonomy-support at the macro-level. Factors

that are autonomy-supportive “help children to develop and realize their personal goals and interests” (Assor, Kaplan & Roth, 2002, p. 263), while factors that are autonomy-suppressing “interfere with the realization of the child’s goals and interests.” To this end, Study 2 examined to what neighborhood disadvantage was associated with adolescents’ perception or worry that they would be unable to pursue future goals and interests.

Findings from this study provided evidence that neighborhood disadvantage is, indeed, associated with adolescents perceived future control. This finding begins to shed some light on those aspects of the macro-social environment that may be deemed autonomy-suppressing. Interestingly, the association between neighborhood disadvantage and adolescents’ feelings of control varied according to family wealth, suggesting that structural inequalities may be an important determinant of variations in individuals’ sense of autonomy. In particular, the relation of neighborhood to individuals’ sense of autonomy seemed to be most pronounced at high and low levels of wealth. Given the high congruence between wealth and neighborhood conditions, this finding suggests that it is living in more disadvantaged *or* more advantaged neighborhoods that relates to individuals feelings of control. Future research should investigate whether the relationship of other aspects of the social environment to individuals’ sense of control may also be curvilinear.

Domains of Development. Another interesting finding to emerge from Study 2 that may warrant future investigations is that neighborhood disadvantage seemed to be related only to adolescents’ sense of future control and not their sense of academic control (though neighborhood conditions were related to academic success over time). This, in addition to considering the role of different environmental contexts on

adolescents' sense of control, future studies should also consider whether certain environmental contexts are more relevant to a particular domain of development, compared to other domains.

Future Directions: Exploring Mental Health as a Pressure from Within.

Despite the assertion that autonomy is fundamental to individuals' well-being (Deci & Ryan, 2000), compared to the quantity of research examining the association between adolescent autonomy and academic outcomes, the number of studies examining the association between adolescent autonomy and mental health outcomes is relatively small. As such, another contribution of the empirical portion of this dissertation was the examination well-being as an outcome.

Despite this strength, more research is needed investigating the association between sources of autonomy-support, adolescents' feelings of control and specific mental disorders. Findings from Study 1 indicate that parents' own sense of autonomy or control may be an important factor that contributes to adolescents' sense of autonomy. As indicated previously, however, it is unclear if this association is due to a shared environment or, rather, a shared tendency to view the environment as controlling.

As findings from this study indicate, mental health and academic success cannot simply be explained by their shared risk and protective factors or individual-level processes. Instead, individual-level feelings of control influence how individuals interact with the micro and macro social contexts in which they exist (e.g. school, neighborhood, society, culture) thereby influencing mental health and academic/occupational outcomes. Similarly, poor mental health or academic difficulty may limit individuals' sense of power and control over life. Research suggests that depressed individuals are more likely

to view their environments as constraining (Watkins, Martin & Stern, 2000). Thus, in addition to the observed influence of adolescents' feelings of autonomy on their well-being, adolescents' well-being and mental health may also influence adolescents' feelings of autonomy. Over time, reciprocal interactions between individuals feelings autonomy, the contexts in which they develop and their mental health may further influence additional developmental outcomes. As such, future investigations of autonomy should investigate how adolescents' feelings of autonomy and mental health interact over time in addition to what other outcomes these reciprocal effects between feelings of autonomy and mental health may be related.

In addition to the possibility that the meaning of autonomy varies according to mental health status or with age (as previously discussed), research should further consider whether the meaning of autonomy may vary according to other aspects of individuals' identify such as sex, ethnicity, religious affiliation, and the like. Again, this is not to suggest that the *need* for autonomy that varies, but rather what constitutes a controlling environment that may vary between individuals.

Fostering Autonomy

Applying an Empowerment Perspective. Despite an increasing focus on autonomy-support in both the parent and teacher contexts in recent years, the majority of research on adolescent autonomy tends to focus on those factors that constrain, rather than support autonomy. Building from theories of social capital and empowerment, Study 3 of this dissertation examined adolescents' feelings of autonomy as a potential mechanism that may help to explain the association between both social and resource capital and adolescents' academic success and well-being (e.g. Almedom, 2005;

O'Connor et al., 2011) with the aim of identifying factors that may promote rather than impede adolescents' feelings of control.

Study findings indicated that social capital in both the family and school contexts is important to adolescents' sense of control over graduating from college. Importantly, this sense of control seems to be paramount to adolescents' valuing of higher education in predicting adolescents' future educational plans. Although results from Study 2 indicated that neighborhood conditions were important to adolescents' sense of future control above and beyond the influence of parents, results from Study 2 suggest that with respect to control in the academic domain, support from both parents and teachers appears to be more important to feelings of control than resource capital.

Future research should continue to investigate different sources of autonomy-support at both the micro- and macro-social levels with the aim of identifying further factors than may empower youth. Building from working investigating autonomy-support at the micro-level, autonomy-support from parents and teachers includes encouraging independent thinking, acknowledging perspectives and feelings, and explaining the relevance of rules and assigned tasks. Future research aiming to identify autonomy-supportive aspects of the macro-social environment could begin by attempting to map those factors shown to be autonomy-supportive at the micro-social level onto aspects of the macro-social environment. For example, transparency of governmental laws or tax code at the macro-level may serve as a way to empower individuals. Rather than focusing on how discrimination and bias may serve to oppress individuals, such work investigating how such macro-social factors promote individuals' sense of autonomy can

help lead to the creation of social policies that promote equality and well-being for all—the very premise on which our country was founded.

Concluding Remarks

My dissertation enriches the investigation of autonomy by including the macro social context and the influence that social class and access to resources can have on well-being and educational/occupational outcomes, aspects of adolescents' social environment that typical investigations of adolescent autonomy tend to ignore. Data from the Panel Study of Income Dynamics (PSID), allowed for exploration of how neighborhood, school, and family resources affect adolescents' sense of control and subsequent well-being and academic/occupational success in young adulthood. By applying empowerment and socio-ecological perspectives to the investigation of autonomy, and through consideration of socio-cultural forces that constrain development (e.g. poverty, social class, access to information and resources) in addition to psychosocial factors (e.g. parental autonomy-granting and support, individual feelings of control and choice), parental psychological control, neighborhood disadvantage, and inequality in the distribution of wealth emerged as significant sources of autonomy-suppression, while parental involvement in school, parents' valuing of education, and involved relationships with teachers at school emerged as important sources of autonomy-support.

Future research should continue to apply both socio-ecological and empowerment perspective to the study of autonomy to increase understanding of how the social environment operates to both foster and constrain positive developmental outcomes among adolescents. Specifically, investigation of how environmental contexts may either

work together or compete to influence autonomy has important implications for intervention efforts aimed at youth empowerment. Further, continued longitudinal examination of reciprocal interactions between individuals, their feelings of autonomy and the contexts in which they develop over time can help identify effective points for interventions targeting emotional well-being and academic/occupational success among of youth and young adults. Given social inequalities and increasing levels of poverty in society, understanding the ways in which family, school, culture and society interact with individual and psychosocial processes to influence educational and occupational attainment along with mental health outcomes among the emerging generations is imperative.

Figure 2.1
Hypothesized Model for Study 1

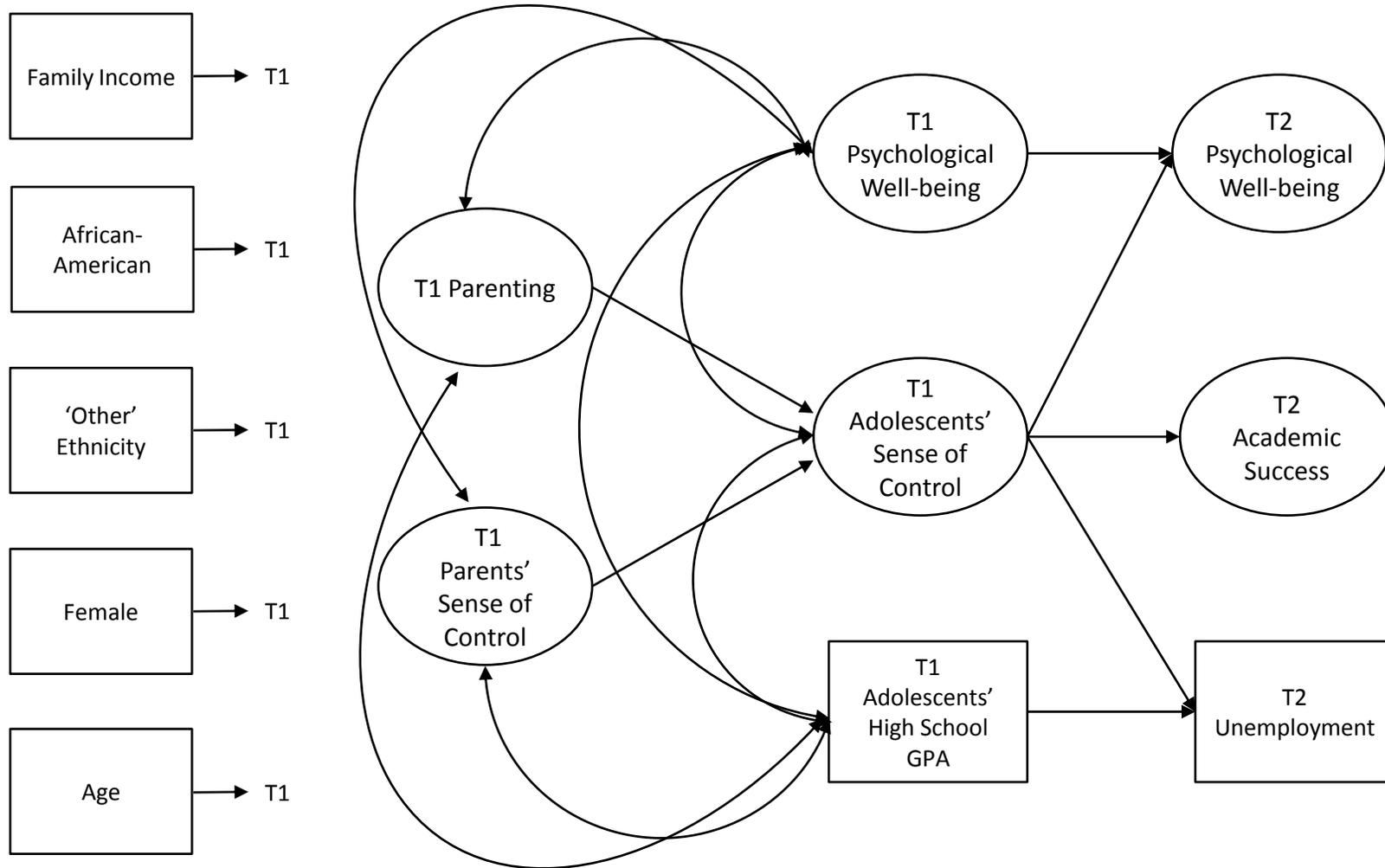
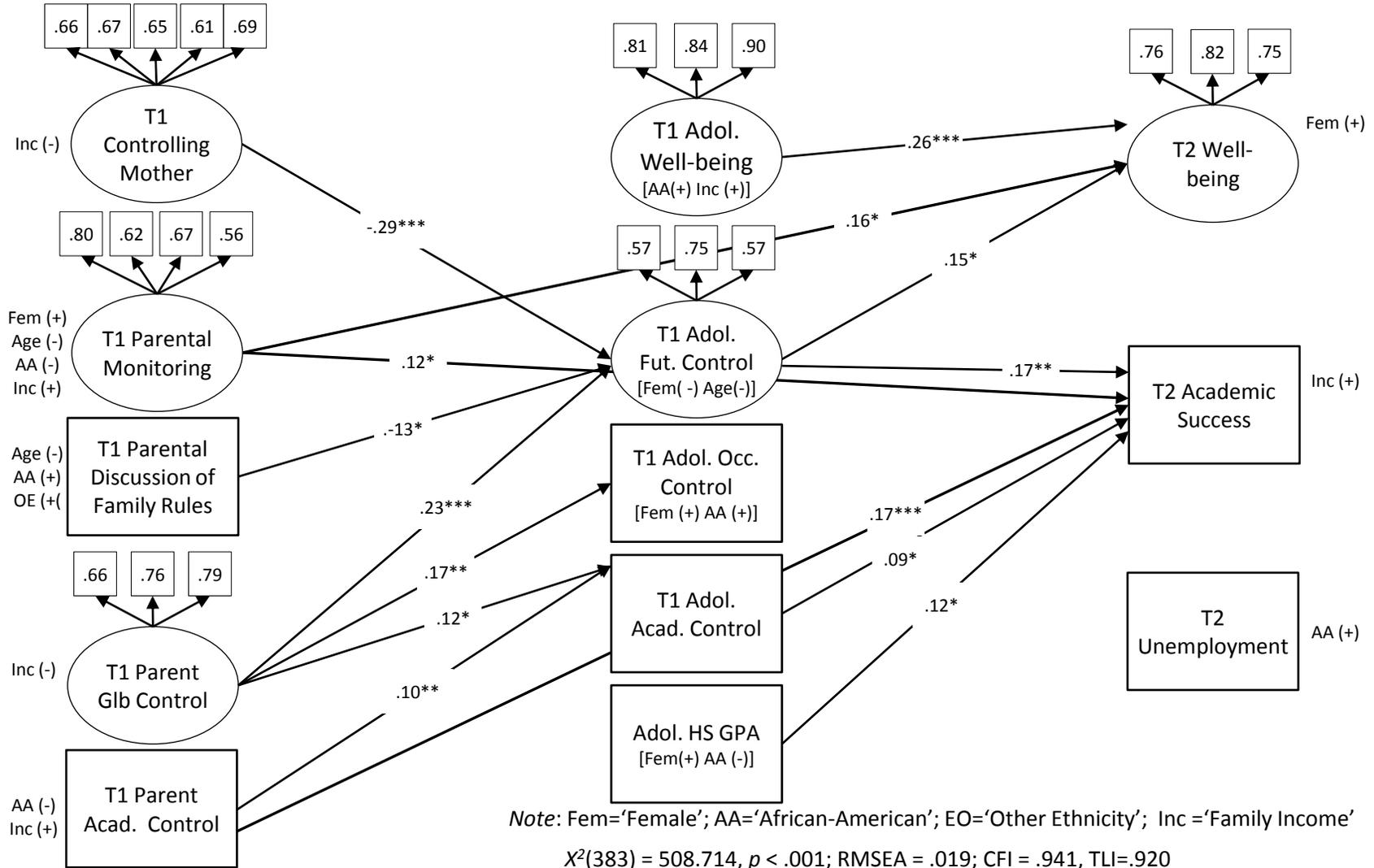


Figure 2.2

Longitudinal Association of Parenting, Parents' Feelings of Control and Adolescents' Feelings of Control to Well-being and Academic Success in Young Adulthood



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; Inc='Family Income'

$\chi^2(383) = 508.714, p < .001; RMSEA = .019; CFI = .941, TLI = .920$

Figure 3.1
Hypothesized Model for Study 2

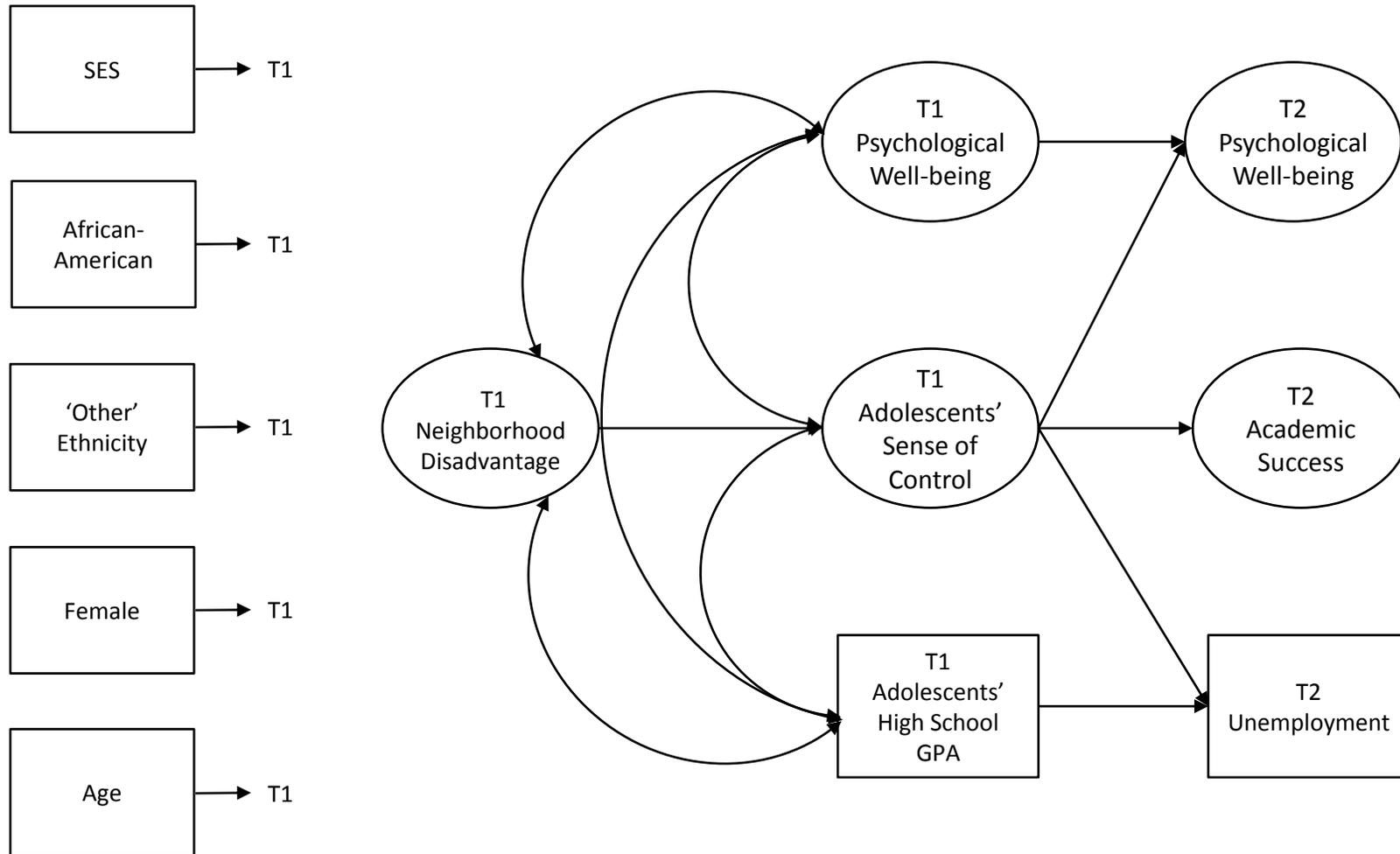
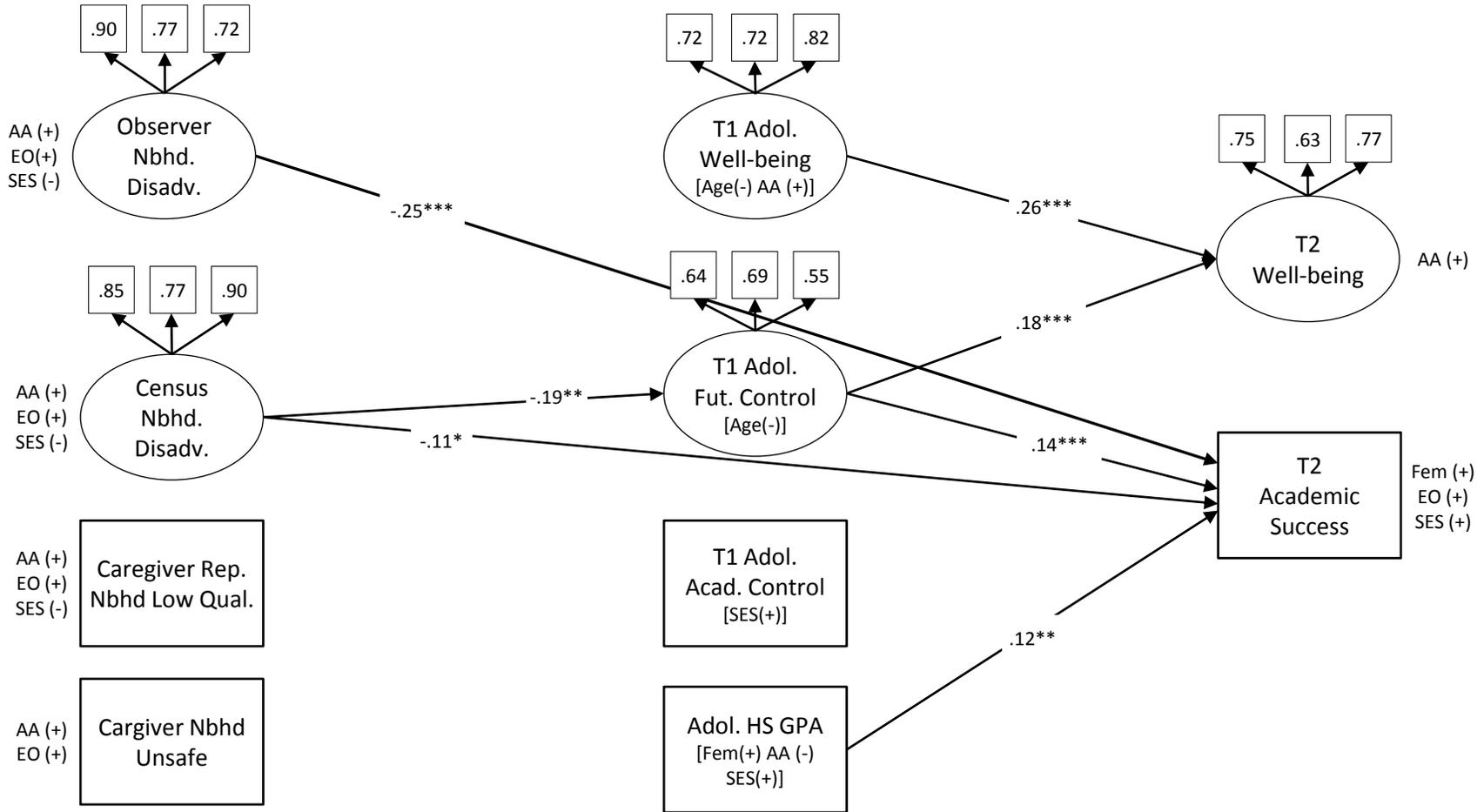


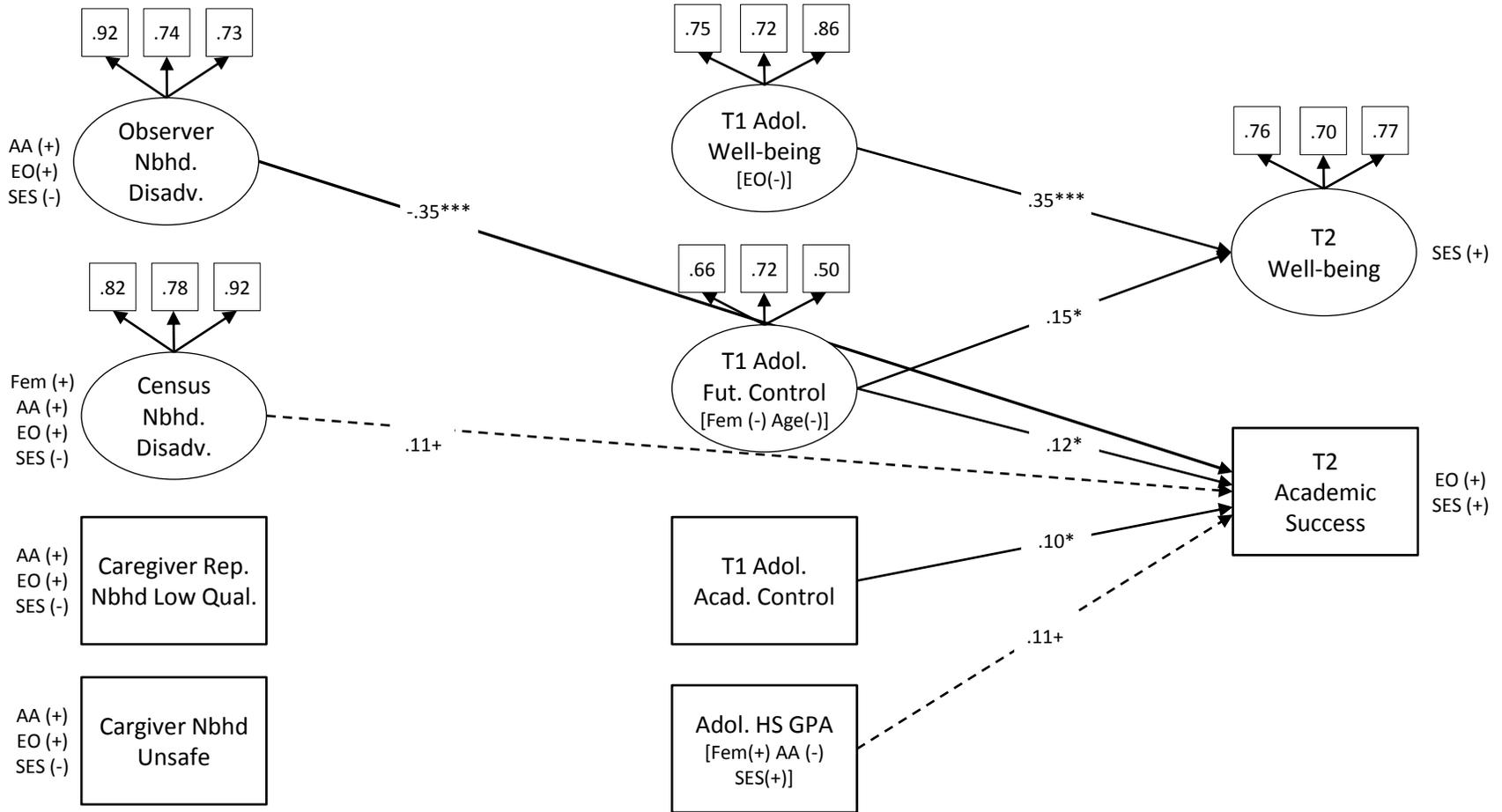
Figure 3.2
 Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success
 (unweighted data)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.3

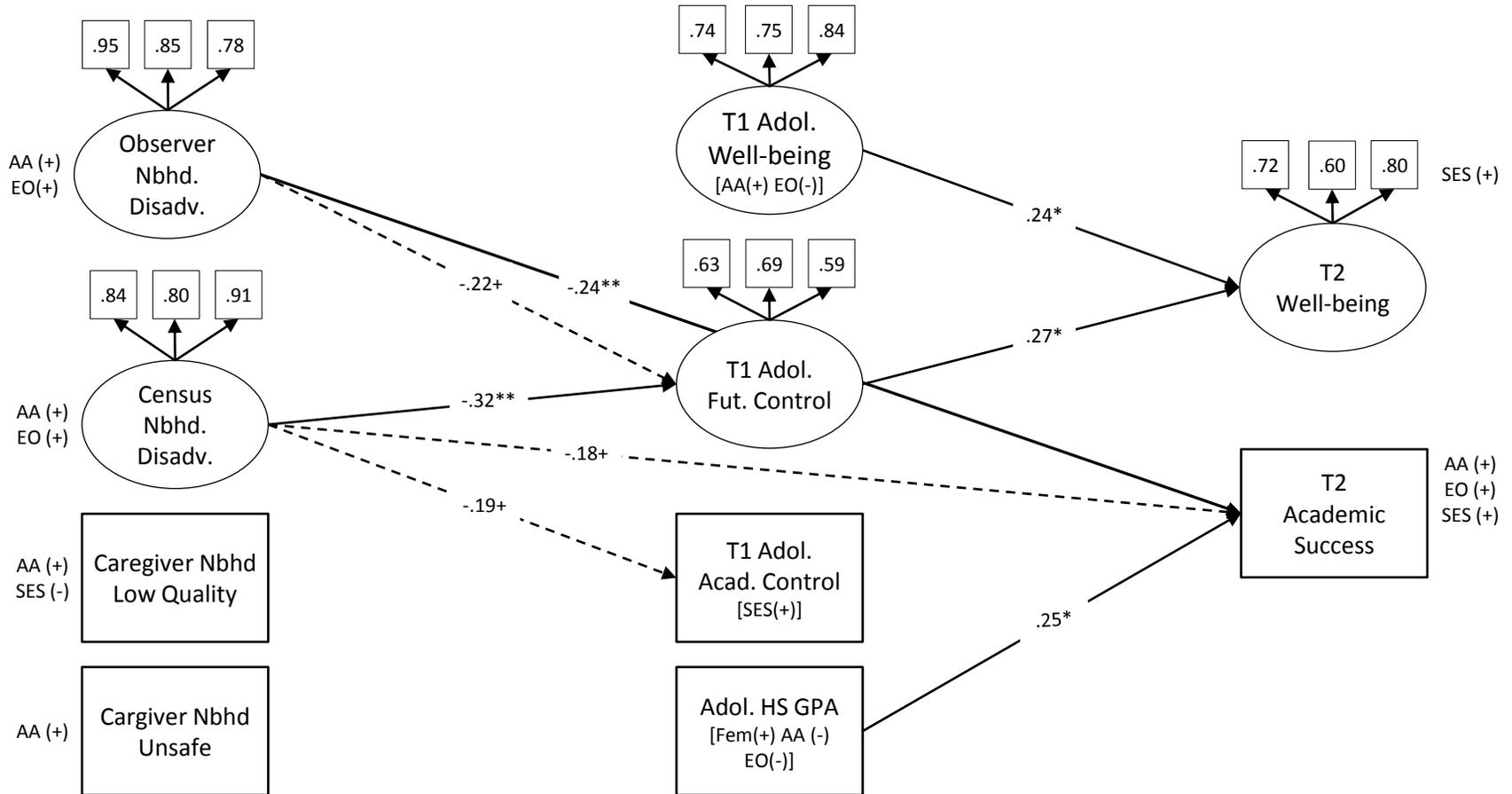
Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success (weighted data)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.4

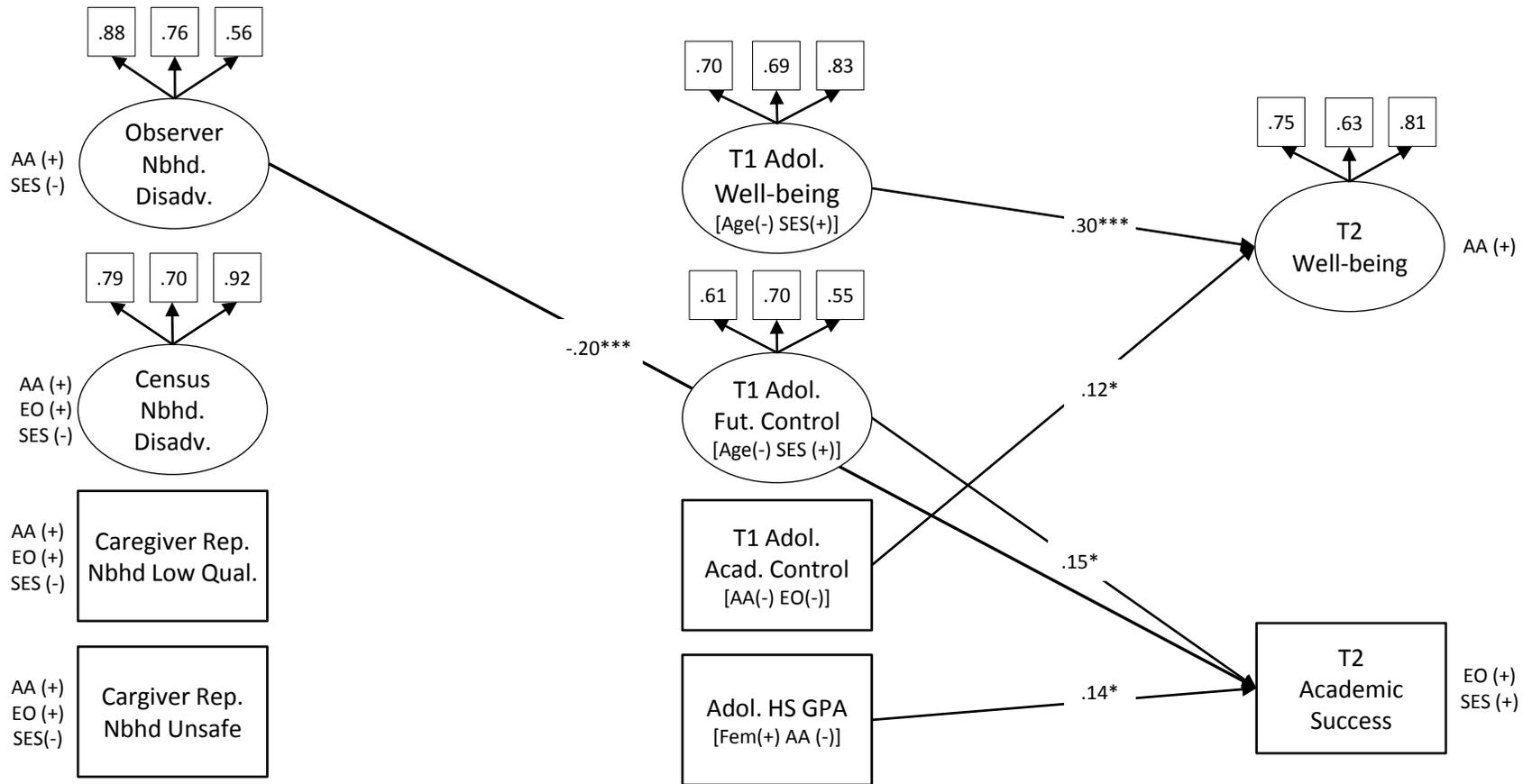
Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the Low Wealth Group (unweighted; n=214)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.5

Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the Middle Wealth Group (unweighted; n=425)

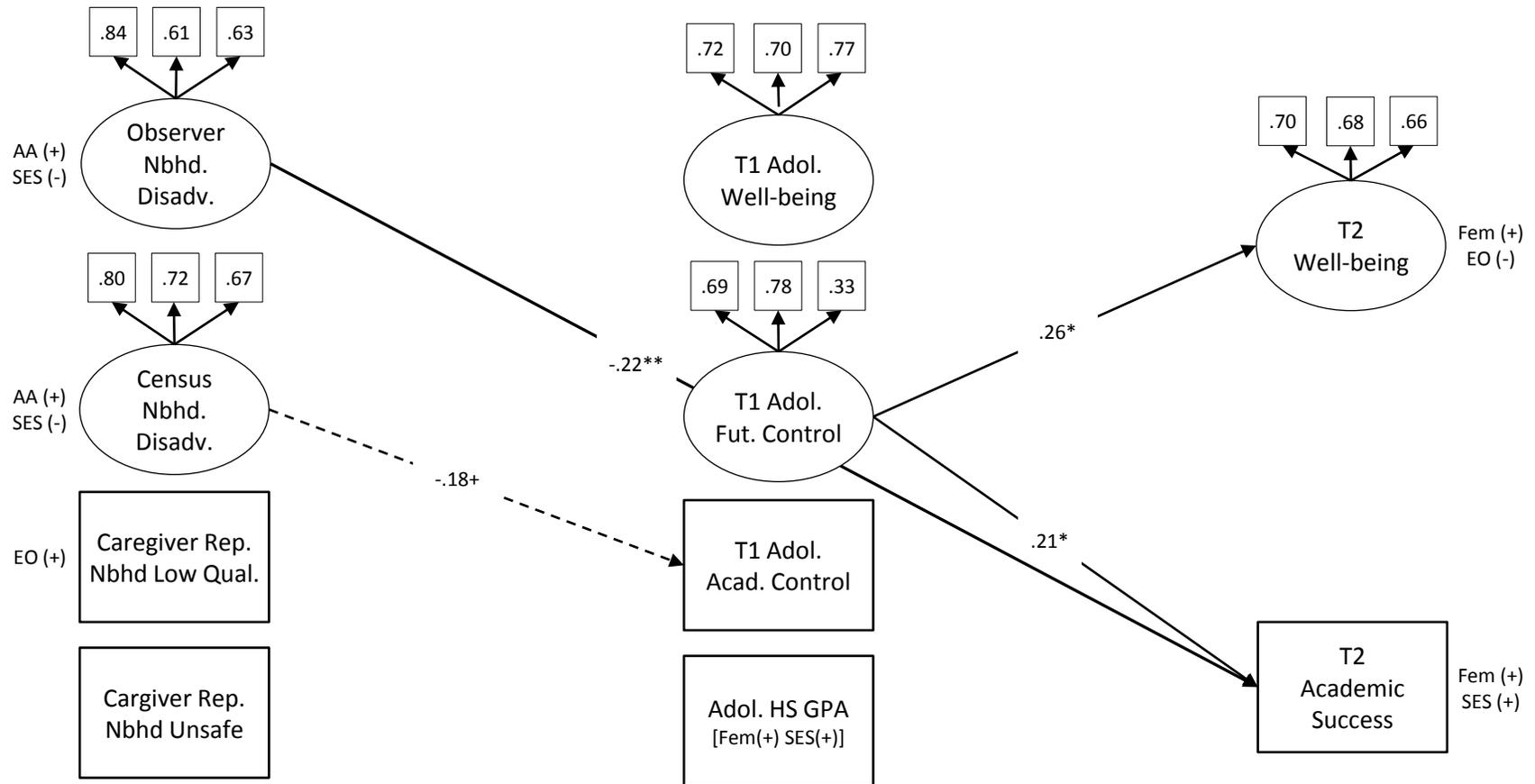


Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.6

Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the High Wealth Group (unweighted; n=213)

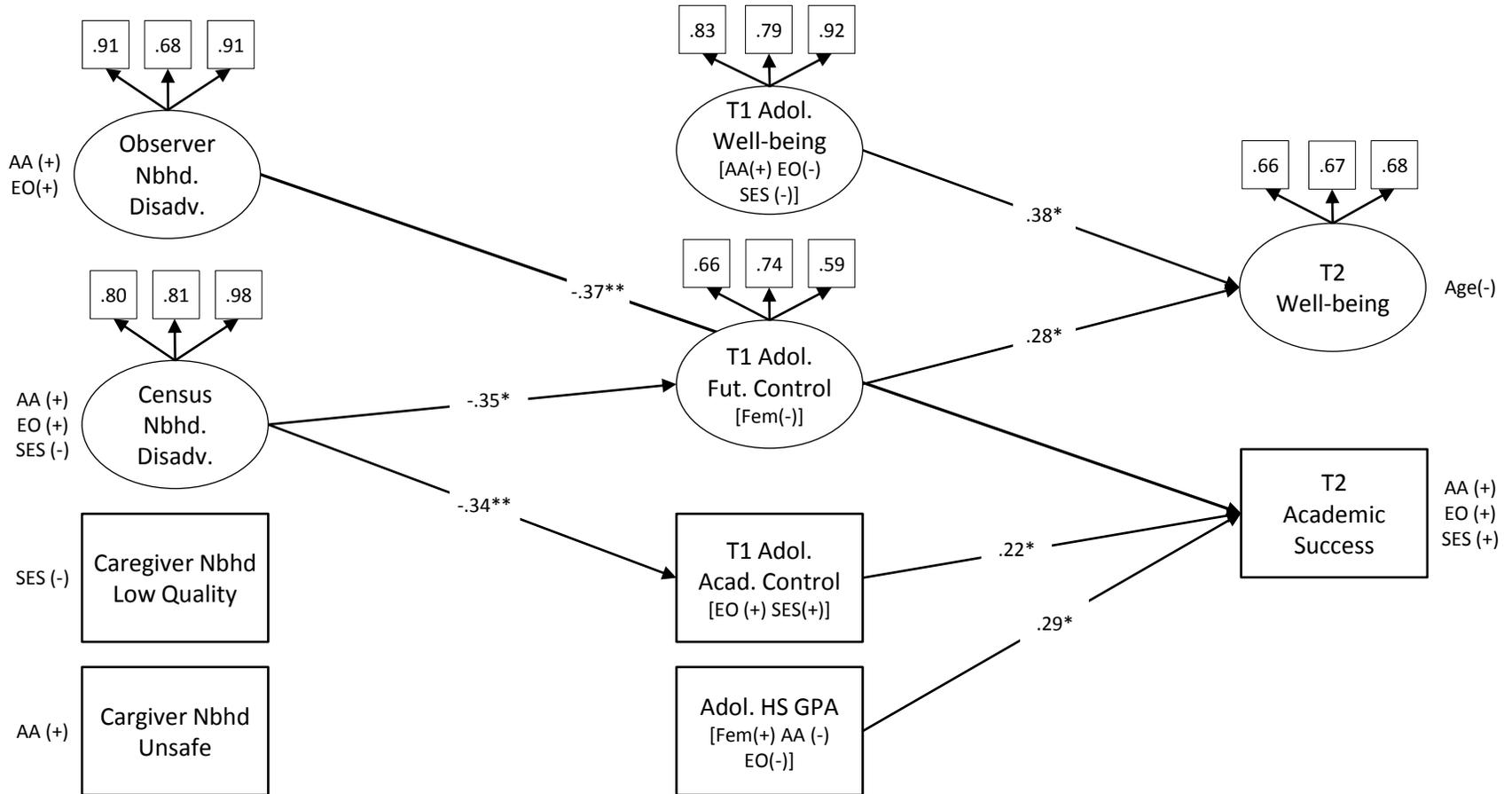
213



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.7

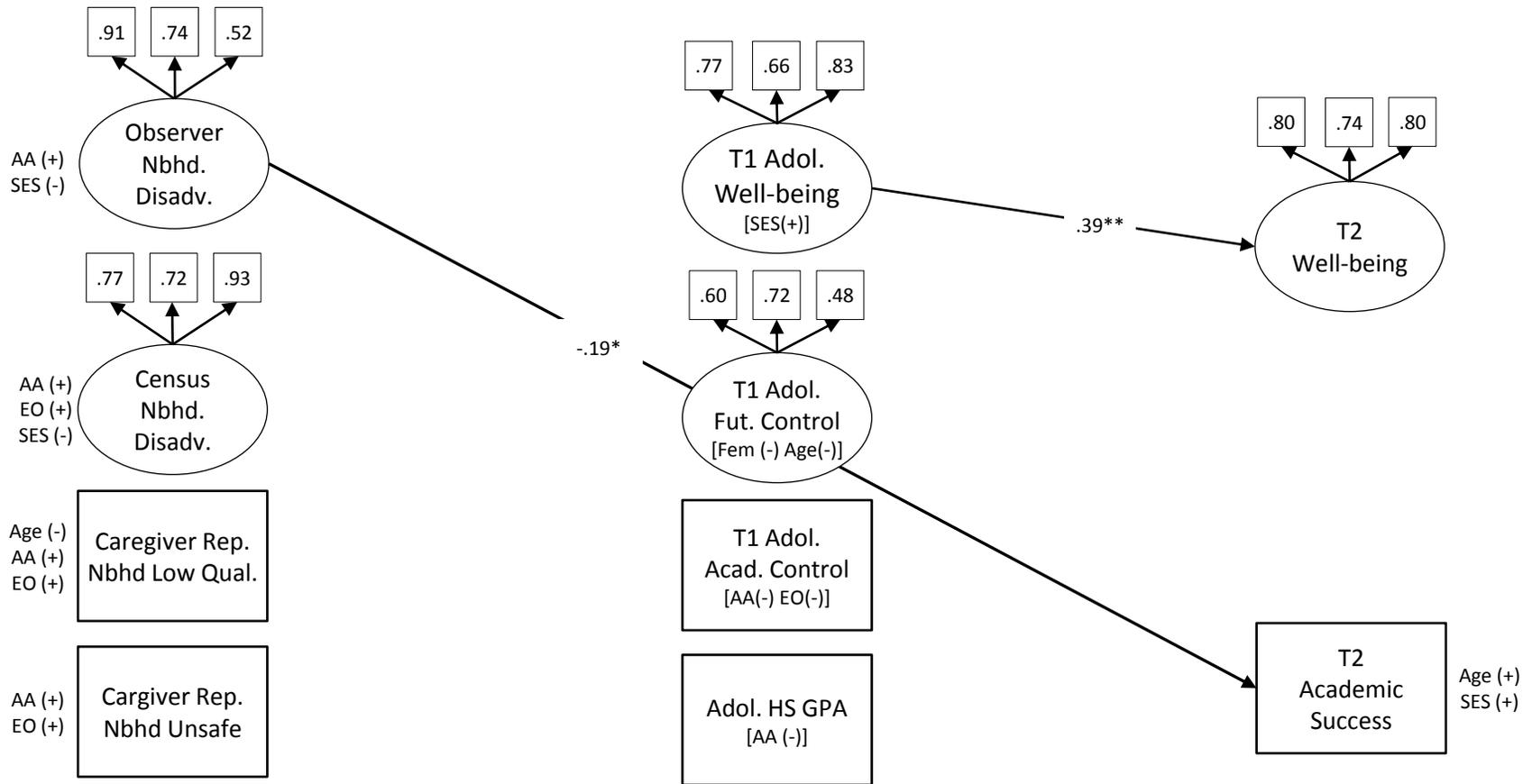
Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the Low Wealth Group (weighted; n=214)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.8

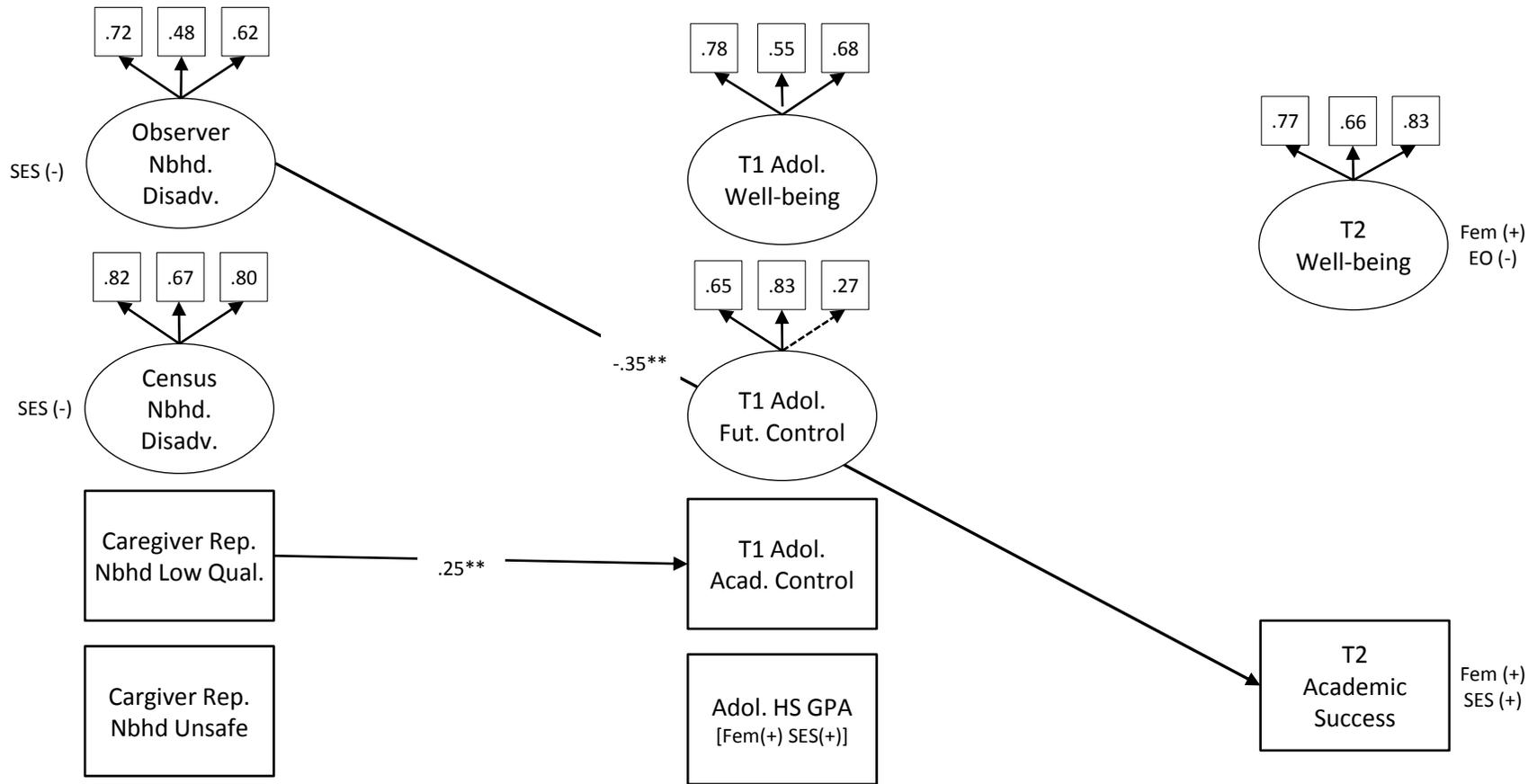
Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the Middle Wealth Group (weighted; n=425)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.9

Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success for the High Wealth Group (weighted; n=213)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'

Figure 3.10
Hypothesized Model for Study 2

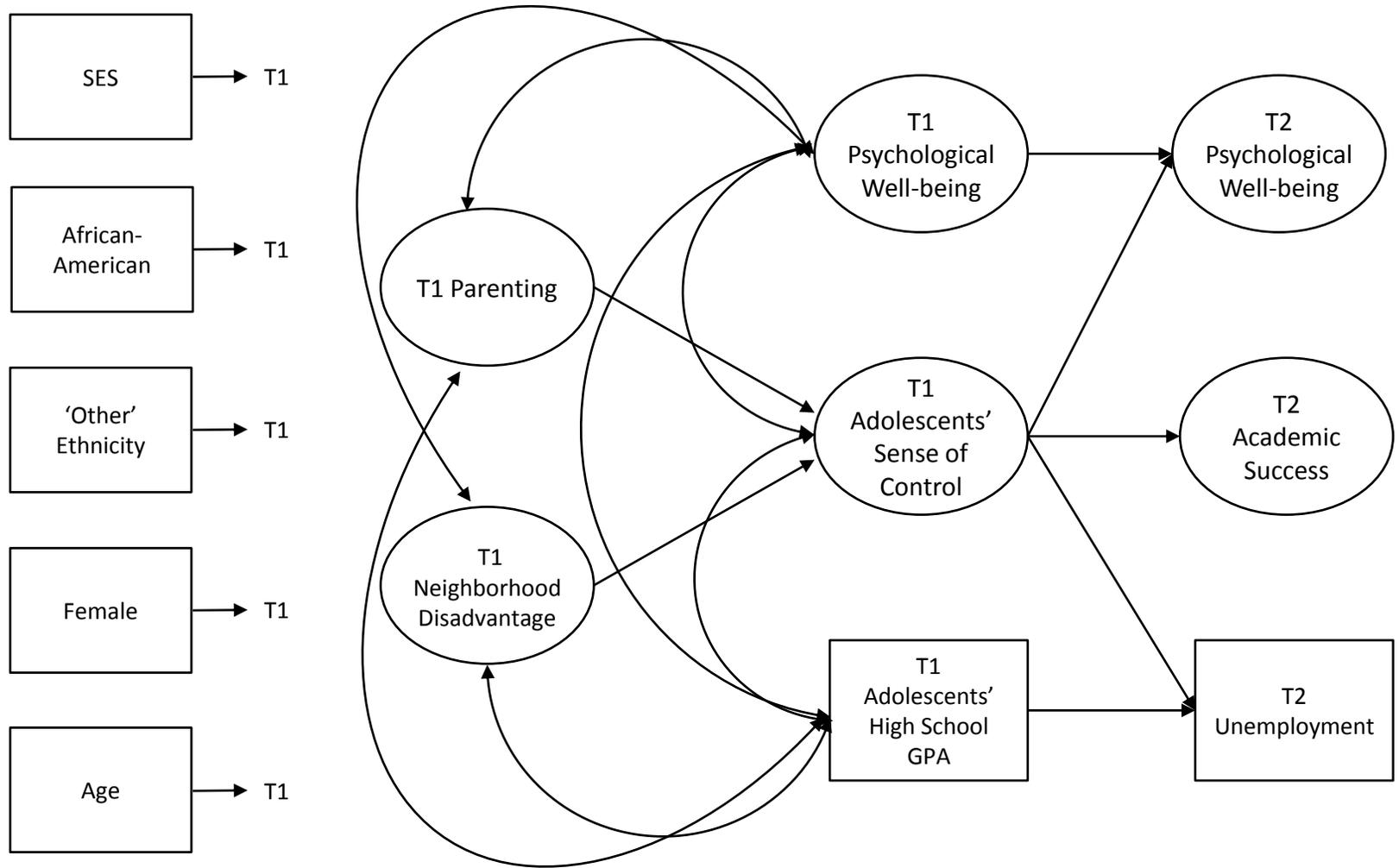
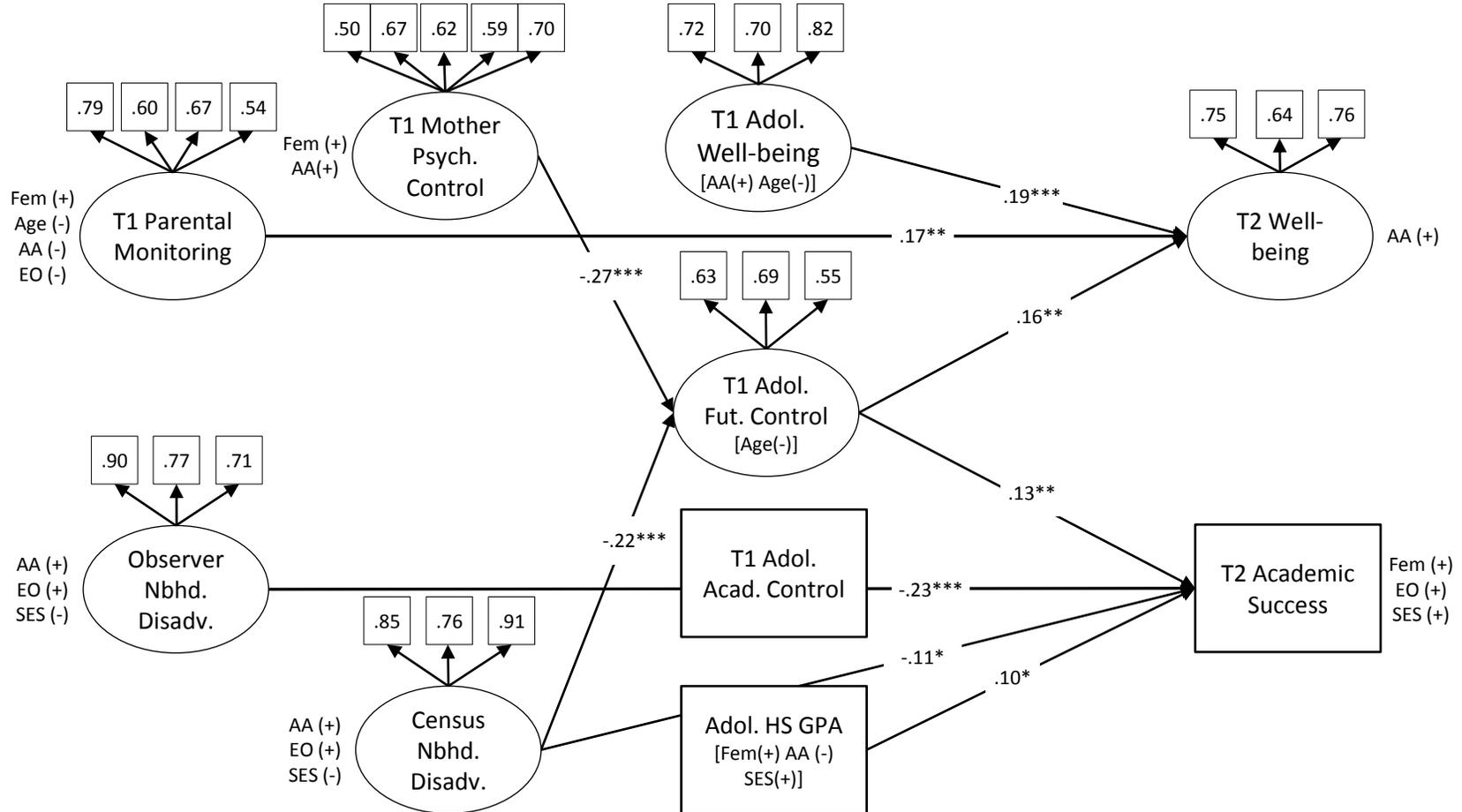
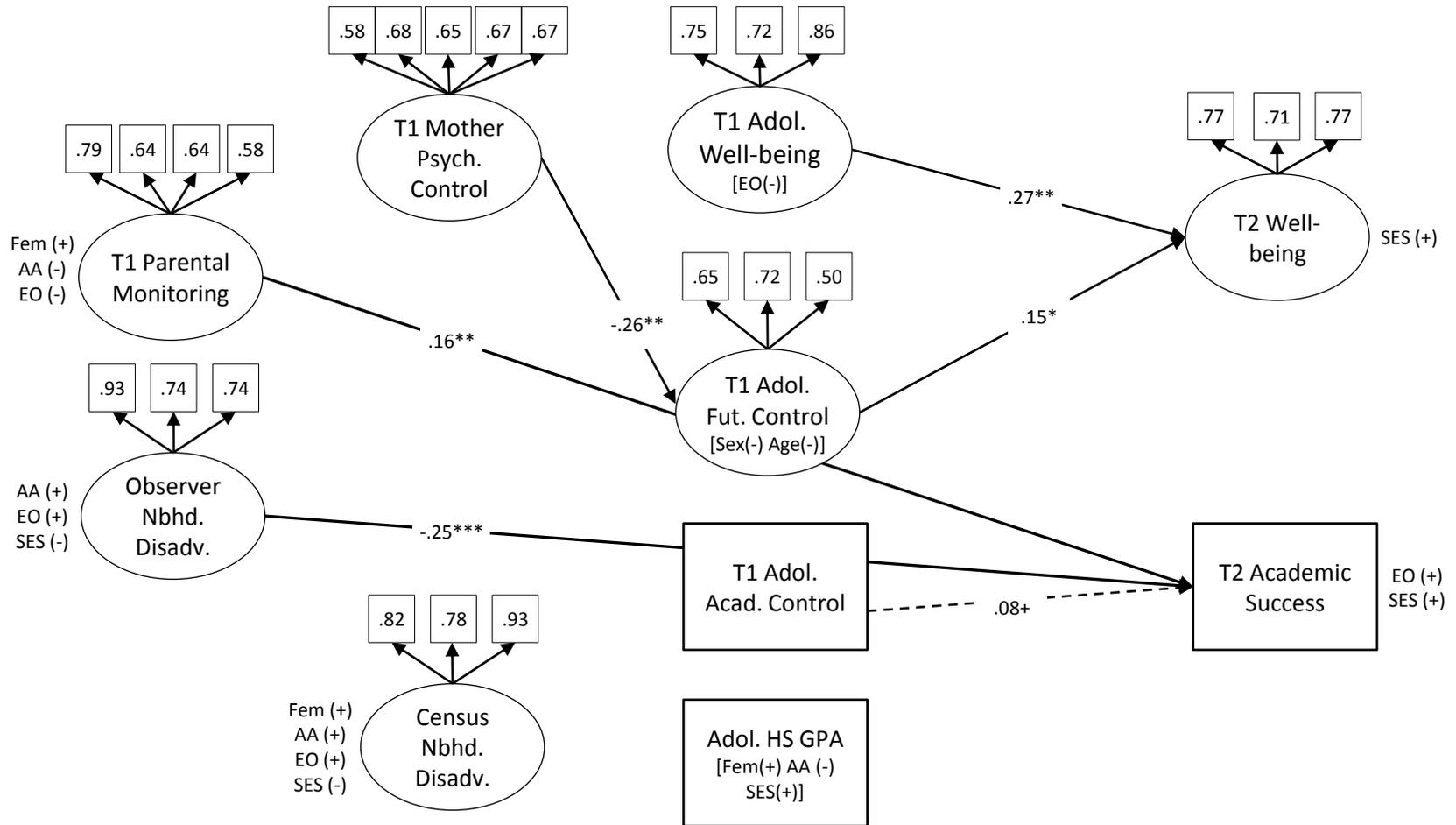


Figure 3.11
 Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success
 Controlling for Parenting (unweighted data)



Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'
 $\chi^2(376) = 716.222, p < .001$; RMSEA = .034; SRMR = .036; CFI = .949, TLI=.934

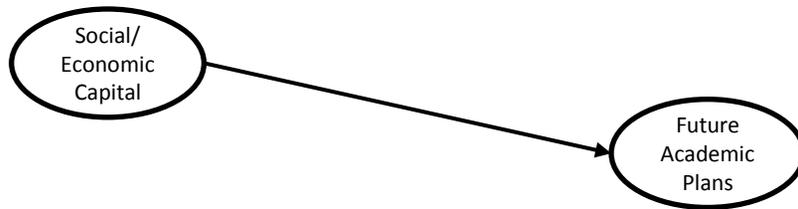
Figure 3.12
 Longitudinal Influence of Neighborhood Disadvantage and Adolescent Autonomy on Young Adult Well-Being and Academic Success
 Controlling for Parenting (weighted data)



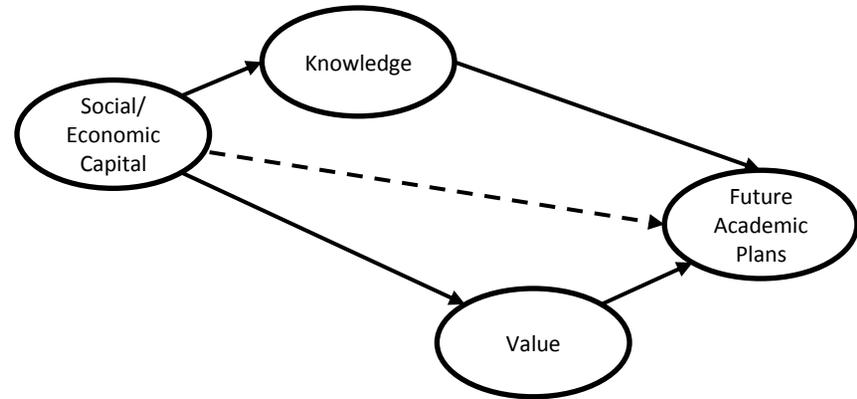
Note: Fem='Female'; AA='African-American'; EO='Other Ethnicity'; SES='Socio-economic Status'
 $\chi^2(376) = 716.222, p < .001$; RMSEA = .034; SRMR = .036; CFI = .949, TLI=.934

Figure 4.1
Hypothesized Models 1-4

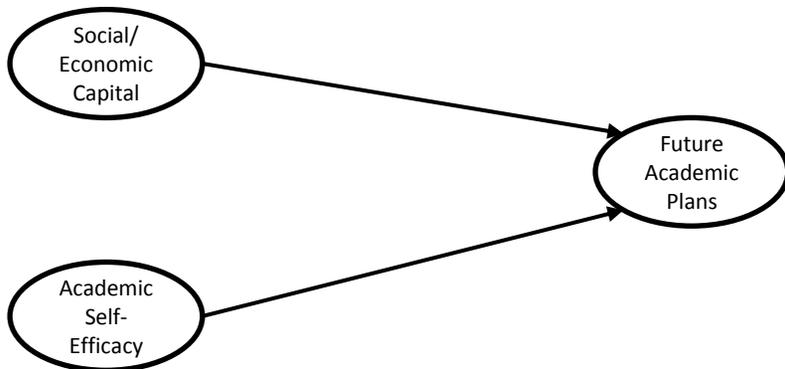
Model 1: Social/Resource Capital as a Predictors of Future Academic Plans



Model 2: Knowledge and Value as Mediators in the Relationship Between Social/Resource Capital and Future Academic Plans



Model 3: Social/Resource Capital and Academic Self-Efficacy as Predictors of Future Academic Plans



Model 4: Perceived Autonomy as a Mediator between Social/Economic Capital and Academic Self-Efficacy and Future Academic Plans

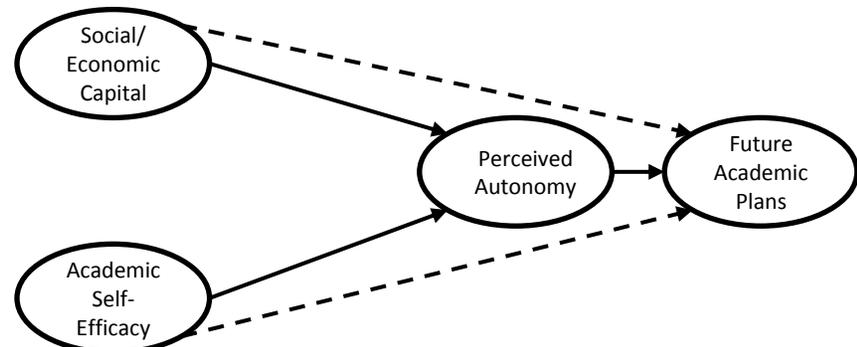
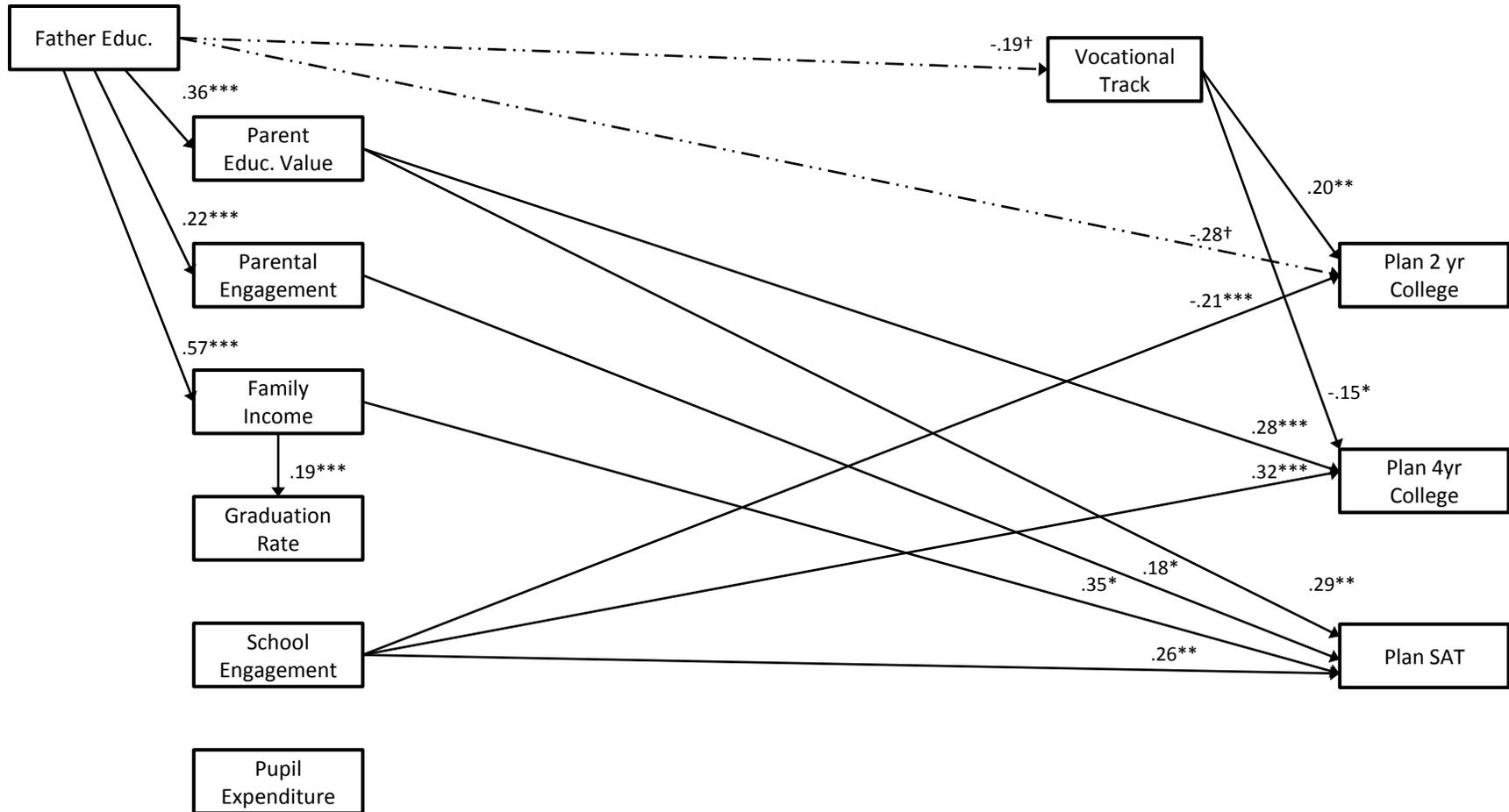


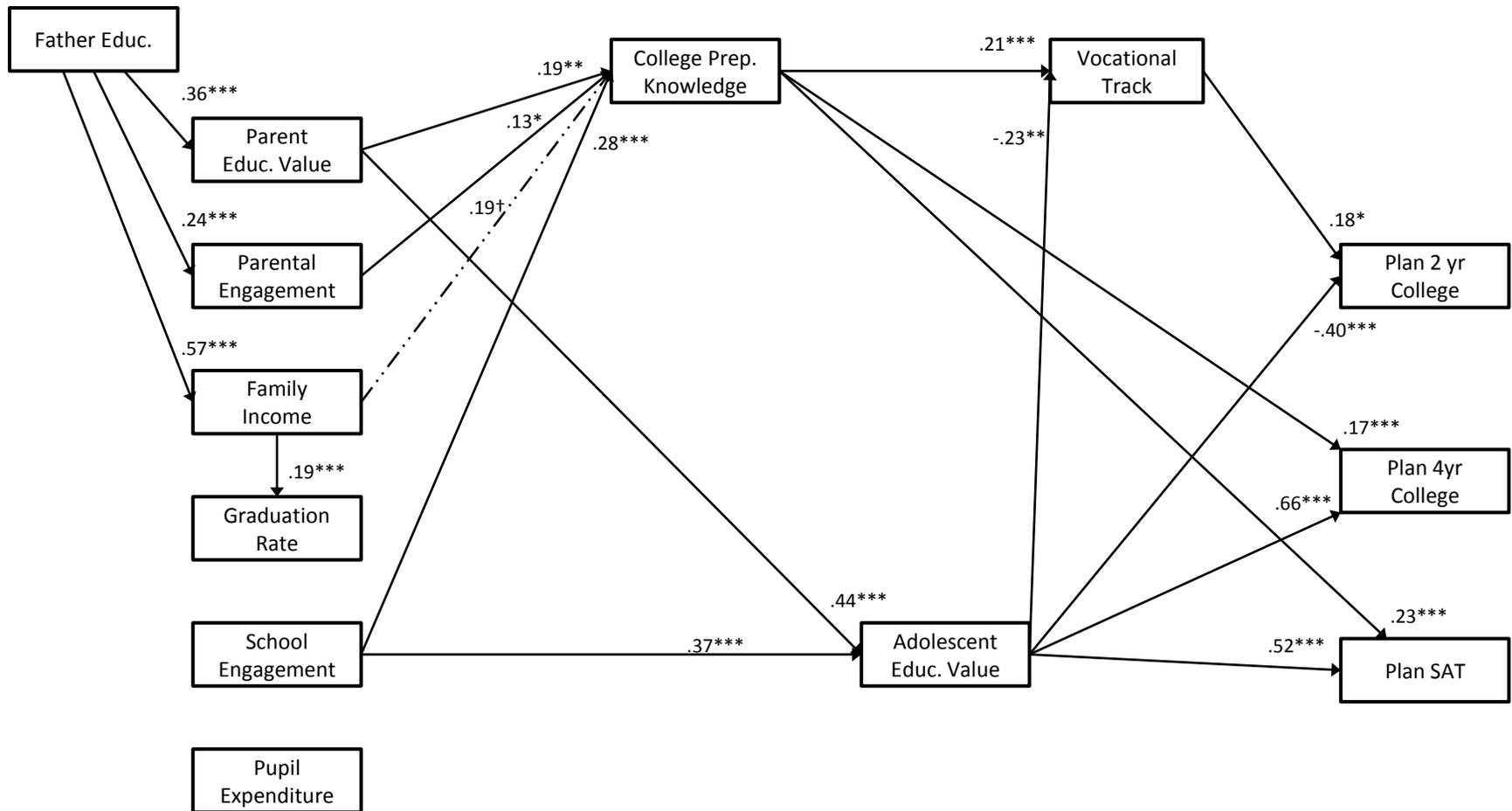
Figure 4.2
 Model 1: Social and Resource Capital as a Predictors of Future Academic Plans



Note: $\chi^2(15) = 22.071$; RMSEA = .037; CFI: .996; TLI: .975

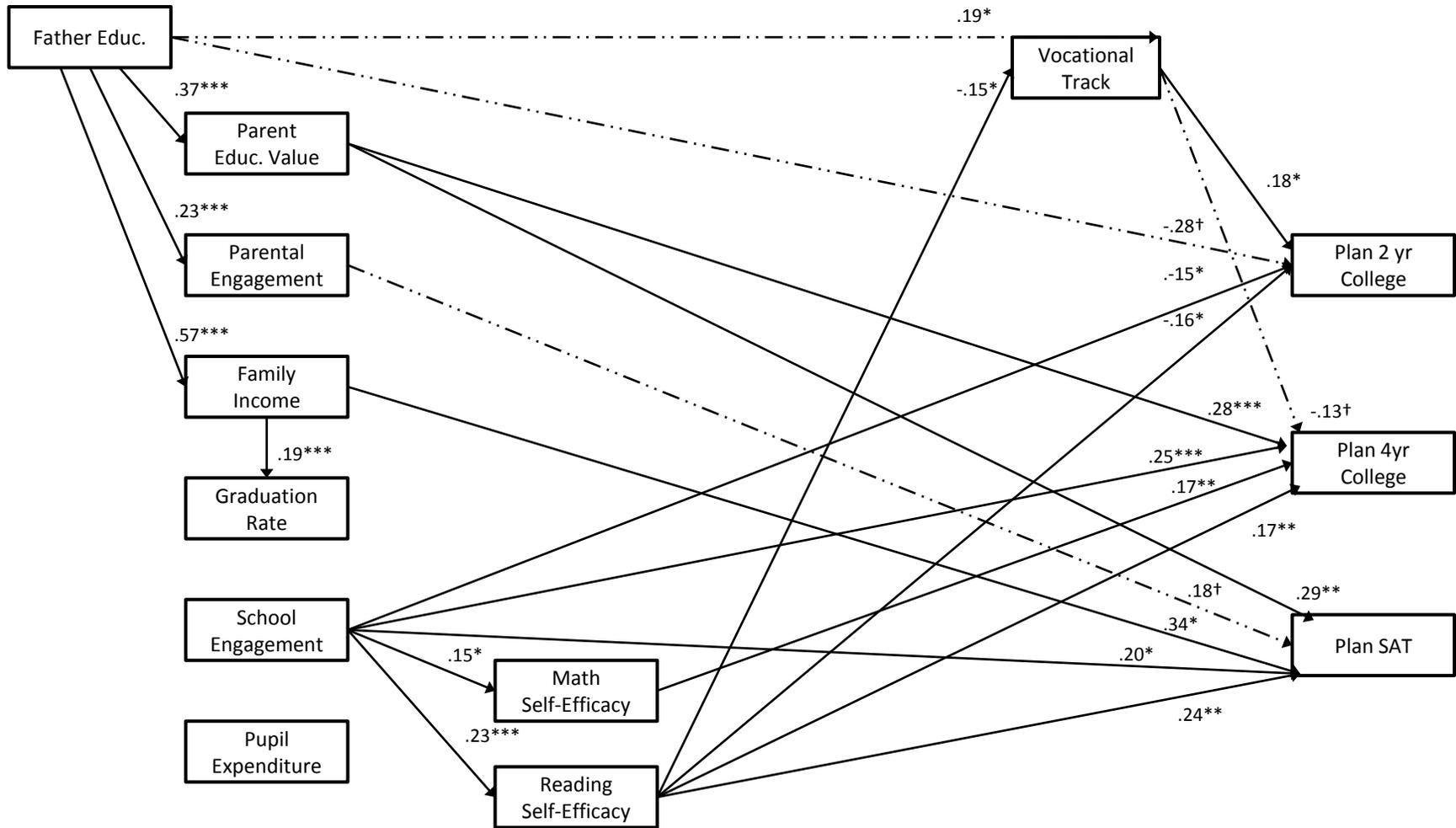
Figure 4.3

Model 2: Knowledge and Value as Mediators in the Relationship between Social and Resource Capital and Adolescents' Future Academic Plans



Note: $\chi^2(44) = 67.563$; RMSEA = .039; CFI: .988; TLI: .965

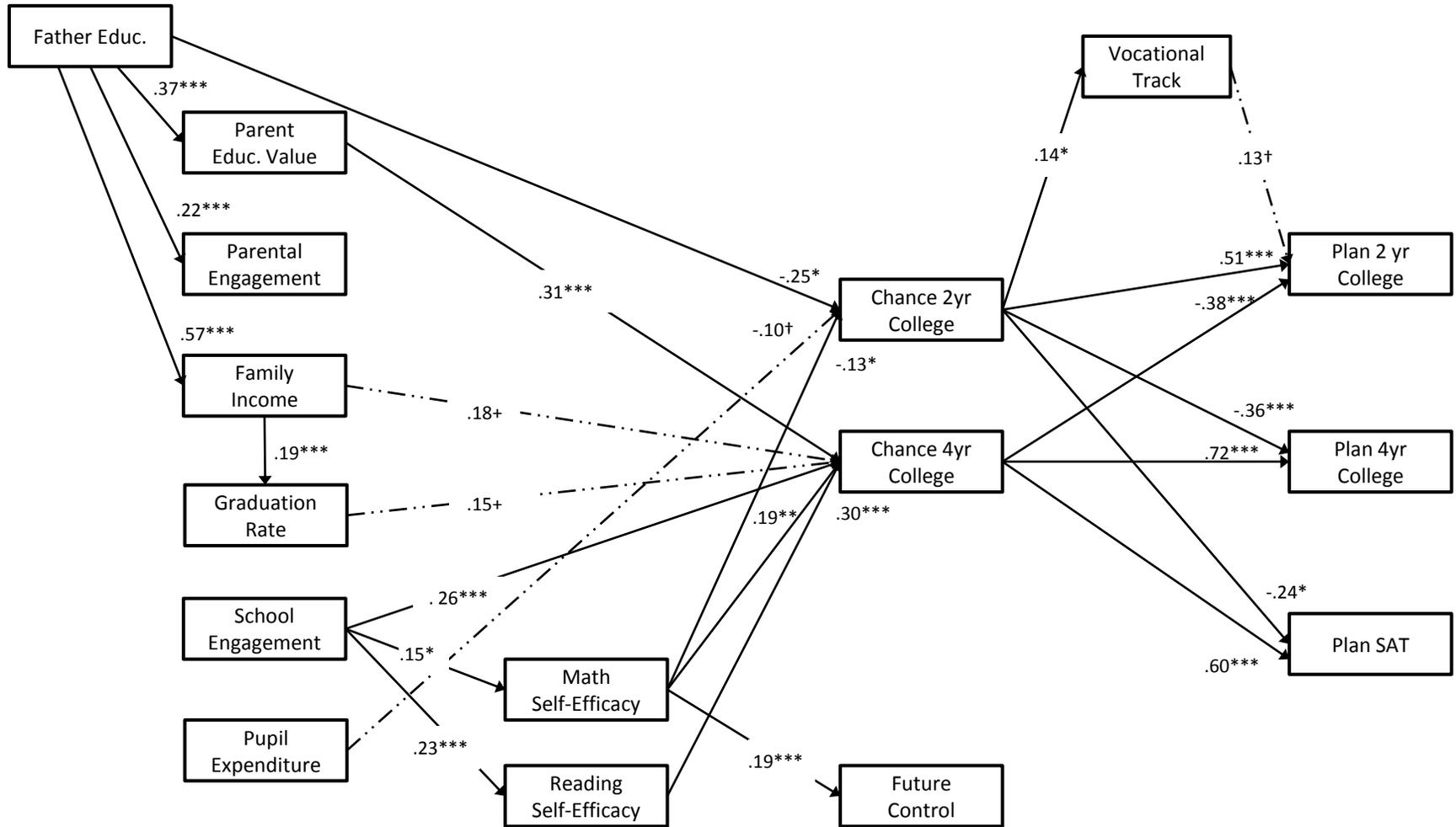
Figure 4.4
 Model 3: Social and Resource Capital and Academic Self-Efficacy as Predictors of Future Academic Plans



Note: $\chi^2(28) = 49.213$; RMSEA = .046; CFI: .989; TLI: .947

Figure 4.5

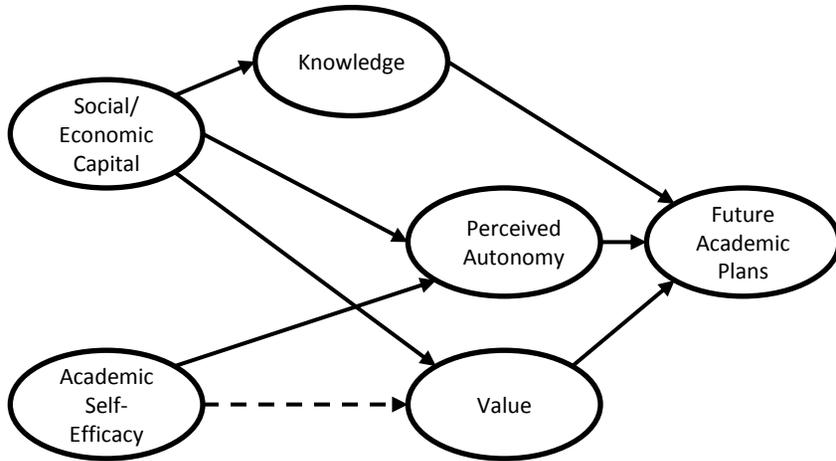
Model 4: Perceived Autonomy as a Mediator between Social and Resource Capital and Academic Self-Efficacy and Future Academic Plans



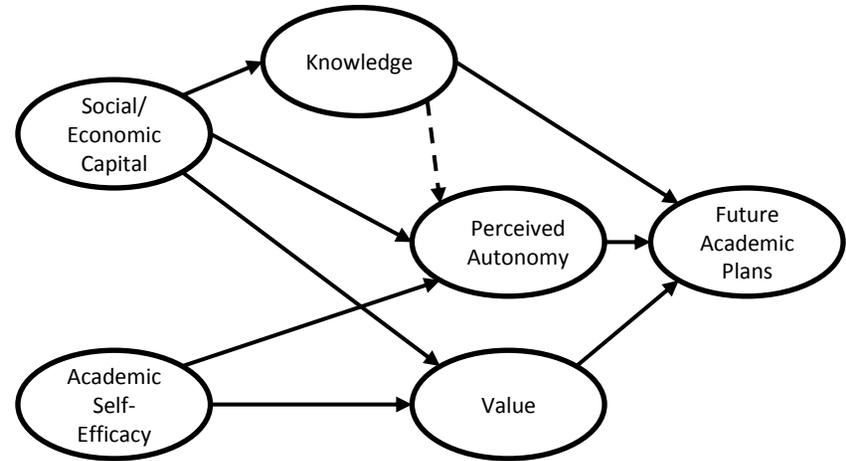
Note: $\chi^2(72) = 103.13$; RMSEA = .039; CFI: .982; TLI: .950

Figure 4.6
 Hypothesized Models 5a-5d.

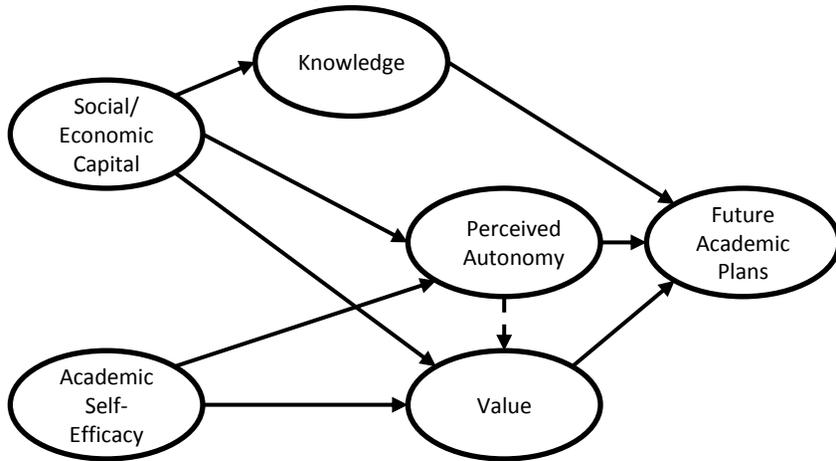
Model 5a: Testing the Relationship between Academic Self-Efficacy and Educational Value



Model 5b: Testing the Relationship between College Preparatory Knowledge and Adolescents' Perceived Autonomy



Model 5c: Educational Value as a Mediator in the Relationship Between Perceived Autonomy and Future Academic Plans



Model 5d: Perceived Autonomy as a Mediator in the Relationship between Social/Resource Capital and Educational Value

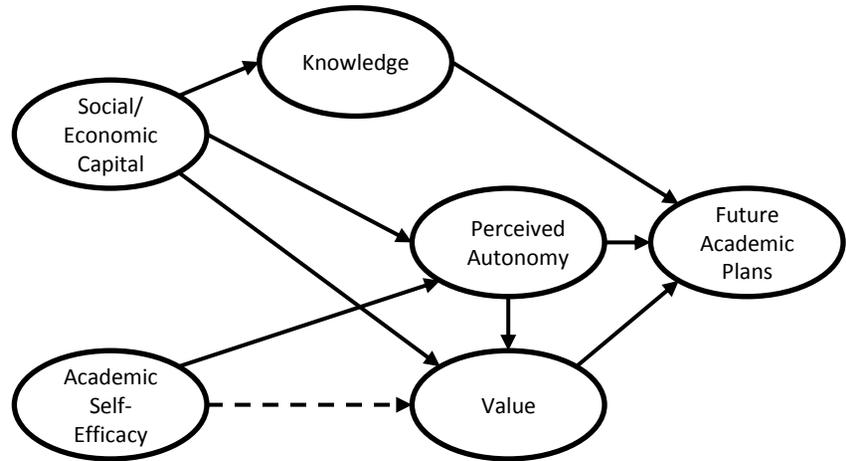


Figure 4.7

Model 5: Final Model

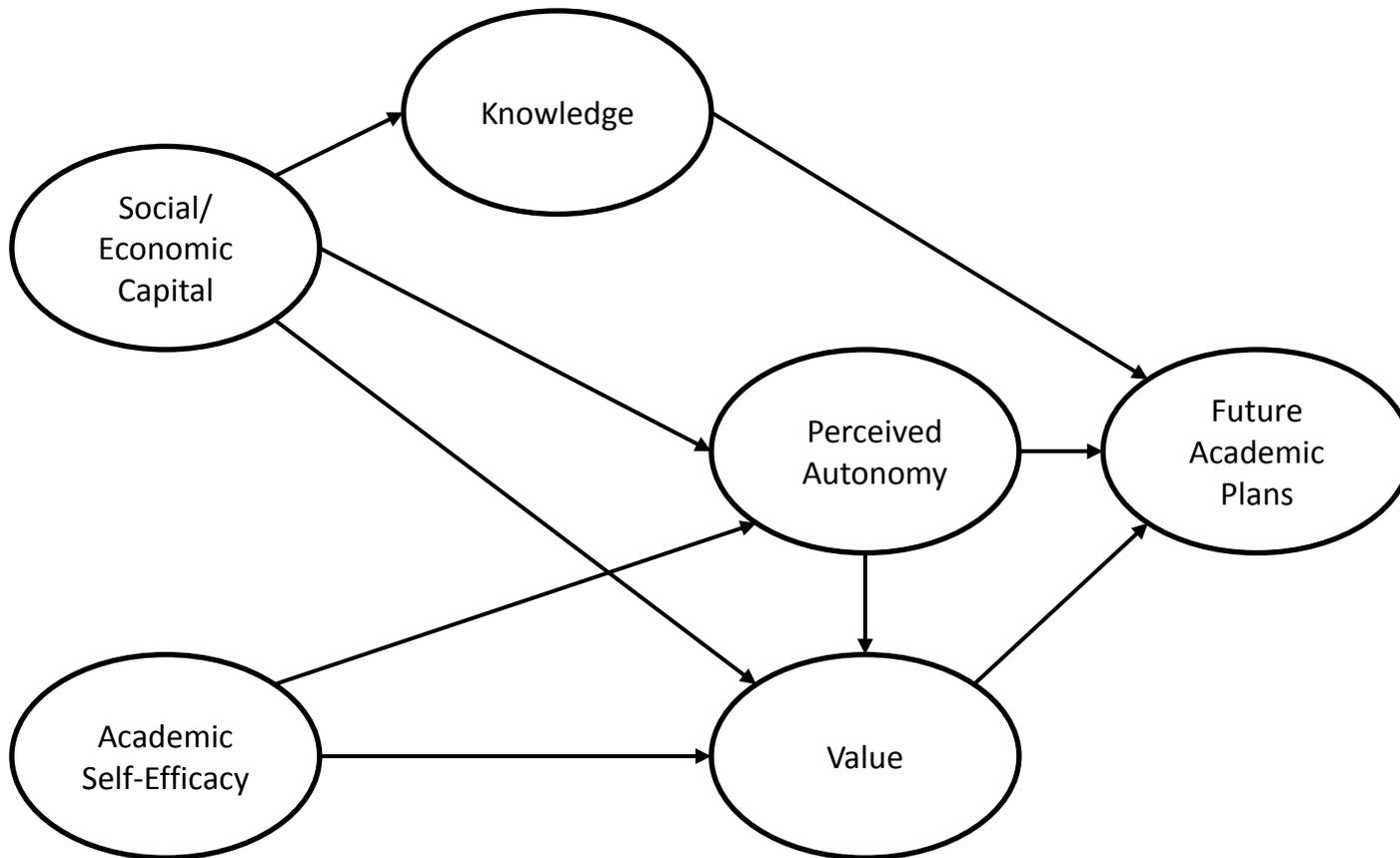
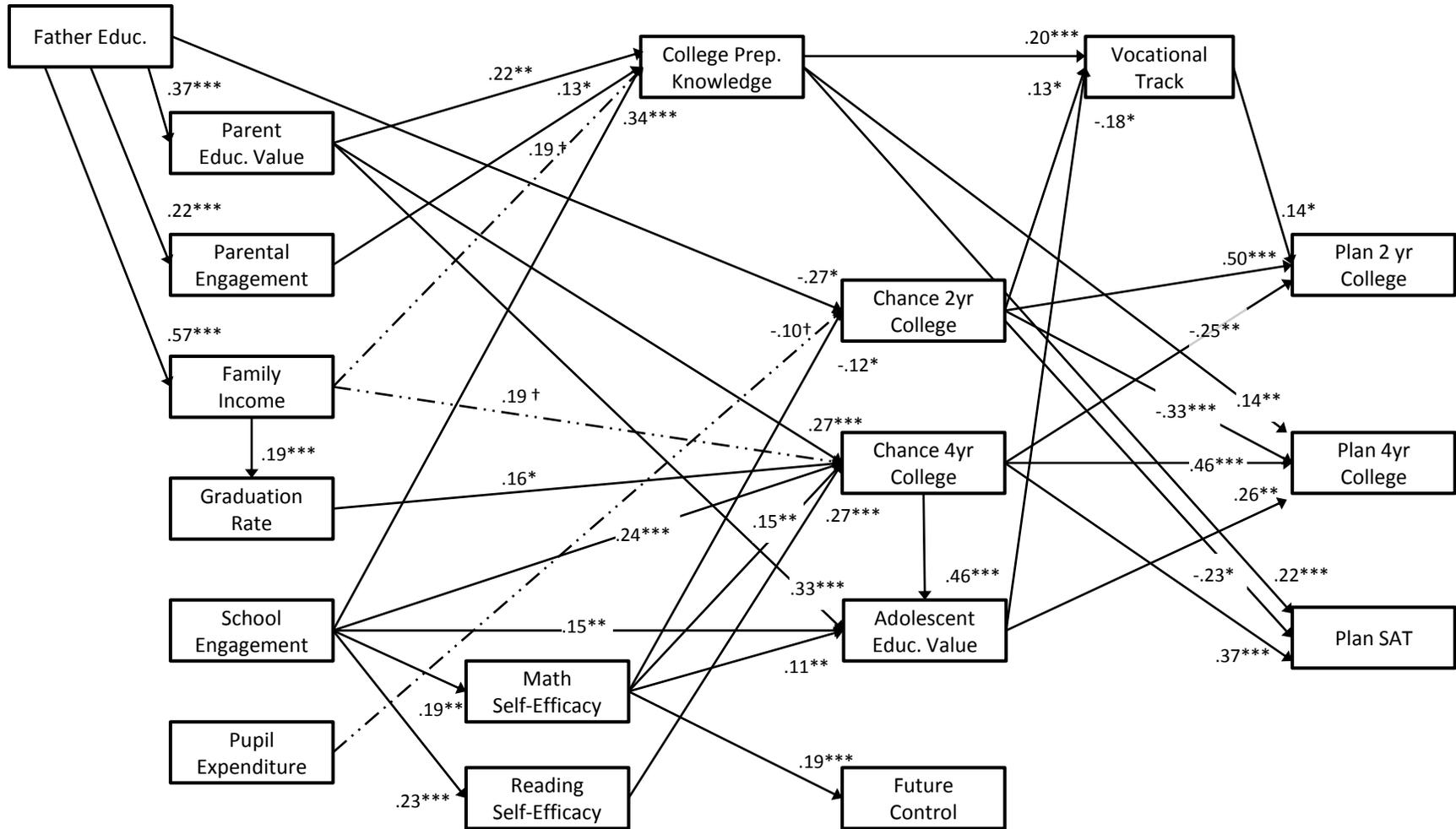


Figure 4.8

Model 5: Examining Adolescents' Sense of Autonomy, College Preparatory Knowledge, Valuing of Higher Education and Academic Self-efficacy as Mechanisms Linking Social and Resource Capital to Adolescents' Future Educational Plans



Note: $\chi^2(73) = 111.383$; RMSEA = .039; CFI: .983; TLI: .946

Table 3.1

Correlations for Study 2 Variables

	Controls					Neighborhood Context				Autonomy		Family Context			Outcomes	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Female	--															
2. Age	-.03	--														
3. SES	-.01	-.03	--													
4. Well-being T1	-.02	-.05	.09*	--												
5. High School GPA	.21***	.04	.13**	.07	--											
6. Observer-rated neighborhood disadvantage	-.02	.04	-.30***	-.02	-.10*	--										
7. Census-based neighborhood disadvantage	.02	.10**	-.40***	.00	-.16***	.42***	--									
8. Caregiver-rated lower neighborhood quality	-.02	.02	-.27***	-.02	-.14**	.41***	.38***	--								
9. Caregiver-rated lower neighborhood safety	-.04	.03	-.15***	-.01	-.08*	.27***	.32***	.43***	--							
10. Future control	.03	.01	.16***	.09*	.11**	-.11**	-.14***	-.09*	-.09*	--						
11. Academic control	-.07	-.14***	.14***	.21***	.09*	-.09*	-.19***	-.10**	-.05	.10**	--					
12. Family Wealth	-.03	.02	.11**	.03	-.06	-.08**	-.11**	-.04	-.07*	.04	.04	--				
13. Parental Monitoring	.13***	-.12**	.06	.37***	.25***	-.10**	-.10**	-.08*	-.03	.07	.16***	.05	--			
14. Mother psychological control	.05	.04	-.04	-.25***	-.15***	.02	.02	.03	-.07*	-.06	-.26***	-.04	-.33***	--		
15. Well-being T2	.04	-.03	.12**	.39***	.08*	-.03	-.02	-.08*	-.04	.08*	.16***	.06	.23***	-.13**	--	
16. Academic success	.10**	-.07	.37***	.13*	.20***	-.36***	-.35***	-.32***	-.18***	.11**	.19***	.02	.15***	-.11**	.14***	--

* p<.05 **p<.01 ***p<.001

Table 3.2

Means and Standard Deviations by Ethnicity

Study Variables	Full Sample		African-American		European-American		'Other' Ethnicity	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
SES	3.64	1.17	3.38 ^a	.97	4.02 ^b	1.09	2.64 ^c	1.56
Well-being T1	4.24	.91	4.33	.85	4.22 ^{b1}	.92	3.94 ^c	1.06
High school GPA	8.03	1.21	7.67 ^a	1.18	8.31	1.14	7.93	1.31
Observer-rated neighborhood disadvantage	1.51	.58	1.70 ^a	.64	1.32 ^{b2}	.44	1.54	.56
Census-based neighborhood disadvantage	14.34	9.44	19.91 ^a	9.68	8.75 ^b	4.62	18.59	10.16
Caregiver-rated lower neighborhood quality	2.28	1.12	2.58 ^a	1.18	1.91 ^b	.94	2.88	1.10
Caregiver-rated lower neighborhood safety	1.86	.68	2.04 ^a	.69	1.67 ^b	.61	2.08	.74
Future control	4.82	1.06	4.70 ^a	1.17	5.00 ^b	.88	4.49	1.17
Academic control	4.56	.77	4.48 ^{a2}	.87	4.66 ^{b1}	.63	4.40	.91
Family wealth	155K	1.5mil	42K ^{a1}	222K	269K	2.1mil	61K	143K
Parental monitoring	3.72	.87	3.53 ^a	.94	3.91 ^{b2}	.76	3.59	.90
Mother psychological control	1.51	.47	1.56 ^{a1}	.48	1.46	.45	1.53	.56
Well-being T2	4.58	.83	4.63	.81	4.58	.83	4.37 ^{c1}	.90
Academic success	3.61	1.41	3.19 ^a	1.42	3.95	1.31	3.71 ^{c2}	1.35

Note: a = significant difference between African-American and European-American ($p < .001$); a2 = ($p < .01$); a1 = ($p < .05$); b = significant difference between European-American and 'Other' Ethnicity ($p < .001$); b2 = ($p < .01$); b1 = ($p < .05$); c = significant difference between 'Other' Ethnicity and African-American ($p < .001$); c2 = ($p < .01$); c1 = ($p < .05$);

Table 3.3

Means and Standard Deviations by Family Wealth

Study Variables	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
African-American	42%		64% ^a		43% ^b		18% ^c	
European American	49%		28% ^a		46% ^b		76% ^c	
Other Ethnicity	9%		8%		11%		6%	
SES	3.64	1.18	3.33	1.16	3.47 ^b	1.09	4.28 ^c	1.14
Well-being T1	4.24	.91	4.21	.94	4.20	.93	4.36	.83
High School GPA	8.03	1.21	7.72 ^{a1}	1.24	8.06	1.17	8.20 ^c	1.22
Observer-rated neighborhood disadvantage	1.51	.58	1.80 ^a	.73	1.48 ^b	.50	1.22 ^c	.35
Census-based neighborhood disadvantage	14.34	9.44	19.80 ^a	10.31	8.82 ^b	.43	5.39 ^c	.37
Caregiver-rated lower neighborhood quality	2.28	1.12	2.83 ^a	1.24	2.26 ^b	1.05	1.77 ^c	.88
Caregiver-rated lower neighborhood safety	1.86	.68	2.13 ^a	.75	1.84 ^b	.64	1.62 ^c	.58
Future control	4.82	1.06	4.69	1.15	4.77 ^b	1.09	5.08 ^{c2}	.82
Academic control	4.56	.77	4.49	.85	4.50 ^{b2}	.82	4.73 ^{c2}	.53
Well-being T2	4.58	.83	4.57	.82	4.53	.87	4.68	.75
Academic success	3.61	1.41	2.97 ^a	1.47	3.57 ^b	1.34	4.34 ^c	1.10

Note: a = significant difference between low wealth and middle wealth ($p < .001$); a2 = ($p < .01$); a1 = ($p < .05$); b = significant difference between middle wealth and high wealth ($p < .001$); b2 = ($p < .01$); b1 = ($p < .05$); c = significant difference between high wealth and low wealth ($p < .001$); c2 = ($p < .01$); c1 = ($p < .05$);

Table 3.4

Model 3 Significant Paths by Wealth Group (unweighted data)

Path	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
T1 → T1 Paths								
Observer-rated neighborhood disadvantage → Future control			-.22	1.81†				
Census-based neighborhood disadvantage → Future control	-.19	-2.66**	-.32	-2.57**				
Census-based neighborhood disadvantage → Academic control			-.19	-1.73†			-.19	-1.88†
T1 → T2 Paths								
Well-being → Well-being	.26	5.70***	.24	2.34*	.30	4.61***		
Future control → Well-being	.18	3.25***	.27	2.48*			.26	2.45*
Academic control → Well-being					.12	1.96*		
Future control → Academic success	.14	3.22***			.15	2.37*	.21	2.38*
High School GPA → Academic success	.12	2.67**	.25	2.52*	.14	2.21*		
Observer-rated neighborhood disadvantage → Academic success	-.25	-5.94***	-.24	-2.71**	-.20	-3.51***	-.22	-2.56**
Census-based neighborhood disadvantage → Academic success	-.11	-2.17*	-.18	-1.65†				
Indirect Paths								
Census-based neighborhood disadvantage → Future Control → Well-being	-.03	-2.04*	-.09	-1.73†				
Census-based neighborhood disadvantage → Future Control → Academic Success	-.03	-2.07*						

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

Table 3.4 (continued)

Control Paths	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
Female → High School GPA	.22	6.03***	.27	3.22***	.15	2.74**	.30	4.49***
Female → Well-being (T2)	.07	1.68†					.22	2.70**
Female → Academic Success	.10	2.98**					.20	2.83**
Age → Future Control	-.16	-3.67***			-.20	-3.24***		
Age → Well-being (T1)	-.09	-2.03*			-.13	-2.26*		
African-American → Observer-rated neighborhood disadvantage	.33	8.64***	.42	5.13***	.19	3.33**	.24	3.06**
African-American → Census-based neighborhood disadvantage	.47	14.48***	.55	7.67***	.37	7.68***	.37	5.14***
African American → Caregiver-rated low neighborhood quality	.25	6.93***	.18	2.16*	.20	4.00***		
African-American → Caregiver-rated low neighborhood safety	.24	6.42***	.25	3.01**	.17	3.32***		
African American → Well-being (T1)	.11	2.50*	.27	3.01**	.16	2.42*		
African American → Academic control					-.15	-2.33*		
African American → High school GPA	-.25	-6.03***	-.23	-2.31*	-.27	-4.94***	-.13	-1.79†
African American → Academic Success			.22	2.25*				
African-American → Well-being (T2)	.10	2.01*						
Other Ethnicity → Observer-rated neighborhood disadvantage	.09	2.22*	.21	2.53*				
Other Ethnicity → Census-based neighborhood disadvantage	.29	8.71***	.38	4.65***	.36	7.68***		

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

Table 3.4 (continued)

Control Paths (continued)	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
Other Ethnicity → Caregiver-rated low neighborhood quality	.18	5.09***			.25	4.86***	.15	2.07*
Other Ethnicity → Caregiver-rated low neighborhood safety	.14	3.63***			.16	2.98**		
Other Ethnicity → Well-being (T1)	-.08	-1.77†	-.18	-2.02*				
Other Ethnicity → Academic Control	-.08	-1.75†			-.17	2.57**		
Other Ethnicity → High school GPA			-.19	2.01*				
Other Ethnicity → Well-being (T2)							-.20	-2.42*
Other Ethnicity → Academic Success	.15	4.12***	.33	3.84***	.14	2.45*		
SES → Well-being (T1)					.12	1.98*		
SES → Future Control					.20	2.63**		
SES → Academic control	.09	1.97*	.21	2.68**				
SES → High school GPA	.10	2.59**					.21	2.90**
SES → Observer-rated neighborhood disadvantage	-.26	-6.79***			-.30	-5.50***	-.25	-2.84**
SES → Census-based neighborhood disadvantage	-.29	-8.91***	-.12	-1.75†	-.34	-7.65***	-.23	-2.86**
SES → Caregiver-rated low neighborhood quality	-.17	-4.89***	-.15	-1.97*	-.15	-3.05**		
SES → Caregiver-rated low neighborhood safety	-.07	-1.86†			-.10	-1.97*		
SES → Well-being (T2)	.08	1.72†	.18	2.15*				
SES → Academic Success	.24	6.77***	.29	4.15***	.19	3.41***	.32	4.32***

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

Table 3.5

Model 3 Significant Paths by Wealth Group (weighted data)

Path	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
T1 → T1 Paths								
Census-based neighborhood disadvantage → Future control			-.35	-2.16*				
Census-based neighborhood disadvantage → Academic control			-.34	-2.84**				
Caregiver-reported low neighborhood quality → Academic control							.25	3.22**
T1 → T2 Paths								
Well-being → Well-being	.35	4.12***	.38	2.71**	.39	2.96**		
Future control → Well-being	.15	2.08*	.28	2.17*				
Future control → Academic success	.12	2.03*						
Academic control → Academic success	.10	2.19*	.22	2.46*				
High School GPA → Academic success	.11	1.89†	.29	2.27*				
Census-based neighborhood disadvantage → Academic Success	.11	1.72†						
Observer-rated neighborhood disadvantage → Academic success	-.35	-4.28***	-.37	-2.84**	-.19	-2.01*	-.35	-2.84**
Indirect Paths								
Census-based neighborhood disadvantage → Academic Control → Academic Success			-.07	-1.89†				

† p<.10, * p<.05 **p<.01 ***p<.001

Table 3.5 (continued)

Control Paths	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
Female → High School GPA	.17	3.32**	.26	2.40*			.23	2.60**
Female → Well-being (T2)							.32	4.29***
Female → Academic Success	.08	1.86†					.21	2.85**
Female → Future Control	-.20	-3.71***	-.30	-3.23**	-.16	-2.09*		
Female → Census-based neighborhood disadvantage	.09	2.28*			.10	1.72†	.16	1.94†
Age → Future Control	-.14	-2.59**			-.22	-2.89**		
Age → Well-being (T2)			-.22	-2.39*				
Age → Academic Success					.12	2.16*		
African-American → Observer-rated neighborhood disadvantage	.36	6.76***	.55	6.41***	.20	2.70**		
African-American → Census-based neighborhood disadvantage	.28	5.80***	.42	4.24***	.21	3.99***		
African American → Caregiver-rated low neighborhood quality	.23	4.80***			.20	3.25**		
African-American → Caregiver-rated low neighborhood safety	.21	4.77***	.34	3.85***	.13	2.71**		
African American → Well-being (T1)			.19	2.11*				
African American → Academic control	-.09	-1.81†			-.13	-2.29*		
African American → High school GPA	-.21	-4.56***	-.41	-3.99***	-.21	-4.16***		
African American → Academic Success			.23	2.15*	-.11	-1.92†		
Other Ethnicity → Observer-rated neighborhood disadvantage	.22	2.55*	.43	2.69**				

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

Table 3.5 (continued)

Control Paths (continued)	Full Sample		Low Wealth		Middle Wealth		High Wealth	
	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>	<i>B</i>	<i>B/SE</i>
Other Ethnicity → Census-based neighborhood disadvantage	.40	7.04***	.49	5.13***	.45	5.50***		
Other Ethnicity → Caregiver-rated low neighborhood quality	.24	3.45**			.39	4.34***	.12	1.67†
Other Ethnicity → Caregiver-rated low neighborhood safety	.20	3.07**			.26	2.92**		
Other Ethnicity → Well-being (T1)	-.21	-2.65**	-.50	-3.16**				
Other Ethnicity → Academic Control			.33	2.55*	-.30	2.28*	-.19	-1.79†
Other Ethnicity → High school GPA			-.41	-2.27*				
Other Ethnicity → Well-being (T2)							-.27	-2.08*
Other Ethnicity → Academic Success	.15	2.72**	.30	1.90†				
SES → Well-being (T1)			-.36	-3.27**	.15	2.01*		
SES → Academic control			.28	2.93**				
SES → High school GPA	.12	2.12*					.23	2.87**
SES → Observer-rated neighborhood disadvantage	-.26	-4.07***			-.23	-2.45*	-.18	-2.03*
SES → Census-based neighborhood disadvantage	-.37	-8.98***	-.28	-4.20***	-.34	-5.24***	-.37	-5.71***
SES → Caregiver-rated low neighborhood quality	-.20	-3.70***	-.41	-3.64***				
SES → Caregiver-rated low neighborhood safety	-.13	-2.11*			-.17	-1.56†		
SES → Well-being (T2)	.13	2.00*			.16	1.86†		
SES → Academic Success	.32	5.97***	.25	1.98*	.27	3.69***	.37	4.65***

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

Table 4.1

Correlations for Study 3 Variables (N=352)

Variable	Covariates					School Resources			Family Resources		
	1	2	3	4	5	6	7	8	9	10	11
1. Adolescent's Age	--										
2. Adolescent's Sex	-.09	--									
3. African-American	.05	.02	--								
4. European-American	-.05	.01	-.79***	--							
5. 'Other' Ethnicity	-.01	-.05	-.31***	-.35***	--						
6. Engagement at School	.02	.02	-.07	.14**	-.11*	--					
7. Expenditure Per Pupil	-.03	.02	-.03	.00	.05	-.10	--				
8. Graduation Rate	.01	.03	-.66**	.64***	.04	.11	-.04	--			
9. Father Education	-.06	.00	-.14*	.35***	-.34***	.19***	.06	.30***	--		
10. Family Income	-.03	-.05	-.31***	.36***	-.09	.10	.09	.33***	.40***	--	
11. Parent Valuing Education	.05	.06	-.22***	.19***	.03	.12*	-.02	.21***	.26***	.22***	--
12. Parent School Engagement	-.12*	.01	-.11*	.16**	-.07	.06	.00	.13*	.17**	.18***	.14*
13. Math Self-Efficacy	-.02	-.11*	.12*	-.15**	.06	.16**	-.05	-.07	.01	-.07	.06
14. Reading Self-Efficacy	-.03	.20***	.23***	-.21***	-.02	.21***	.04	-.19**	.03	-.08	.06
15. College Preparatory Knowledge	.10	-.05	-.05	.05	-.01	.20***	.03	.12	.09	.05	.17**
16. Adolescent Valuing higher education	-.08	.09	-.11*	.05	.08	.28***	-.01	.11	.18**	.16**	.44***
17. Chance to Graduate 2-year College	-.05	.06	.10	-.11*	.00	-.06	-.10	-.11	-.24***	-.20***	-.14*
18. Chance to Graduate 4- year College	-.11	.23***	.11*	-.08	-.05	.30***	-.03	.05	.16**	.09	.25***
19. Future Control	-.06	-.08	-.03	.03	.00	.06	.06	.06	.10	.11*	.06

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

Table 4.1 (continued)

Variable	1	2	3	4	5	6	7	8	9	10	11
20. Vocational Track	.08	-.09	.15**	-.10	-.08	.00	-.02	-.09	-.13*	-.08	-.12*
21. Plans to Attend a 2- year College	.07	-.01	-.04	-.01	.08	-.15**	-.03	-.03	-.22***	-.08	-.13*
22. Plans to Attend a 4- year College	-.09	.10	.00	.05	-.08	.26***	.01	.07	.22***	.15**	.28***
23. Plans to Take the SAT	-.03	.06	.08	-.03	-.09	.13*	-.01	-.03	.13*	.11*	.22***

Variable	Self-Efficacy			Knowledge of & Valuing Higher Ed			Autonomy		Future Plans		
	12	13	14	15	16	17	18	19	20	21	22
12. Parent School Engagement	--										
13. Math Achievement	.03	--									
14. Reading Achievement	.06	-.14**	--								
15. College Preparatory Knowledge	.12*	.16**	.07	--							
16. Adolescent Valuing higher education	.06	.24***	.19***	.25***	--						
17. Chance to Graduate 2-year College	-.10	-.13*	.06	-.04	-.18***	--					
18. Chance to Graduate 4- year College	.09	.18**	.34***	.20***	.64***	-.08	--				
19. Future Control	.07	.17**	-.06	.04	.12*	-.09	.15**	--			
20. Vocational Track	-.08	.04	-.10	.17**	-.16**	.12*	-.05	-.01	--		
21. Plans to Attend a 2- year College	-.05	-.09	-.17**	-.09	-.29***	.32***	.29***	-.03	.17**	--	
22. Plans to Attend a 4- year College	.06	.14**	.21***	.20***	.55***	-.30***	.59***	.08	-.15**	-.75***	--
23. Plans to Take the SAT	.04*	.05	.19**	.14**	.27***	-.10	.38***	.05	.02	-.16**	.36***

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

REFERENCES

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211.
- Ainsworth, J. W. (2002). Why does it take a village? The mediation of neighborhood effects on educational achievement. *Social Forces*, 81, 117-152.
- Allen, J.P., Hauser, S.T., Bell, K.L. & O'Connor, T.G. (1994). Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development*, 65, 179-194.
- Almedom, A. M. (2005). Social capital and mental health: An interdisciplinary review of primary evidence. *Social Science & Medicine*, 61, 943-964.
- Anderman, E. M. & Maehr, M. L. (1994). Motivation and schooling in the middle grades. *Review of Educational Research*, 64, 287-309.
- Aunola, K., & Nurmi, J. E. (2004). Maternal affection moderates the impact of psychological control on a child's mathematical performance. *Developmental Psychology*, 40, 965-978.
- Anyon, J. (1981). Social class and school knowledge. *Curriculum Inquiry*, 11, 3-42.
- Anyon, J. (1995). Race, social class, and educational reform in an inner-city school. *Teachers College Record*, 97, 69-94.
- Asparouhov, T. & Muthen, B. (2008). Auxiliary variables predicting missing data. Retrieved September 15, 2012 from www.statmodel.com/download/AuxM2.pdf
- Assor, A., Kaplan, H., & Roth, G. (2002). Choice is good, but relevance is excellent: Autonomy-enhancing and suppressing teaching behaviors predicting students' engagement in schoolwork. *The British Journal of Educational Psychology*, 77, 261-278.
- Astramovich, R. L., & Harris, K. R. (2007). Promoting self-advocacy among minority students in school counseling. *Journal of Counseling and Development*, 85, 269-276.

- Auerbach, R.P., Tsai, B., & Abela, J. R. Z. (2010). Temporal relationship among depressive symptoms, risky behavior engagement, perceived control, and gender in a sample of adolescents. *Journal of Research on Adolescence, 20*, 726-747.
- Bagozzi, R. P. & Heatherton, T. F. (1994). A general approach to representing multifaceted personality constructs: Application to state self-esteem. *Structural Equation Modeling, 1*, 35-67.
- Baldrige, B. J., Hill, M. C., & Davis, J. E. (2011). New possibilities: (re)engaging Black male youth within community-based educational spaces. *Race Ethnicity and Education, 14*, 121-136.
- Bandura, A. (2001). Social cognitive theory: An agentic perspective. *Annual Review of Psychology, 52*, 1-26.
- Bandura, A. (2006). Toward a psychology of human agency. *Perspectives on Psychological Science, 1*, 164-180.
- Bandura, A., Barbaranelli, C., Caprara, G.V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development, 72*, 187-206.
- Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*, 3296-3319.
- Battle, J. & Lewis, M. (2002). The increasing significance of class: The relative effects of race and socioeconomic status on academic achievement. *Journal of Poverty, 6*, 21-35.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong – desire for interpersonal attachments as a fundamental human-motivation. *Psychological Bulletin, 117*, 497-529.
- Bean, R. A., Bush, K. R., McKenry, P. C., & Wilson, S. M. (2003). The impact of parental support, behavioral control, and psychological control on the academic achievement and self-esteem of African American and European American adolescents. *Journal of Adolescent Research, 18*, 523-541.
- Becker, K. D., Ginsburg, G. S., Domingues, J., & Tein, J. Y. (2010). Maternal control behavior and locus of control: Examining mechanisms in the relation between maternal anxiety disorders and anxiety symptomatology in children. *Journal of Abnormal Child Psychology, 38*, 533-543.
- Becker, B. E., & Luthar, S. S. (2002). Social-emotional factors affecting achievement outcomes among disadvantaged students: Closing the achievement gap. *Educational Psychologist, 37*, 197-214.

- Benassi, V. A., Sweeney, P.D., & Dufour, C. L. (1988). Is there a relation between locus of control orientation and depression. *Journal of Abnormal Psychology*, 97, 357-367.
- Black, A. E., & Deci, E. L. (2000). The effects of instructors' autonomy support and students' autonomous motivation on learning organic chemistry: A self-determination theory perspective. *Science Education*, 84, 740-756.
- Blos, P. (1962). *On adolescence: A psychoanalytic interpretation*. New York: The Free Press.
- Boggiano, A., & Barrett, M. (1991). Strategies to motivate helpless and mastery oriented children: The effect of gender-based expectations. *Sex Roles*, 25, 487-510.
- Bolton, B. & Brookings, J. (1996). Development of a multifaceted definition of empowerment. *Rehabilitation Counseling Bulletin*, 39, 256-264.
- Bourdieu, P. (1986). The forms of capital. In J. G. Richardson. *Handbook of theory and research for the sociology of education*. NY: Greenwood Press.
- Bowen, N. K., Bowen, G. L., & Ware, W. B. (2002). Neighborhood social disorganization, families and the educational behavior of adolescents. *Journal of Adolescent Research*, 17, 468-490.
- Bowen, G. L., Rose, R. A., Powers, J. D., & Glennie, E. J. (2008). The joint effects of neighborhoods, schools, peers, and families on changes in the school success of middle school students. *Family Relations*, 57, 504-516.
- Bowman, N. A., Kitayama, S., & Nisbett, R. E. (2009). Social Class Differences in Self, Attribution, and Attention: Socially Expansive Individualism of Middle-Class Americans. *Personality and Social Psychology Bulletin*, 35, 880-893.
- Broderick, P. C. & Blewitt, P. (2003). *The life span: Human development for helping professionals*. Upper saddle River, NJ: Pearson Education Inc.
- Brody, G., Chen, Y., Murry, V., Ge, X., Simons, R., Gibbons, F., et al. (2006). Perceived discrimination and the adjustment of African American youths: A five-year longitudinal analysis with contextual moderation effects. *Child Development*, 77, 1170-1189.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human-development. *American Psychologist*, 32, 513-531.
- Brooks-Gunn, J., Duncan, G.J., Leventhal, T., & Aber, J.L. (1997). Lessons learned and future directions for research on neighborhoods in which children live. In J.

- Brooks-Gunn, G.J. Duncan, & J.L. Aber (Eds.), *Neighborhood poverty: Context and consequences for children Volume 1* (pp. 279-297). New York, NY: Russell Sage.
- Buchmann, C., DiPrete, T. A., & McDaniel, A. (2008). Gender inequalities in education. *Annual Review of Sociology, 34*, 319-337.
- Cagetti, M. & De Nardi, M. (2008). Wealth inequality: Data and models. *Macroeconomic Dynamics, 12*, 285-313.
- Caldwell. R. H. & Bradley, B. M. (1984). The HOME inventory and family demographics. *Developmental Psychology, 20*, 315-320.
- Caraway, K., Tucker, C. M., Reinke, W. M., & Hall, C. (2003). Self-efficacy, goal orientation, and fear of failure as predictors of school engagement in high school students. *Psychology in the Schools, 40*, 417-427.
- Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*, 629-637.
- Ceballo, R., Huerta, M. & Epstein-Ngo, Q. (2010). Parental and school influences promoting academic success among Latino students. In J. L. Meece and J. S. Eccles (Eds.), *Handbook of research on schools, schooling, and human development* (pp. 293-307). New York: Routledge.
- Chirkov, V., Ryan, R. M., Kim, Y., & Kaplan, U. (2004). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology, 84*, 97-110.
- Chorpita, B. F. & Barlow, D. H. (1998). The development of anxiety: The role of control in the early environment. *Psychological Bulletin, 124*, 3-21.
- Clotfelter, C. T., Ladd, H. F., & Vigdor, J. (2005). Who teaches whom? Race and the distribution of novice teachers. *Economics of Education Review, 24*, 377-392.
- Coffman, D. L. & MacCallum, R. C. (2004). Using parcels to convert path analysis models into latent variable models. *Multivariate Behavioral Research, 40*, 235-259.
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95-S120.
- Coley, R. L., & Hoffman, L. W. (1996). Relations of parental supervision and monitoring to children's functioning in various contexts: Moderating effects of families and neighborhoods. *Journal of Applied Developmental Psychology, 17*, 51-68.

- Conchas, G. Q. (2001). Structuring failure and success: Understanding the variability in Latino school engagement. *Harvard Educational Review*, 71, 475-504.
- Conley, D. (2001). Capital for college: Parental assets and postsecondary schooling. *Sociology of Education*, 74, 59-72.
- Cook, T. D., Church, M. B., Ajanaku, S., Shadish, W. R., Kim, J. R., & Cohen, R. (1996). The development of occupational aspirations and expectations among inner-city boys. *Child Development*, 67, 3368-3385.
- Cooper, C. E. & Crosnoe, R. (2007). The engagement in schooling of economically disadvantaged parents and children. *Youth & Society*, 38 (3), 372-391.
- Corwin, Z. B., Venegas, K. M., Oliverez, P. M. & Colyar, J. E. (2004). School counsel: How appropriate guidance affects educational equity. *Urban Education*, 39, 442-457.
- Cowger & Snively (2001). Assessing client strengths: Individual, family and community empowerment. In D. Saleeby (Ed.), *The strengths perspective in social work practice, 3rd edition* (pp.106-122). Boston: Allyn & Bacon.
- Craig, .G. (2007). Community capacity-building: Something old, something new... *Critical Social Policy*, 27, 335-359.
- Croninger, R. G., & Lee, V. E. (2001). Social capital and dropping out of high school: Benefits to at risk students of teachers support and guidance. *Teachers College Record*, 103, 548-581.
- Crosnoe, R. (2001). Academic orientation and parental involvement in education during high school. *Sociology of Education*, 74, 210-230.
- Crosnoe, R. (2004). Social capital and the interplay of families and schools. *Journal of Marriage and Family*, 66, 267-280.
- Crowder, K., & South, S. J. (2003). Neighborhood distress and school dropout: The variable significance of community context. *Social Science Research*, 32, 659-698.
- Curtin, R. T., Juster, T. & Morgan, J. N. (1989). Survey estimates of wealth: As assessment of quality. In R. E. Lipsey & H. S. Tice (Eds.), *The measurement of saving, investment, and wealth*, (pp. 473-552). Chicago: University of Chicago Press.
- Cutrona, C. E., Wallace, G., & Wesner, K. A. (2006). Neighborhood characteristics and depression – an examination of stress processes. *Current Directions in Psychological Science*, 15, 188-192.

- Da Fonseca, D., Cury, F., Santos, A., Paven, V., Bounoua, L., Brisswalter, J. ... Deruelle, C. (2009). When depression mediates the relationship between entity beliefs and performance. *Child Psychiatry and Human Development, 40*, 213-222.
- D'Ailly, H. (2003). Children's autonomy and perceived control in learning: A model of motivation and achievement in Taiwan. *Journal of Educational Psychology, 95*, 84-96.
- D'Ailly, H. (2004). The role of choice in children's learning: A distinctive cultural and gender difference in efficacy, interest, and effort. *Canadian Journal of Behavioural Science, 36*, 17-29.
- Danielsen, A. G., Wiium, N., Wilhelmsen, B. U., & Wold, B. (2010). Perceived support provided by teachers and classmates and students' self-reported academic initiative. *Journal of School Psychology, 48*, 247-267.
- Davis, C., Aronson, J., & Salinas, M. (2006). Shades of threat: Racial identity as a moderator of stereotype threat. *Journal of Black Psychology, 32*, 399-417.
- Deardorff, J., Gonzales, N. A., & Sandler, I. N. (2003). Control beliefs as a mediator of the relationship between stress and depressive symptoms among inner city adolescents. *Journal of Abnormal Child Psychology, 31*, 205-217.
- deCharms, R. (1968). *Personal causation: The internal affective determinants of behavior*. New York: Academic Press.
- deCharms, R., Carpenter, V. & Kuperman, A. (1965). The origin-pawn variable in person perception. *Sociometry, 28*, 241-258.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin, 125*, 627-668.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227-268.
- Deci, E. L., & Vansteenkiste, M. (2004). Self-determination theory and basic need satisfaction: Understanding human development in positive psychology. *Ricerche di Psicologia, 27*, 17-34.

- DeGarmo, D.S. & Martinez Jr., C.R. (2006). A culturally informed model of academic well-being for Latino youth: The importance of discriminatory experiences and social support. *Family Relations*, 55, 267-278.
- Delpit, L.D. (1988). The silenced dialogue – power and pedagogy in educating other peoples’ children. *Harvard Educational Review*, 58, 280-298.
- Deng, S., Lopez, V., Roosa, M. W., Ryu, E., Burrell, G. L., Tein, J., et al. (2006). Family processes mediating the relationship of neighborhood disadvantage to early adolescent internalizing problems. *The Journal of Early Adolescence*, 26, 206-231.
- Dika, S. L. & Singh, K. (2002). Applications of social capital in educational literature: A critical synthesis. *Review of Educational Research*, 72, 31-60.
- Doron, J., Stephan, Y., Boiche, J., & Le Scanff, C. (2009). Coping with examinations: Exploring relationships between students’ coping strategies, implicit theories of ability, and perceived control. *British Journal of Educational Psychology*, 79, 515-528.
- Downie, M., Koestner, R., & Chua, S. N. (2007). Political support for self-determination, wealth, and national subjective well-being. *Motivation and Emotion*, 31, 174-181.
- Doyle, A., & Markiewicz, D. (2005). Parenting, marital conflict and adjustment from early- to mid-adolescence: Mediated by adolescent attachment style? *Journal of Youth and Adolescence*, 34, 97-110.
- Durlauf, S. N. (2003). Neighborhood effects. In J. V. Henderson & J.-F. Thisse (Eds.) *The handbook of regional and urban economics*.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality and development*. Philadelphia: Psychology Press.
- Eamon, M. K. (2005). Social-demographic, school, neighborhood, and parenting influences on the academic achievement of Latino young adolescents. *Journal of Youth and Adolescence*, 34 (2), 163–174.
- Eccles, J. P. (1983). Expectancies, values, and academic behaviors. In Spence, J. T. (ed.), *Achievement and Achievement Motives*, (pp. 75–146). San Francisco: W. H. Freeman.
- Eccles, J. S. (2004). The present and future of research on activity settings as developmental contexts. *Organized Activities as Contexts of Development: Extracurricular Activities, after-School and Community Programs*, 353-371.
- Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., & Maciver, D. (1993). Development during adolescence – the impact of stage-

- environment fit on young adolescents' experiences in school and in families. *American Psychologist*, 48, 90-101.
- Ellwood, D.T., Kane, T. J. Who is getting a college education? Family background and the growing gaps in enrollment. In S. Danziger & J. Waldfogel (Eds.), *Securing the future* (pp. 283-324). New York: Russell Sage.
- Erikson, E. H. (1950). *Childhood and society*. New York: Norton.
- Evans, G.W. (2004). The environment of childhood poverty. *American Psychologist*, 59, 77-92.
- Fan, W., Williams, C. M., & Wolters, C. A. (2012). Parental involvement in predicting school motivation: Similar and differential effects across ethnic groups. *The Journal of Educational Research*, 105 (1), 21-35.
- Fan, X. & Chen, M. (2001). Parental involvement and students' academic achievement: A meta-analysis. *Educational Psychology Review*, 13 (1), 1-22.
- Farkas, M. S., & Grolnick, W. S. (2010). Examining the components and concomitants of parental structure in the academic domain. *Motivation and Emotion*, 34, 266-279.
- Feldman, D.H., (2004). Piaget's stages: The unfinished symphony of cognitive development. *New Ideas in Psychology*, 22, 175-231.
- Flowerday, T. & Schraw, G. (2003). Effect of choice on cognitive and affective engagement. *Journal of Educational Research*, 96, 207-215.
- Frala, J. L., Leen-Feldner, E. W., Blumenthal, H., & Barreto, C. C. (2010). Relations among perceived control over anxiety-related events, worry, and generalized anxiety disorder in a sample of adolescents, *Journal of Abnormal Child Psychology*, 38, 237-247.
- Freud (1958). *Dictionary of psychoanalysis*. Greenwich: Fawcett Publications.
- Frewer, L. J., Shepherd, R., & Sparks, P. (1994). The interrelationship between perceived knowledge, control, and risk associated with a range of food-related hazards targeted at the individual, other people and society. *Journal of Food Safety*, 14, 19-40.
- Fulgini, A. J., Tseng, V., & Lam, M. (1999). Attitudes toward family obligations among American adolescents with Asian, Latin American, and European backgrounds. *Child Development*, 70, 1030-1044.
- Furlong, A., & Cartmel, F. (1995). Aspirations and opportunity structures: 13-year olds in areas with restricted opportunities. *British Journal of Guidance & Counseling*, 23, 361-375.

- Garcia-Ramirez, M., Martinez, M. F., Balcazar, F. E., Suarez-Balcazar, Y., Albar, M. J., Dominguez, E. & Santolaya, F. J. (2005). Psychosocial empowerment and social support factors associated with the employment status of immigrant welfare recipients. *Journal of Community Psychology, 33*, 673-690.
- Gay, G. (2000). *Culturally responsive teaching: Theory, research and practice*. New York: Teachers College Press.
- Gee, G. C., Spencer, M. S., Chen, J., Yip, T., & Takeuchi, D. T. (2007). The association between self-reported racial discrimination and 12-month DSM-IV mental disorders among Asian Americans nationwide. *Social Science and Medicine, 64*, 1984-1996.
- Gilman, R., & Anderman, E. M. (2006). The relationship between relative levels of motivation and intrapersonal, interpersonal, and academic functioning among older adolescents. *Journal of School Psychology, 44*, 375-391.
- Gottfredson, L. S. (1981). Circumspection and compromise: A developmental theory of occupational aspirations. *Journal of Counseling Psychology, 28*, 545-579.
- Gottfried, A. E., Fleming, J. S., & Gottfried, A. W. (1994). Role of parental motivational practices in children's academic intrinsic motivation and achievement. *Journal of Educational Psychology, 86*, 104-113.
- Gray, M. R. & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family, 61*, 574-587.
- Greenberger, E. (1984). Defining psychosocial maturity in adolescence. *Advances in Child Behavioral Analysis and Therapy, 3*, 1-37.
- Greenfield, P. M., Keller, H., Fuligni, A., Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology, 54*, 461-490.
- Greenwald, R., Hedges, L. V., & Laine, R. D. (1996). The effect of school resources on student achievement. *Review of Educational Research, 66*, 361-396.
- Grolnick, W. S. (2003). *The psychology of parental control: How well-meant parenting backfires*. Mahwah, NJ: Erlbaum.
- Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997) Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp.135-161). New York: Wiley.

- Grolnick, W. S. & Slowiaczek, M. L. (1994). Parents' involvement in children's schooling: A multidimensional conceptualization and motivational model. *Child Development, 65*, 237-252.
- Gutierrez, L. M. & Ortega, R. (1991). Developing methods to empower Latinos – The importance of groups. *Social Work with Groups, 14*, 23-43.
- Gutman, L. M. & Midgley, C. (2000). The role of protective factors in supporting the academic achievement of poor African American students during the middle school transition. *Journal of Youth and Adolescence, 29*, 223-248.
- Gutman, L. M., Sameroff, A. J. & Cole, R. (2003). Academic growth curve trajectories from 1st grade to 12th grade: Effects of multiple social risk factors and preschool child factors. *Developmental Psychology, 39*, 777-790.
- Hanushek, E. A. (1997). Assessing the effects of school resources on student performance: An update. *Educational Evaluation and Policy Analysis, 19*, 141-164.
- Haveman, R. & Wolfe, B. (1995). The determinants of children's attainments: A review of methods and findings. *Journal of Economic Literature, 33*, 1829-1878.
- Heckhausen, J. (1999). *Developmental regulation in adulthood: Age-normative and sociostructural constraints as adaptive challenges*. Cambridge, England: Cambridge University Press.
- Henry, K. L., Cavanagh, T. M., & Oetting, E. R. (2011). Perceived parental investment in school as a mediator of the relationship between socio-economic indicators and educational outcomes in rural America. *Journal of Youth and Adolescence, 40*, 1164-1177.
- Henry, C. S., Merten, M. J., Plunkett, S. W., & Sands, T. (2008). Neighborhood, parenting, and adolescent factors and academic achievement in Latino adolescents from immigrant families. *Family Relations, 57*, 579-590.
- Herman, K. C., Reinke, W. M., Parkin, J., Traylor, K. B., & Agarwal, G. (2009). Childhood depression: Rethinking the role of the school. *Psychology in the Schools, 46*(5), 433-446.
- Hill, N. E., Castellino, D. R., Lansford, J. E., Nowlin, P., Dodge, K. A., Bates, J. E., & Pettit, G. S. (2004). Parent academic involvement as related to school behavior, achievement, and aspirations: Demographic variations across adolescence. *Child Development, 75*, 1491-1509.

- Hill, N. E., & Tyson, D. F. (2009). Parental involvement in middle school: A meta-analytic assessment of the strategies that promote achievement. *Developmental Psychology, 45*, 740-763.
- Hoffman, J. A. (1984). Psychological separation of late adolescents from their parents. *Journal of Counseling Psychology, 31*, 170-178.
- Hoffmann, J. P. & Dufur, M. J. (2008). School and family capital effects on delinquency: Substitutes or complements? *Sociological Perspectives, 51*, 29-62.
- Hong, S. & Ho, H. Z. (2005). Direct and indirect longitudinal effects of parental involvement on student achievement: Second-order latent growth modeling across ethnic groups. *Journal of Educational Psychology, 97*, 32-42.
- Howard, K. A. S. & Walsh, M E. (2010). Conceptions of career choice and attainment: Developmental levels in how children think about careers. *Journal of Vocational Behavior, 76*, 143-152.
- Hu, L., & Bentler, P. M. (1995). *Evaluating model fit*. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications*. Thousand Oaks, CA: Sage.
- Iyengar, S. S. & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology, 79*, 995-1006.
- Jenkins, S. R., Goodness, K., & Buhrmester, D. (2002). Gender differences in early adolescents' relationship qualities, self-efficacy, and depression symptoms. *Journal of Early Adolescence, 22*, 277-309.
- Johnson, O. (2010). Assessing neighborhood racial segregation and macroeconomic effects in the education of African Americans, *Review of Educational Research, 80*, 527-575.
- Jordan, A., & Lovett, B. (2007). Stereotype threat and test performance: A primer for school psychologists. *Journal of School Psychology, 45*, 45-59.
- Kagitcibasi, C. (2005). Autonomy and relatedness in cultural context - Implications for self and family. *Journal of Cross-Cultural Psychology, 36*(4), 403-422.
- Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141-151.
- Kakihara, F. & Tilton-Weaver, L. (2009). Adolescents' interpretations of parental control: Differentiated by domain and types of control. *Child Development, 80*, 1722-1738.

- Kakihara, F., Tilton-Weaver, L., Kerr, M., & Stattin, H. (2010). The Relationship of Parental Control to Youth Adjustment: Do Youths' Feelings About Their Parents Play a Role? *Journal of Youth and Adolescence*, 39(12), 1442-1456.
- Kao, G. & Thompson, J. S. (2003). Racial and ethnic stratification in educational achievement and attainment. *Annual Review of Sociology*, 29, 417-442.
- Karavasilis, L., Doyle, A. B., & Markiewicz, D. (2003). Associations between parenting style and attachment to mother in middle childhood and adolescence. *International Journal of Behavioral Development*, 27, 153-164.
- Katz, I. & Assor, A. (2007). When choice motivates and when it does not. *Educational Psychology Review*, 19, 429-442.
- Keister, L.A. (2000). Race and wealth inequality: The impact of racial differences in asset ownership on the distribution of household wealth. *Social Science Research*, 29, 477-502.
- Kenny, M. E., Walsh-Blair, L. Y., Blustein, D. L., Bempechat, J., & Seltzer, J. (2010). Achievement motivation among urban adolescents: Work hope, autonomy support, and achievement-related beliefs. *Journal of Vocational Behavior*, 77(2), 205-212.
- Kindap, Y., Sayil, M., & Kumru, A. (2008). The relationships among type of perceived maternal control, psychological adjustment, and friends in adolescence: The mediator role of self-esteem. *Turk Psikoloji Dergisi*, 23, 92-111.
- Kiyama, J. M. (2010). College aspirations and limitations: The role of educational ideologist and funds of knowledge in Mexican American families. *American Educational Research Journal*, 47, 330-356.
- Koydemir-Ozden, S., & Demir, A. (2009). The Relationship Between Perceived Parental Attitudes and Shyness among Turkish Youth: Fear of Negative Evaluation and Self-esteem as Mediators. *Current Psychology*, 28(3), 169-180.
- Kusserow, A. S. (1999). De-homogenizing American individualism: Socializing hard and soft individualism in Manhattan and Queens. *Ethos*, 27(2), 210-234.
- Kusserow, A.S. (2004). American Individualisms: Child Rearing and Social Class in Three Neighborhoods.
- Lambert, S. F., Herman, K. C., Bynum, M.S., & Ialongo, N. S. (2009). Perceptions of racism and depressive symptoms in African American adolescents: The role of perceived academic and social control. *Journal of Youth and Adolescence*, 38, 519-531.

- Lareau, A. (2003). *Unequal childhoods: Class, race and family life*. Berkeley, CA: University of California Press.
- Lekes, N., Gingras, I., Philippe, F. L., Koestner, R., & Fang, J. Q. (2010). Parental Autonomy-Support, Intrinsic Life Goals, and Well-Being Among Adolescents in China and North America. *Journal of Youth and Adolescence*, 39(8), 858-869.
- Lerner, R. M. (2002). *Concepts and theories of human development* (3rd ed.) Mahwah, NJ: Lawrence Erlbaum.
- Leventhal, T., & Brooks-Gunn, J. (2000). The neighborhoods they live in: The effects of neighborhood residence on child and adolescent outcomes. *Psychological Bulletin*, 126(2), 309-337.
- Leventhal, T., & Brooks-Gunn, J. (2003). Children and youth in neighborhood contexts. *Current Directions in Psychological Science*, 12, 27-31.
- Li, S. T., Nussbaum, K. M., & Richards, M. H. (2007). Risk and protective factors for urban African American youth. *American Journal of Community Psychology*, 39, 21-35.
- Lin, N. (2001). *Social capital: A theory of social structure and action*. Cambridge, UK: Cambridge University Press.
- Long, B. T. (2007). The contributions of economics to the study of college access and success. *Teachers College Record*, 109, 2367-2443.
- Loukas, A., Paulos, S. K., & Robinson, S. (2005). Early adolescent social and overt aggression: Examining the roles of social anxiety and maternal psychological control. *Journal of Youth and Adolescence*, 34, 335-345.
- Loukas, A. & Robinson, S. (2004). Examining the moderating role of perceived school climate in early adolescent adjustment. *Journal of Research on Adolescence*, 14, 209-233.
- Lucas, S. R. (1999). *Tracking inequality. Stratification and mobility in American high schools*. New York, NY: Teachers College Press.
- Lucas, S. R. & Berends, M. (2002). Sociodemographic diversity, correlated achievement, and de facto tracking. *Sociology of Education*, 75, 328-348.
- Mabry, P. L., Olster, D. H., Morgan, G. D., & Abrams, D. B. (2008). Interdisciplinary and systems sciences to improve population health – a view from the NIH office of behavioral and social sciences research. *American Journal of Preventative Medicine*, 35, S211-S224.

- Malian & Nevin (2002). A review of self-determination literature – implications for practitioners. *Remedial and Special Education*, 23, 68-74.
- Markus, H. R., & Schwartz, B. (2010). Does Choice Mean Freedom and Well-Being? *Journal of Consumer Research*, 37(2), 344-355.
- Maurizi, L.K., Ceballo, R., Epstein-Ngo, Q. M., & Cortina, K. S. (revise and resubmit). Does neighborhood belonging matter? Examining school and neighborhood belonging as protective factors for Latino adolescents. *American Journal of Orthopsychiatry*.
- McClun, L. A., & Merrell, K. W. (1998). Relationship of perceived parenting styles, locus of control orientation, and self-concept among junior high age students. *Psychology in the Schools*, 35, 381-390.
- McGinn, L. K., Jerome, Y. & Nooner, K. B. (2010). Family functioning and anxiety in school age children: The mediating role of control cognitions. *International Journal of Cognitive Therapy*, 3, 228-244.
- McLoyd, V. C. (1998). Socioeconomic disadvantage and child development. *American Psychologist*, 53, 185-204.
- McQuillan, P.J. (2005). Possibilities and pitfalls: A comparative analysis of student empowerment. *American Educational Research Journal*, 42, 639-670.
- Morrow, B. H. (1999). Identifying and mapping community vulnerability. *Disasters*, 23, 1-18.
- Mullis, R. L., Rathge, R., & Mullis, A. K. (2003). Predictors of academic performance during early adolescence: A contextual view. *International Journal of Behavioral Development*, 27, 541-548.
- Muris, P. (2002). Relationship between self-efficacy and symptoms of anxiety disorders and depression in a normal adolescent sample. *Personality and Individual Differences*, 32, 337-348.
- Muris, P., Schmidt, H., Lambrichs, R., & Meesters, C. (2001). Protective and vulnerability factors of depression in normal adolescents. *Behaviour Research and Therapy*, 39, 555-565.
- Murry, V. M., Berkel, C., Gaylord-Harden, N. K., Copeland-Linder, N., & Nation, M. (2011). Neighborhood poverty and adolescent development. *Journal of Research on Adolescence*, 21, 114-128.
- Muthuen, L. K., & Muthuen, B. O. (2007). *Mplus User's Guide (Sixth Edition)*. Los Angeles, CA: Muthuen & Muthuen.

- National Center for Education Statistics (2009). *Status and Trends in the Education of Racial and Ethnic Minorities*. Washington, DC: U.S. Department of Education, Office of Educational Research and Improvement.
- Neckerman, K. M. & Torche, F. (2007). Inequality: Causes and consequences. *Annual Review of Sociology*, *33*, 335-357.
- Nelson, G. & Prilleltensky, I. (2005). *Community Psychology: In pursuit of liberation and well-being*. New York: Palgrave MacMillan.
- Nucci, L., Camino, C., & Sapiro, C. M. (1996). Social class effects on northeastern Brazilian children's conceptions of areas of personal choice and social regulation. *Child Development*, *67*, 1223-1242.
- O'Connor, M., Sanson, A., Hawkins, M. T., Letcher, P., Toumbourou, J. W., Smart, D. ... Olsson, C. A. (2011). Predictors of positive development in emerging adulthood. *Journal of Youth and Adolescence*, *40*, 860-874.
- Patall, E. A., Cooper, H., & Robinson, J. C. (2008). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. *Psychological Bulletin*, *134*, 270-300.
- Parcel, T. L., Dufur, M. J., & Zito, R. C. (2010). Capital at home and at school: A review and synthesis. *Journal of Marriage and Family*, *72*, 828-846.
- Perkins, D. D., & Zimmerman, M. A. (1995). Empowerment theory, research, and application. *American Journal of Community Psychology*, *23*(5), 569-579.
- Pelletier, L. G. & Vallerand, R. J. (1996). Supervisors' beliefs and subordinates' intrinsic motivation: A behavioral confirmation analysis. *Journal of Personality and Social Psychology*, *71*, 331-340.
- Pinquart, M., Juang, L. P., & Silbereisen, R. K. (2003). Self-efficacy and successful school-to-work transition: A longitudinal study. *Journal of Vocational Behavior*, *63*, 329-346.
- Pittman, L., & Chase-Lansdale, P. (2001). African American adolescent girls in impoverished communities: Parenting style and adolescent outcomes. *Journal of Research on Adolescence*, *11*, 199-224.
- Plunkett, S. W., Abarca-Mortensen, S., Behnke, A. O., & Sands, T. (2007). Neighborhood structural qualities, adolescents' perceptions of neighborhoods, and Latino youth development. *Hispanic Journal of Behavioral Sciences*, *29*, 19-34.

- Pomerantz, E. M. & Eaton, M. M. (2001). Maternal intrusive support in the academic context: Transactional socialization processes. *Developmental Psychology*, 37, 174-186.
- Pomerantz, E. M., Qin, L. L., Wang, Q., & Chen, H. C. (2009). American and Chinese Early Adolescents' Inclusion of Their Relationships With Their Parents in Their Self-Construals. *Child Development*, 80(3), 792-807.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24.
- Prelow, H., Danoff-Burg, S., Swenson, R., & Pulgiano, D. (2004). The impact of ecological risk and perceived discrimination on the psychological adjustment of African American and European American youth. *Journal of Community Psychology*, 32, 375-389.
- Propp, J., Ortega, D. M., & NewHeart, F. (2003). Independence and interdependence: Rethinking the transition from “ward of the court” to adulthood. *Families in Society*, 84, 259-266.
- Ramirez, C., & Avila, A. (2003). Individual differences in the students' causal attribution and their influence on affective component. *Revista Mexicana de Psicología*, 20, 237-246.
- Ratcliffe, C., Chen, H., Shanks, T. R. W., Nam, Y., Schreiner, M., Zhan, M. & Sherraden, M. (2008). Assessing asset data. In S.M. McKernan & M. Sherraden (Eds.), *Asset building and low-income families* (pp. 239-270). Washington, DC: Urban Institute Press.
- Reeve, J. & Assor, A. (2011). Do social institutions necessarily suppress individuals' need for autonomy? The possibility of school as autonomy-promoting contexts across the globe. In Chirkov, V. I., Ryan, R. M., and Sheldon, K. M. *Human Autonomy in Cross-Cultural Context: Perspectives on the Psychology of Agency, Freedom and Well-Being*. 1, 111-132.
- Reeve, J., Jang, H., Carrell, D., Jeon, S., & Barch, J. (2004). Enhancing students' engagement by increasing teachers' autonomy support. *Motivation and Emotion*, 28, 147-169.
- Reeve, J., Nix, G., & Hamm, D. (2003). Testing models of the experience of self-determination in intrinsic motivation and the conundrum of choice. *Journal of Educational Psychology*, 95, 375-392.
- Rieker, P.P. & Bird, C.E. (2005). Rethinking gender differences in health: Why we need to integrate social and biological perspectives. *Journals of Gerontology Series B-Psychological Sciences and Social Sciences*, 60, 40-47.

- Robertson, J.S. (2000). Is attribution training a worthwhile classroom intervention for K-12 students with learning difficulties? *Educational Psychology Review*, *12*, 111-134.
- Rodriguez, L. F. & Conchas, G. Q. (2009). Preventing truancy and dropout among urban middle school youth: Understanding community-based action from the students' perspective. *Education and Urban Society*, *41*, 216-247.
- Roth, G., Ron, T., & Benita, M. (2009). Mothers' parenting practices and adolescents' learning from their mistakes in class: The mediating role of adolescent's self-disclosure. *Learning and Instruction*, *19*(6), 506-512.
- Rudy, D., Awong, T., & Lambert, M. (2008). Parental Psychological Control and Authoritarianism in Chinese-Canadian and European-Canadian Cultural Groups: Their Meanings and Implications for University Students' Adjustment. *Journal of Comparative Family Studies*, *39*(4), 471-479.
- Rumberger, R. W. (1995). Dropping out of middle school – a multilevel analysis of students and schools. *American Educational Research Journal*, *32*, 583-625.
- Ryabov, I. & Van Hook, J. (2007). School segregation and academic achievement among Hispanic children. *Social Science Research*, *36*, 767-788.
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality*, *63*(3), 397-427.
- Ryan, R. M. & Deci, E. L. (2006). Self-regulation and the problem of human autonomy: Does psychology need choice, self-determination, and will? *Journal of Personality*, *74*, 1557-1585.
- Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology*, *9*, 701-728.
- Ryan, R. M., & Lynch, J. H. (1989). Emotional autonomy versus detachment – revisiting the vicissitudes of adolescence and young adulthood. *Child Development*, *60*, 340-356.
- Ryan, R. M., Sheldon, K. M., Kasser, T. & Deci, E. L. (1996). All goals are not created equal: An organismic perspective of the nature of goals and their regulation. In P. M. Gollwitzer & J. A. Bargh (Eds.), *The psychology of action: Linking motivation and cognition to behavior*. (pp. 7-26). New York: Guilford.
- Saleebey, D. (2001). *The strengths perspective in social work practice, 3rd edition*. Boston: Allyn & Bacon.

- Sandefur, G. D., Meier, A. M., & Campbell, M. E. (2006). Family resources, social capital, and college attendance. *Social Science Research, 35*, 525-553.
- Sanders, M. (1997). Overcoming obstacles: Academic achievement as a response to racism and discrimination. *Journal of Negro Education, 66*, 83-93.
- Saunders, J., Davis, L., Williams, T., & Williams, J. H. (2004). Gender differences in self-perceptions and academic outcomes: A study of African American high school students. *Journal of Youth and Adolescence, 33*, 81-90.
- Schunk D. H. & Miller, S. D. (2002). Self-efficacy and adolescents' motivation. In F. Pajares & T. Urdan, *Academic Motivation of Adolescents* (29-52). Greensboro, NC: Information Age Publishing.
- Schwartz, D. & Gorman, A. H. (2003). Community violence exposure and children's academic functioning. *Journal of Educational Psychology, 95*, 163-173.
- Scott, B. G. & Weems, C. F. (2010). Patterns of actual and perceived control: Are control profiles differentially related to internalizing and externalizing problems in youth? *Anxiety, Stress and Coping, 23*, 515-528.
- Seginer, R. (2006). Parents' educational involvement: A developmental ecology perspective. *Parenting: Science and Practice, 6*, 1-48.
- Semenza, J. C., March, T. L., & Bontempo, B. D. (2007). Community-initiated urban development: An ecological intervention. *Journal of Urban Health, 84*, 8-20.
- Sessa, F. & Steinberg, L. (1991). Family structure and the development of autonomy in adolescence. *Journal of Early Adolescence, 11*, 38-55.
- Shumow, L. & Miller, J. D. (2001). Parents' at-home and at-school academic involvement with young adolescents. *Journal of Early Adolescence, 21*, 68-91.
- Silk, Morris, Kanaya & Steinberg (2003). Psychological control and autonomy granting: Opposite ends of a continuum or distinct constructs? *Journal of Research on Adolescence, 13*, 113-128.
- Simmons, O. S. (2011). Lost in transition: The implications of social capital for higher education access. *Notre Dame Law Review, 1*, 205-252.
- Skinner, E. A. & Belmont, M. J. (1993). Motivation in the classroom – reciprocal effects of teacher-behavior and student engagement across the school year. *Journal of Educational Psychology, 85*, 571-581.
- Smith. G. D. & Lynch, J. (2004). Health by association? Social capital, social theory, and the political economy of public health – Commentary: social capital, social

- epidemiology and disease aetiology. *International Journal of Epidemiology*, 33, 691-700.
- Spilerman, S. (2000). Wealth and stratification processes. *Annual Review of Sociology*, 26, i497-524.
- Soenens, B., Luyckx, K., Vansteenkiste, M., Duriez, B., & Goossens, L. (2008). Clarifying the link between parental psychological control and adolescents' depressive symptoms reciprocal versus unidirectional models. *Merrill-Palmer Quarterly*, 54, 411-444.
- Soenens, B., & Vansteenkiste, M. (2005). Antecedents and outcomes of self-determination in 3 life domains: The role of parents' and teachers' autonomy support. *Journal of Youth and Adolescence*, 34(6), 589-604.
- Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review*, 30, 74-99.
- Stanton-Salazar (1997). A social capital framework for understanding the socialization of racial minority children and youths. *Harvard Educational Review*, 67, 1-40.
- Stanton-Salazar (2001). *Manufacturing Hope and Despair: The school and kin support networks of US-Mexican youth*. New York, NY: Teachers College Press.
- Stanton-Salazar, R.D. & Dornbusch, S. M. (1995). Social capital and the social reproduction of inequality: The formation of informational networks among Mexican-origin high school students. *Sociology of Education*, 68, 116-135.
- Stattin, H. & Kerr, M. (2000). Parental monitoring: A reinterpretation. *Child Development*, 71, 1072-1085.
- Stefanou, C. R., Perencevich, K. C., DiCintio, M., & Turner, J. C. (2004). Supporting autonomy in the classroom: Ways teachers encourage student decision making and ownership. *Educational Psychologist*, 39, 97-110.
- Steinberg, L., Lamborn, S.D., Darling, N., Mounts, N. S., & Dornbusch, S. M. (1994). Over-time changes in adjustment and competence among adolescents from authoritative, authoritarian, indulgent, and neglectful families. *Child Development*, 65, 754-770.
- Steinberg, L. & Morris, A. S. (2001). Adolescent development. *Annual Review of Psychology*, 52, 83-110.
- Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development*, 57(4), 841-851.

- Studsrod, I. & Bru, E. (2009). The role of perceived parental socialization practices in school adjustment among Norwegian upper secondary school students. *British Journal of Educational Psychology*, 79, 529-546.
- Smith, H. M. & Betz, N. E. (2002). An examination of efficacy and esteem pathways to depression in young adulthood. *Journal of Counseling Psychology*, 49, 438-448.
- Su, Y. & Reeve, J. (2011). A meta-analysis of the effectiveness of intervention programs designed to support autonomy. *Educational Psychology Review*, 23, 159-188.
- Tate, W.F. (1997). Race-ethnicity, SES, gender, and language proficiency trends in mathematics achievement: An update. *Journal of Research in Mathematics Education*, 28, 652-679.
- Taubman, P. (1989). Role of parental income in educational attainment. *American Economic Review*, 79, 57-61.
- Thompson, T., Davis, H., & Davidson, J. (1998). Attribution and affective responses of impostors to academic success and failure outcomes. *Personality and Individual Differences*, 25, 381-396.
- Tornatzky, L. G., Cutler, R., & Lee, J. (2002) *College knowledge: What Latino parents need to know and why they don't know it*. Riverside, CA: Tomas Rivera Policy Institute.
- Twenge, J. M., Zhang, L. Q., & Im, C. (2004). It's beyond my control: A cross-temporal meta-analysis of increasing externality in locus of control, 1960-2002. *Personality and Social Psychology Review*, 8, 308-319.
- U. S. Bureau of the Census (2010). *2010 American Community Survey Briefs*. Retrieved June 12, 2012 from:
http://www.census.gov/acs/www/data_documentation/2010_acs_briefs/
- Vallerand (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. *Advances in Experimental Social Psychology*, 29, 271-360.
- Van de Werfhorst, H. G. & Mijs, J. J. B. (2010). Achievement inequality and the institutional structure of educational systems: A comparative perspective. *Annual Review of Sociology*, 36, 407-428.
- Vecchio, G. M., Gerbino, M., Pastorelli, C., Del Bove, G. & Caprara, G. V. (2007). Multi-faceted self-efficacy beliefs as predictors of life satisfaction in late adolescence. *Personality and Individual Differences*, 43, 1807-1818.
- Verme, P. (2009). Happiness, freedom, and control. *Journal of Economic Behavior & Organization*, 71, 146-161.

- Viljaranta, J., Nurmi, J. E., Aunola, K., & Salmela-Aro, K. (2009). The role of task values in adolescents' educational tracks: A person-oriented approach. *Journal of Research on Adolescence, 19*, 786-798.
- Wainryb, C. & Turiel, E. (1994). Dominance, subordination, and concepts of personal entitlement in cultural contexts. *Child Development, 65*, 1701-1722.
- Wang, Q., Pomerantz, E. M., & Chen, H. C. (2007). The role of parents' control in early adolescents' psychological functioning: A longitudinal investigation in the United States and China. *Child Development, 78*, 1592-1610.
- Wang, Q., & Pomerantz, E. M. (2009). The motivational landscape of early adolescence in the United States and China: A longitudinal investigation. *Child Development, 80*(4), 1272-1287.
- Wang, M. T. (2009). School climate support for behavioral and psychological adjustment: Testing the mediating effect of social competence. *School Psychology Quarterly, 24*, 240-251.
- Watkins, Martin & Stern (2000). Unconscious memory bias in depression: Perceptual and conceptual processes. *Journal of Abnormal Psychology, 109*, 282-289.
- Weisz, J. R., Southam-Gerow, M. A., & McCarty, C. A. (2001). Control-related beliefs and depressive symptoms in clinic-referred children and adolescents: Developmental differences and model specificity. *Journal of Abnormal Psychology, 110*, 97-109.
- Weisz, J. R., Francis, S. E., & Bearman, S.K. (2010). Assessing secondary control and its association with youth depression symptoms. *Journal of Abnormal Child Psychology, 38*, 883-893.
- Wheaton, B., & Clarke, P. (2003). Space meets time: Integrating temporal and contextual influences on mental health in early adulthood. *American Sociological Review, 68*, 680-706.
- Wickrama, K. A. S., & Bryant, C. M. (2003). Community context of social resources and adolescent mental health. *Journal of Marriage and Family, 65*, 850-866.
- Williams, T. R., Davis, L. E., Miller-Cribbs, J., Saunders, J., & Williams, J. H. (2002). Friends, family, and neighborhood: Understanding academic outcomes of African American youth. *Urban Education, 37*, 408-431.
- Woolley, M. E. & Grogan-Kaylor, A. (2006). Protective family factors in the context of neighborhood: Promoting positive school outcomes. *Family Relations, 55*, 93-104.

- Yau, J., & Smetana, J. G. (1996). Adolescent-parent conflict among Chinese adolescents in Hong Kong. *Child Development, 67*(3), 1262-1275.
- Zhong, P., Yu, H., Zhou, L., Deng, H. H., & Lu, Z. H. (2009). The influence of young adolescents' social network, parental monitoring and encouragement of independence on their psychological adjustment: A self-determination perspective. In *The Regional Workshop of the International Society for the Study of Behavioural Development* (pp.270-274). Nanjing, China: Research Center Learning Science.
- Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology, 25*, 82-91.
- Zimmerman, S. M., Phelps, E., & Lerner, R. M. (2008). Positive and negative developmental trajectories in US adolescents: Where the positive youth development perspective meets the deficit model. *Research in Human Development, 5*(3), 153-165.
- Zirkel, S. (2004). What will you think of me? Racial integration, peer relationships and achievement among white students and students of color. *Journal of Social Issues, 60*, 57-74.