

THE ROLE OF EXTRACURRICULAR ACTIVITY
IN POSITIVE YOUTH DEVELOPMENT

A Dissertation
Submitted to
The Temple University Graduate Board

In Partial Fulfillment
of the Requirements for the Degree
DOCTOR OF PHILOSOPHY

By
Gloria H. Park
August, 2010

Examining Committee Members:

Michael Sachs, Advisory Chair, Kinesiology

Melissa Napolitano, Kinesiology

Joseph DuCette, Educational Psychology

Joseph Glutting, External Member, University of Delaware

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ABSTRACT

The Role of Extracurricular Activity
in Positive Youth Development

By Gloria H. Park

Doctor of Philosophy

Temple University, 2010

Doctoral Chair: Michael Sachs, PhD

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study. Secondary data analysis was conducted using data provided by two cohorts of middle school youth from a public magnet school in Philadelphia.

After controlling for sociodemographic selection factors, Study 1 revealed that music was the only type of activity that was related to academic achievement. Time spent in music significantly contributed to predicting performance on reading, language, math and science

standardized exams. Sport made significant negative contributions to predicting reading and language exam scores. These findings were limited by a ceiling effect caused by high mean scores on grade point average and standardized exams. Sport/dance was the only activity associated with well-being, significantly contributing to the prediction of positive affect. The results also revealed nonlinear associations between time spent in activities and standardized math scores, life satisfaction, self-esteem, and grit.

The results of Study 2 revealed support for the protective role of activity participation on the negative academic and psychosocial impact of life events stress, which was a significant predictor of poorer adolescent outcomes across all of the domains. Accounting for the impact of life events, music positively predicted academic outcomes, and sport/dance positively predicted higher life satisfaction, positive affect, and self-esteem, and lower levels of negative affect. Finally, exploratory analyses revealed that youth participated in activities that appeared to be compatible with personality characteristics. For example, sport was associated with higher extraversion and music with higher openness to experience.

ACKNOWLEDGEMENTS

The love, support, and encouragement I've had throughout graduate school, and through the process of completing this dissertation, can only be described as an embarrassment of riches, for which I feel at times undeserving and always overwhelming. I thank my advisor, Dr. Michael Sachs, for his many years of guidance and patience, and my dissertation committee members, Dr. Melissa Napolitano, Dr. Joseph DuCette, and Dr. Joseph Glutting for taking the time out of their busy schedules to serve on my committee and lend their insight and knowledge. For allowing me to explore this data set and graciously offering time to answer my questions, I extend my deepest thanks to Dr. Angela Duckworth and Betty Kim at the University of Pennsylvania.

I am sincerely grateful to Dr. Stephen Lepore for supporting part of my doctoral training through a graduate assistantship, and for instilling in me a respect and appreciation for research. I would not have survived this year without the company of my wonderful coworkers in the Social and Behavioral Health Interventions Lab, especially Stacy Davis and Ovgu Kaynak. I only wish I could celebrate with Sandy Schinfeld, whose friendship forever changed me

for the better, and whose passing serves as a daily reminder to never take a moment of life for granted.

I am deeply grateful to Dr. James Pawelski for investing in me, giving me the opportunity to try on a teacher's hat, and for pointing out that "Vienna" waits for me. I thank Dr. Christopher Peterson for believing in me - his teaching and genuine interest in the well-being of his students is always inspirational. For reigniting my passion for sport and exercise psychology, and for showing me the incredible power of fruitful collaboration, I am grateful to Dr. Kate Hays. Jennifer Garcia, Bryan Kim, Elizabeth Loughren and Nicholas Hall are among the many precious family members, friends, and colleagues who cheered me on and kept me accountable every step of the way.

To my husband, Juan Carlos: Thank you for showing me patience in my most impatient moments and for loving and caring for me always. I am lucky to have you. Finally, I owe my greatest thanks to my parents, who sacrificed their dreams to give my brother and me a better chance at reaching ours, who taught us that faith, dedication, sacrifice, and courage are required to pursue anything that is of worth, and reminded us that true success is measured by the legacy we leave behind: By what we do for others, by

giving back to the world and the community, and constantly striving to live morally, justly, and compassionately.

Mom and Dad: I hope I have and will continue to make you proud.

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CHAPTER 1

INTRODUCTION

The Problem

Over the past century, advances in technology and shifts in social and cultural norms have dramatically changed the way Americans approach daily living. Industrialization has allowed much of the nation to move away from traditional agrarian lifestyles, which required long hours of manual and repetitive labor to sustain. Historically, children and adolescents played a large role in maintaining agrarian households, but technological progress, conveniences of modern life, and economic affluence have changed the landscape of modern youth lifestyles and behavior.

Larson and Verma (1999) estimated that children and adolescents in the contemporary United States spend only 15-40 minutes a day on household chores and nearly no time involved with income-generating activities, compared with 6-8 hours a day for those living in non-industrialized agrarian settings. Consequently, children and youth are far more time-affluent today than their ancestors were just 20 years ago. Further, the women's labor and feminist movements forever changed the dynamic of the nuclear family. As women began to pursue careers and dual-income households

increased in prevalence, alternative modes were created to meet the growing demands for creative childcare. Latch-key programs, summer recreational camps, and community-based sport programs such as Pop Warner Football are all examples of programs developed to engage youth in activities outside of school. Still, self-care has continued to rise markedly over the past 60 years, especially through middle childhood and early adolescence, and particularly among youth with working mothers (Mahoney, Vandell, Simpkins, & Zarrett, 2009).

Today, American children and adolescents spend 40-50% of their waking hours involved in discretionary leisure activities (and more during the summer when they are not attending school), and are afforded more discretionary time than Asian or European youth (Larson & Verma, 1999). Compared with Asian and European youth, American youth also spend less time in school and completing school-related work such as homework, less time with their families, more time in sedentary activities such as watching television or surfing the internet, and more time socializing and interacting with friends and peers (Larson, 2001).

Increases in time-affluence can be viewed as a developmental liability or opportunity for psychosocial growth, depending on how that time is spent. Some might

agree with Watts' (1866) notion that free time sets the stage for trouble: "For Satan finds some mischief still, for idle hands to do" (p. 66). Others may argue that free time creates space for youth to explore their interests, try on social roles, and become involved with activities that offer more challenge and engagement than what youth derive from the passive environments of traditional classrooms. Extracurricular activities provide opportunities for cultivating interests and talents, introducing and developing interpersonal and life skills, gaining insight into competencies and passions, and broadening social capital and connections with peers and significant adults (Larson et al., 2004). Therefore, participation in structured, discretionary activities can serve as a preventive buffer from certain types of developmental psychopathology.

Extracurricular activities have garnered interest as remedial opportunities for youth struggling in school, and as a method for occupying at-risk students and keeping them out of trouble. Some researchers posit that activity participation could potentially moderate socioedemographic variables that would usually be predictive of negative outcomes. For example, Mahoney, Schweder, and Stattin (2002) found that adolescents with detached relations to

their parents who participated in structured, after-school activities reported lower levels of depressed mood compared to adolescents not participating in such activities.

Extracurricular activities have also been examined as a means for enhancing school engagement for youth at-risk for school dropout (Gilman, Meyers, & Perez, 2004).

Over the past 20 years, the Positive Youth Development (PYD) model has gained support from researchers, developmental theorists, practitioners, and educators alike. Unlike traditional models of development, which depict development without incidences of negative events or the absence of risky behavior as normal, the PYD model supports the notion that problem-free is not the same as being fully prepared (Pittman, Irby, Tolman, Yohalem, & Ferber, 2003). While preventing negative outcomes is still the primary focus of developmental research, proponents of the positive youth development movement have noted that outcomes other than disorder are equally important to consider given that risk or protective factors are likely to affect a broad range of outcomes (Gillham, Reivich, & Shatte, 2002).

Recent research has started to illuminate the nuanced differences in outcomes based on the activity types, depth, breadth, and duration of participation, and how the social and ecological contexts of specific activities impact the

relationship between participation and development (Fredricks & Eccles, 2006a). For example, activities that are structured and supervised, such as school or community based clubs, tend to be associated with more positive outcomes than those activities that are not organized and unsupervised, such as watching television or hanging out with friends (Mahoney, 2000; Mahoney & Stattin, 2000). Others have examined whether the relationship between activity participation and youth outcomes is linear, or nonlinear or, more specifically, whether participation in one type of activity is more beneficial than another, or whether more activity is unconditionally better than less (see Fredricks & Eccles, 2006b for a full overview). However, there is still a great need for more advanced research that would enable practitioners to make recommendations for implementing strategies for leveraging the most developmental benefit from activity participation.

Purpose

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential

protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study.

Early research on activity participation and youth outcomes utilized cross-sectional data and relied on correlations to describe relationships between participation and psychosocial/academic outcomes. While findings from these studies have and continue to provide valuable insight, many studies have demonstrated a limited ability to completely parse out the positive effects of extracurricular participation from other confounding variables, such as higher socio-economic status and parental and social support. Studies implementing longitudinal designs with the aim of illuminating variations in participation over time, the role of extracurricular activity participation and developmental trajectories of children and adolescents, and the predictive value of cumulative participation on youth outcomes are still limited (Rose-Krasnor, 2009). The current study attempted to address several methodological gaps in extracurricular activity participation research.

In Study 1, the concurrent and longitudinal relationship between extracurricular activity participation

and youth academic and psychosocial outcomes were described through Specific Aim 1. Student participation in three different types of activities in seventh grade was examined as predictors of eighth grade academic and psychosocial outcomes. The role of participation in the development of positive psychosocial characteristics was explored through Study 1. The data from the present study were originally collected to examine the role of self-discipline as a predictor of academic performance. From that study, Duckworth and Seligman (2005) found that self-discipline measured in the fall predicted student GPA, attendance, higher scores on standardized tests, and selection into a competitive high school program for a group of 140 eighth grade students. The study was replicated in the fall, and for 164 eighth graders, self-discipline better predicted final grades, attendance, high school selection, and better study habits (time spent on homework and watching television) than IQ. The current study attempted to explore whether participation in extracurricular activities, such as sport, could possibly contribute to the development of self-discipline and self-regulation in youth and, in turn, enhance school performance.

Second, other studies have demonstrated the possibility of a curvilinear relationship between activity

participation and beneficial outcomes. Zill, Nord, and Loomis (1995) found that youth who were involved in extracurricular activities for 5 - 19 hours per week were less likely to engage in risky behaviors than those participating less than five or greater than 20 hours. Given the rising concerns on the increasing commitments of youth today, the question of whether there is a "critical-mass" or "over-scheduling" effect of activity participation is one that was partially addressed through this study. Using an aggregate measure of activity participation across three different activities, the possibility of a curvilinear relationship between youth academic and psychosocial outcomes and activity participation was tested.

In Study 2, activity participation as a potential protective buffer against the negative effects of life events was examined through Specific Aim 2. Darling (2005) found that activity participation played a modest role in buffering the impact of life event stress on substance abuse among high school students. However, the findings were characterized by small effect sizes, and provided some evidence that the positive influence of extracurricular activity on adolescent outcomes increases when youth spend more time in activities or if they are experiencing higher levels of stress from life events.

Also a part of Study 2, the extent to which personality characteristics predict participation in specific activities was investigated through Specific Aim 3. Although the role of person-centered variables, such as personality, person-environment fit, and perceived value of activity participation have recently been recognized as critical areas for future research, there is little known about the impact of these variables on youth outcomes (Feldman & Matjasko, 2005; Rose-Krasnor, 2009). Therefore, models that factor perceived personal value/enjoyment, such as Eccles' Expectancy Value Model (Wigfield & Eccles, 2000) or congruence of activity choice with personality, such as Person-Environment Fit model (Holland, 1966) into the beneficial or detrimental impact of extracurricular activities need to be tested in future research. In this study, the relationship between activity participation and youth personality traits was described as a preliminary step in exploring the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth.

The findings from this study will have implications for public and educational policy, as well as directing future research and intervention research. If extracurricular activities are indeed developmental assets,

a more nuanced understanding of who benefits and why, and the mechanisms that produce changes, should be more clearly delineated to inform how programs are created, structured, and delivered, and to shed light on best practices regarding person-activity fit. Many of the emergent studies employing more sophisticated research methodology have shown that extracurricular activity may serve as developmental assets to specific populations and groups, such as low-income, at-risk youth (e.g., Fredricks & Eccles, 2006b) but not play as great of a role in the development of youth from higher socioeconomic and educational backgrounds. Currently, schools in neighborhoods that are lower in socio-economic status tend to have fewer resources available to fund extra-curricular programs and, consequently, unavailability of programs can widen pre-existing gaps and promote further disparity between the advantaged and disadvantaged youth (Mahoney, Larson, Eccles, & Lord, 2005). If extracurricular activity programs can be serve to remediate and reinforce academic development for youth from underprivileged areas, then it is vital to extend findings from exploratory research to the realm of applied work and educational policy making.

Specific Aims and Research Hypotheses (RH)

The specific aims and corresponding research questions/hypotheses addressed in this study were:

Specific Aim 1. Describe the relationship between extracurricular activity participation and youth academic and psychosocial outcomes, and describe differences in outcomes based on involvement with individual activities and total time spent involved with activities.

RQ1: Examine the development of youth academic and psychosocial outcomes with relation to extracurricular activity participation.

H1.1: Activity participation in 7th grade will predict school performance in 8th grade.

H1.2: Activity participation in 7th grade will predict well-being in 8th grade.

H1.3: Activity participation in 7th grade will predict self-discipline in 8th grade.

H1.4: There will be a curvilinear relationship between the level of extracurricular activity involvement and academic and psychosocial benefits for youth.

Specific Aim 2. Examine the potential role of activity participation as a protective factor against negative outcomes.

H2: Extracurricular activity participation will protect youth from the negative effects of life events.

Specific Aim 3. Describe the relationship between youth personality characteristics and activity participation.

H3.1: Specific youth personality characteristics will be associated with the type of activity in which they participate the most. For example, youth participating in sport are more likely to be extraverted than youth participating in chess.

Delimitations

The study was delimited as follows:

1. All data were collected from students at a public magnet school in Philadelphia between 2002 and 2007.
2. Data from years 2004 - 2006 were used for this study.
3. At the time of data collection, and at each wave of data collection, participants were between the 5th and 8th grades.

Limitations

The limitations of the study were as follows:

1. The data analyzed for this study were already collected; therefore, there were no opportunities to request clarification or collect additional data if the research questions warranted additional information.
2. Many of the assessments were self-report, so there is a risk that some of the students may not have answered the questions honestly or accurately.
3. There may be a social desirability effect unaccounted for in participants' responses to the surveys.
4. Due to attrition or transfer, data analyses of specific outcomes were limited to those students who have data.
5. Data on extracurricular activity participation were only collected for three types of activities: sport/dance, music, and chess. There may have been other activities in which students participated that were not accounted for in this study.
6. Participants of this study were academically gifted students from a magnet school; therefore, there may be a ceiling effect to account for in determining the effect of extracurricular activities on academic outcomes.

Definitions of Terms

For the purposes of this study, the following key terms were defined and operationalized as follows:

Academic Outcomes

Academic outcomes are reflective of student performance in school. In this study, Grade Point Average (GPA) and Standardized Test Scores were used as outcome indicators.

Grade Point Average (GPA). Grade point average is an indicator of academic performance that is calculated by averaging quarterly grades and converting them using a standard 4.0 scale. The grade point averages were then converted to percentiles for analysis.

Standardized Test Scores. Terra Nova Scores from a standardized achievement test designed by McGraw Hill Company (CTB/McGraw-Hill, 2001) to assess performance in Science, Math, Language, and Reading were used as indicators of academic performance.

Ecological Systems Theory (EST)

Ecological Systems Theory (Bronfenbrenner, 1979) is the theory that provides the overarching framework for the study of the role of extracurricular activity and youth development. The model attempts to describe human

development as a dynamic process that involves reciprocal interaction between the individual and his or her environment.

Extracurricular Activity (ECA)

Extracurricular activity (ECA) is any activity in which youth engage that is not explicitly intended to build on the core academic competencies of math, language, reading and science. Sport/dance, music, and chess were the three activities that were examined in this study.

Psychosocial Outcomes: Self-Discipline

Psychosocial outcomes are defined as indicators of psychological and social development in youth.

Self-Discipline. In this study, self-discipline and self-control were used interchangeably and defined as "the ability to suppress prepotent responses in the service of a higher goal and further specifying that such a choice is not automatic but rather requires conscious effort" and encompasses both ability to delay gratification and ability to avert risk (Duckworth & Seligman, 2006, p. 199). This construct was assessed using two measures: 1) Composite Self-Control (Duckworth & Seligman, 2005), a multidimensional measure of self-control created from

several different measures; and 2) Grit (Duckworth, Peterson, Matthews, & Kelly, 2007), defined as a measure of passion and perseverance for lifelong goals, and measured by a 17-item survey.

Psychosocial Outcomes: Well-Being

Psychosocial outcomes are defined as indicators of psychological and social development in youth.

Life Satisfaction. Life satisfaction is defined as a global assessment of contentment, measured using the Huebner's (1991b) Life Satisfaction Scale (SLSS).

Positive and Negative Affect. Positive and negative affect are the frequency of experienced positive and negative emotions within a specific timeframe, measured by the Positive and Negative Affect Schedule for Children (PANAS - C: Laurent et al., 1999).

Self-Esteem. Self-esteem is a person's overall appraisal of his or her worth, or an assessment of self-regard. This study utilized the Rosenberg Self-Esteem Scale (Rosenberg, 1965).

Personality

Personality variables are relatively stable and enduring characteristics or behavioral orientations of an individual to his or her environment.

Big Five Personality. The "Big Five" traits encompass five domains of characteristics that are thought to make up human personality: 1) Openness to experience, 2) Conscientiousness, 3) Extroversion, 4) Agreeableness, and 5) Neuroticism. These traits are measured using the Big Five Inventory (BFI) developed by John and Srivastava (1999).

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study. The following chapter provides a review of the literature encompassing six relevant domains: 1) theoretical perspectives on youth development and the role of extracurricular activity; 2) overview of time as a developmental variable; 3) summary of extracurricular activity participation rates among American youth; 4) review of past findings on the impact of extracurricular activity on youth outcomes; 5) discussion of mediators/moderators of activity benefits; and 6) methodological and empirical gaps addressed in the current study.

Theoretical Perspectives on Youth Development

Academics, practitioners, and policy makers approach the study of child and adolescent development from an interdisciplinary perspective, which encompasses various aspects of human progress, including social, intellectual, biological, and emotional growth. Within this field, there are many different theoretical orientations and, consequently, each poses different assumptions concerning the salience of certain developmental factors over others. Some argue that biology plays a large role, while others argue that environment more powerfully impacts development.

Early biological and ethological theorists posited that an individual's developmental trajectory was largely determined by genetics. However, later theorists acknowledged that human beings do not exist in a vacuum, but rather in a social and physical world that provides many differing environments and influences that contribute to development. From birth and through every stage of childhood, social and physical environmental factors can positively or negatively influence an individual's health and psychological well-being. This explains why a pair of twins, born with the identical set of genetics and raised under different conditions, can experience very different outcomes.

The term risk factor refers to something that makes an individual susceptible to negative outcomes, and vulnerability refers to "the individuals' predisposition to develop varied forms of psychopathology or behavioral ineffectiveness" (Zimmerman & Arunkumar, 1994, p. 2). Conversely, protective factors refer to predictors of positive outcomes. A related term, resilience, refers to "fending off maladaptive responses to risk and their potential negative consequences" (Zimmerman & Arunkumar, 1994, p. 2). Risk and protective factors interact with a person to produce positive or negative outcomes. However, the relationship between these factors and specific outcomes are unclear and difficult to study.

Professionals in the field of child and adolescent psychology have conducted the lion's share of inquiry into the determinants of social, emotional, and intellectual growth. Because mental illness has historically been defined as the presence of a pathological disorder, while mental health has been defined as the absence of mental illness, there is an expanse of literature examining psychopathology, mental illness, disability, and deviance, a trend that is mirrored in developmental psychology as well (Park, 2004). Consequently, the majority of interventions to support youth development have been

deficit-focused, designed to ameliorate problems such as aggression, substance abuse, risk behaviors, and cognitive or emotional disorders (Damon, 2004).

While these approaches have made valuable contributions to alleviating suffering, they have done little to illuminate the conditions that enable youth to become thriving, engaged, psychologically healthy, and productive members of society:

We have a burgeoning field of developmental psychopathology but have a more diffuse body of research on the pathways whereby children and adolescents become motivated, directed, socially competent, compassionate, and psychologically vigorous adults (Larson, 2000, p. 170).

According to Damon (2004), youth researchers and practitioners have been undermining young peoples' developmental potential and underestimating their true capacities, strengths, talents, and unique abilities by focusing on their deficits. In recent years, along with the growing popularity of the field of positive psychology, many researchers have challenged existing models of mental health by arguing that the absence of psychopathology is necessary, but not sufficient, for mental health, and (like

mental illness) mental health should be characterized by the presence of a certain set of symptoms and researched as a syndrome of well-being (Keyes, Lopez, & Snyder, 2002). The positive youth development movement was founded on the notions of a salutogenic and assets-based study of youth development, which "envisions young people as resources rather than as problems for society," and "emphasizes the manifest potentialities rather than supposed incapacities of young people" (Damon, 2004, p. 15).

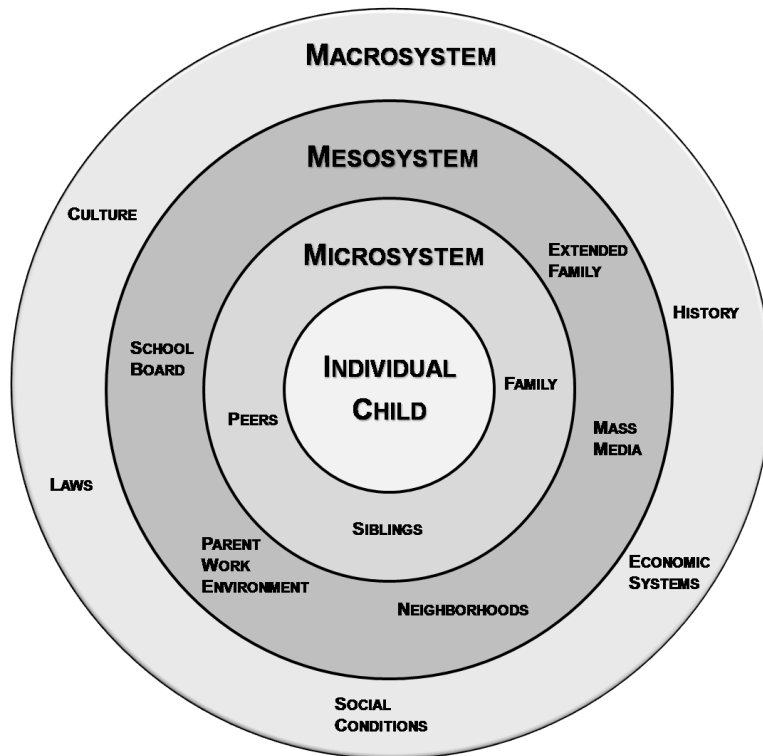
The positive youth development (PYD) approach is conceptually distinct from other developmental models, which depict development without incident as normal. Understanding the pathways that enable positive outcomes, developing interventions to prevent rather than treat problems, building responsibility and initiative through engaging and enriching activities, and identifying and mobilizing internal and external assets are central to the positive youth development approach (Damon, 2004; Larson, 2000). As researchers from diverse fields endeavored to reach an interdisciplinary understanding of personal, social, and community assets that enabled youth to thrive, they began exploring the contexts of activities and their impact on cognitive, physical, psychological, and academic outcomes (Larson et al., 2004). When structured optimally,

extracurricular activities can achieve one or more of the following objectives of positive youth development programs: Promoting bonding, resilience, social, emotional, cognitive, behavioral, and moral competence; fostering self-determination, spirituality or sense of purpose, self-efficacy, positive identity and optimism for the future; and providing opportunities for the recognition of positive behavior, prosocial involvement, and connection with prosocial norms (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004).

Theory on Benefits of Extracurricular Activity

The primary theoretical model that has guided much of extracurricular activity research in the developmental and educational psychology fields is Bronfenbrenner's (1979) ecological systems theory (Figure 1), also referred to as systems theory or the bioecological model. Bronfenbrenner's model reflects that human development occurs within a dynamic, interactional context, which ultimately influences the course of development, and is concerned with understanding the broad range of biological, physical, and sociocultural settings and how they impact the course, content, and direction of development (Bronfenbrenner & Morris, 1998).

Figure 1: Model of Ecological Systems Theory



In this model, the individual is at the center of the diagram, and is influenced and reciprocally influences four layers or related systems:

1. **Microsystem:** Is composed of the immediate context (social and environmental) in which the child lives. This includes family, school, peers, neighborhood play area, day care, church, health services, etc.

2. **Mesosystem:** Consists of the interrelationships within the various components of the microsystem of the children's physical and social environment.
3. **Exosystem:** Consists of larger institutions such as extended family, neighbors, legal services, social welfare services, mass media, and friends of family that can indirectly influence the child.
4. **Macrosystem:** Represents the interaction of children with the attitudes and ideologies of their cultural setting.

Ecological systems theory, according to Feldman and Matjasko (2005), is the ideal overarching model guiding extracurricular activity participation research "because it not only includes the contextual levels surrounding a developing individual but emphasizes the bidirectional processes by which the individual and particular contexts affect each other" (p. 196). These influences can occur across many levels of the ecology, with proximal, moment-to-moment exchanges having a greater influence over development than more distal mechanisms (Bronfenbrenner & Morris, 1998).

Ecological theory indicates that involvement in activities serves a very large part in identity formation

and construction for youth, as participation often dictates the peer groups that children and adolescents associate with most, and lends structure both to what youth do with their time and the kinds of values and norms to which they are exposed (Eccles, Barber, Stone, & Hunt, 2003). They also provide an additional place outside of the classroom to interact and form relationships with peers and adults (Mahoney, Cairns, & Farmer, 2003). Because American youth spend a large percentage of their time involved with discretionary activities, involvement in such activities often influences multiple aspects and levels of a child's bioecological environment.

Gilman and colleagues (2004) argue that ecological systems theory is relevant to extracurricular activity in four ways. First, these activities provide connections and a sense of belongingness with supportive social networks. Affiliations with groups characterized by peer-established norms can influence identity development, both negatively and positively. If the peer group norms are positive, constructive values will be integrated into identity formation, thus enhancing the likelihood of positive outcomes. If group norms are negative (as with delinquent peer groups) adolescents are more likely to engage in risky behavior and suffer harmful developmental consequences

(Mahoney & Stattin, 2000). The issue of peer group identification becomes more complex when considering extracurricular activities such as sport participation, which can engender both positive and negative values and norms. This issue will be further discussed in later sections of this literature review.

Second, extracurricular activities provide an additional forum outside of the classroom to interact with and form relationships with peers and adults (Mahoney et al., 2003), forge and strengthen connections with non-parent adult figures (Gilman et al., 2004), and promote social capital (Davalos, Chavez, & Guardiola, 1999). Models of learning, such as Bandura's (1989) social cognitive theory, might help to explain how the presence of and interaction with competent mentors and adult figures could aid in the development of agency, character, and motivation by guiding skill development through feedback and support. Particularly for youth with diminished or detached relations to their parents, the connections they are afforded through extracurricular activity can help buffer against detrimental psychological sequelae, such as depressed mood (Mahoney et al., 2002) and grant mentoring and guidance from positive adult role models who would otherwise be absent from their lives.

Gilman and colleagues (2004) argue that improved connection to school identity and engagement is a third mechanism through which extracurricular activity can bestow benefits. Activity participation can impact peer status, popularity, and student visibility, although each of these is influenced differently by activity type and gender (Eder & Kinney, 1995). Peer affiliations can enhance a sense of belongingness for youth in school, increase enjoyment of attending school, which in turn promotes better performance in the classroom (Mahoney et al., 2003), increase social acceptance and popularity (Sandstrom & Coie, 1999), and reduce feelings of social alienation (Youniss, McLellan, Su, & Yates, 1999).

Discretionary leisure pursuits can set the stage for flow experiences and be a powerful enabler of engagement and life-satisfaction for youth whose lives are otherwise characterized by monotony and lack of interest. For many children and adolescents today, the majority of their time is spent involved in classroom activities specifically designed to facilitate academic growth, but as passive recipients of classroom learning, most students struggle with apathy and boredom. When Larson and Richards (1991) asked children to self-report on 16,000 moments in their lives through an experience sampling method, children

reported feeling bored with life for 27% of randomly sampled moments. The findings were especially intriguing since the study was conducted with children from a White, working and middle class population, who tend to have the greatest access to leisure activities. Similarly, a study by Christenson, Sinclair, Lehr, and Godber (2001) found that more than 50% of students report that their classes are boring, and 33% said that they are only able to endure the school day by goofing off with friends.

Extracurricular activities offer fertile ground for the cultivation of optimal experiences because flow is more likely to occur during interactive activities, where a balance between skill and challenge is present.

Csikszentmihalyi (1988) described flow as an optimal state of complete absorption in an intrinsically enjoyable activity, which is characterized by a high degree of concentration and loss of a sense of time and self-consciousness. Flow experiences can connect youth with their passions and interests, generate positive emotions, feelings of authentic enjoyment, and provide a portal into future optimal experiences. Gains in affective enjoyment (improved mood and feelings of pleasure) and opportunities for flow can be enhanced through activities that require

serious fun or creatively intelligent thinking, such as voluntary, discretionary activities (Rea, 2001).

Finally, extracurricular activities shape development because they promote the cultivation of individual strengths and positive psychosocial characteristics (Gilman et al., 2004). Extracurricular activities can nurture the development of self-efficacy, defined by Maddux (2002) as the belief in one's ability to meet challenges and produce desired outcomes through the process of successfully setting and reaching mastery goals related to performance in a specific domain. Through activities, youth are motivated to test their competence, and positive emotions are experienced when mastery efforts are perceived to be successful, as demonstrated by Harter's theory of self-construction and effectance motivation (Harter, 1978). Harter's model is a developmental model through which the causes and consequences of emotional experiences can be examined in a number of contexts. For Harter, self-worth is dependent upon perceptions of competence in five domains in childhood (cognitive competence, physical competence, physical appearance, social competence, and behavioral conduct) that the person views as important. Involvement in activity aids in the development of agency and initiative and the capacity for autonomous action, which precipitates

more intrinsic motivation and adaptation of positive behavior into identity formation (Larson, 2000).

Adolescence is a time fraught with transitions and changes in nearly every aspect of a child's life. According to a summary by the National Research Council and Institute of Medicine (2002), the majority of challenges faced by youth are related to the following domains: 1) shifts in the dynamic of relationships with adults, specifically parents, and increasing responsibilities associated with adopting a more mature role; 2) alterations in identity including social and sexual roles; 3) deepening peer and intimate relationships; and 4) decision making around future goals and aspirations. Successful renegotiation of and adaptation to these rapidly-changing life circumstances depends on the availability of social support and an array of physical, psychological, and cognitive resources. According to the American Academy of Child & Adolescent Psychiatry, there are four basic developmental needs that can enable normal adolescent development from middle school to early high school years: 1) positive social interaction with adults and peers, 2) opportunities for self-definition, 3) competence and achievement, and 4) physical activity (AACAP, 2001). Developmental assets, according to the Search Institute (1997), include internal assets (e.g.,

commitment to learning, positive values, social competencies, and positive identity) and external assets (e.g., secure parental attachment, support, empowerment, boundaries and expectations, and constructive use of time).

During this time of change, developmentally appropriate social settings, such as extracurricular and community-based programs, can positively influence developmental trajectory (NRC/IOM, 2002). Activity contexts afford youth additional opportunities to marshal social support, forge connections with caring adults, and provide distraction, catharsis, and much-needed respite from accumulating stressors or suboptimal home environments (Joseph, 1994). Developmental assets acquired through activity settings can serve a protective role since the likelihood of youth partaking in high-risk behaviors is reduced with the number of developmental assets youth possess (Search Institute, 2003).

Time as a Developmental Variable

Economists, anthropologists, and sociologists have long been interested in measuring and analyzing how human beings spend time. Anthropologists and sociologists use findings from studies of time use as indicators for shifts in human behavior that reflect societal norms and

conditions. For economists, time spent engaged in productive tasks such as labor and household activities equate to the accumulation of human capital, or quantifiable contributors to a society's economy (Becker, 1965). In this sense, time as a developmental variable for youth can also be considered a capital resource, and the quantity of time children spend developing their knowledge, skills, and abilities can be equated to the production of human capital (Larson & Verma, 1999). Before industrialization, the daily activities and responsibilities of youth were highly characterized by manual repetitive labor and household chores. The preconfigured, normative goals and habits that shaped early life in traditionally agrarian times are less relevant to modern youth (Oettingen, 1997) who live in and must prepare to survive in an increasingly heterogeneous global economy (Larson, 2000).

According to a study by Larson (2001), children in the United States spend less time in school and on homework through the school year, less time with parents, and more time engaged in sedentary activities such as watching television, surfing the internet, and playing computer and video games than students in Asia and Europe. Across 45 studies on adolescent use of time, Larson and Verma (1999)

summarized that youth in the United States spend 40% less time on schoolwork than youth in East Asia, 20% less time on schoolwork than European youth, and only 20 - 40 minutes on homework compared with 2 - 4 hours in East Asia and 1 - 2.5 hours in Europe. Youth spend 40% - 50% of waking time in discretionary activities, not inclusive of the summer, and watch 1.5 - 2.5 hours of television each day (Larson, 2001). More recently, findings from the 2007 Centers for Disease Control and Prevention Youth Risk Behavior Surveillance System report that hours spent watching television or on the computer are much higher. In a nationally representative sample of high school youth, 24.9% of students reported spending 3 or more hours on a computer each day, and 35.4% of students watched television for 3 or more hours on an average school day (CDC, 2008). Although recent statistics may vary slightly for younger youth, these data represent a growing national trend in television and computer time, which are of particular concern to developmentalists because of their associations with obesity and exposure to subversive sexual and behavioral norms (Larson, 2001).

In the United States, the school day and year are much shorter than in other parts of the world (such as East Asia and Europe) and consequently, American teens spend only

about 20% of their time in schools (NRC/IOM, 2002). In 2009, the Afterschool Alliance surveyed nearly 30,000 households to follow up with in-depth research they began in 2004 on how America's children spend their time during after school hours (Afterschool Alliance, 2009). They reported that nearly 30% of middle school students are left unsupervised during afterschool hours, and spend an average of 8 hours a week caring for themselves. The After-School Programs and Activities Survey (ASPA), part of the nationally representative 2005 National Household Education Surveys Program (NHES, 2006), revealed that 33% of 6th through 8th grade students required at least one weekly non-parental after-school care arrangement with relatives, nonrelatives, school or center-based program, and self-care. The consequences associated with self-care have been mixed: Some studies report negative outcomes and poorer psychological adjustment, while others report no relationship, with the discrepant effects dependant on the social-contextual features of the self-care environment and interactions with youth characteristics (Mahoney et al., 2009).

Some theorists have suggested that any out-of-school leisure time has the potential to contribute positively to the development of youth and adolescents. However, Mahoney,

Stattin, and Lord (2004) found that only structured programs, which are "rule-bound or goal-oriented, emphasize conventional skill building, feature adult supervision and guidance, and provide a context of belongingness and positive peer relationships" (p. 553), enable positive development, while unstructured activities can lead to antisocial behavior. Unsupervised time can account for nearly 20-25 hours per week, a developmental liability in that teens who are left alone during non-school hours are more likely to engage in risky behaviors, such as alcohol and drug abuse, sexual intercourse, and violent behavior (Zill et al., 1995). According to the National Institute on Out-of-School Time, violence and juvenile crime tend to peak during the summer and the hours immediately following dismissal from school, which coincide with the times when adolescent's are most likely to be left unsupervised (NIOST, 2009).

Parents of American children and adolescents perceive afterschool programming as a viable and valuable solution for providing supervised child care, and 89% of parents surveyed by the Afterschool Alliance agreed that youth need a place to turn to for organized learning and social opportunities (2009). They view extracurricular activities as enablers of social, moral, and physical development.

However, these programs also come at a considerable financial cost. The Afterschool Alliance survey reported that in 2009, parents paid an average of \$67 a week on afterschool programs per child, an increase from \$44 in 2004 (Afterschool Alliance, 2009) and \$40 reported in 2005 by the NHES survey (NHES, 2006). Of those surveyed by the Afterschool Alliance (2009), 52% cited cost of programs as a major barrier to enrolling their children in afterschool programs, while only 15% of families reported receiving government assistance with paying for afterschool program fees. Many activities, such as sport, require great investments of time and money to sustain, therefore the cost of programming can pose significant barriers to all families, and especially those of lower socioeconomic status.

Extracurricular Activity Participation

Youth today have a broad range of extracurricular activities in which they can become involved, from school-based athletic teams, academic clubs, and music and fine arts programs, community-based sport programs, faith-based groups, and pro-social activities such as volunteerism and activism. In their analysis of data from the National Longitudinal Study of Adolescent Health, Feldman and

Matjasko (2007) found that about 76% of adolescents interviewed (n = 14,411) reported participating in at least one extracurricular activity, with 43.2% reporting involvement in multiple activities. Respondents of the After-School Programs and Activities Survey (ASPA), administered as part of the National Household Education Surveys Program (NHES, 2005) reported that children in kindergarten through eighth grade most frequently participate in sport (73%), followed by religious activity (46%), arts (42%), scouts (22%), volunteering (19%), academic activities (16%), and clubs (13%).

Early findings in activity research discerned few differences in overall participation rates based on gender. Females generally participate in more activities while males are more likely to be involved with athletics (Feldman & Matjasko, 2005), although activity participation portfolios (or the combination of a variety of different activities) differed significantly (Feldman & Matjasko, 2007). The After-School Programs and Activities Survey (NHES, 2005) reported similar findings. Among K-8th grade students, more males participated in sport than females, while more females participated in arts (such as music and dance), volunteer and community service, and religious activities than males.

Findings from research on activity involvement by race/ethnicity have been mixed. Early studies found little difference in rates of participation between Whites and African Americans (e.g., Mahoney & Cairns, 1997), although later studies (e.g., Feldman & Matjasko, 2007) found evidence that Hispanics participated at a comparatively lower rate. More recent statistics show that minority youth participate less in out of school time or extracurricular activities. For example, the Harvard Family Research Project found that across most programs and activities, Latinos were underrepresented, Whites overrepresented, and African American youth somewhere in between, although the gaps in activity participation rates among youth of varying ethnicity have remained stable (HFRP, 2007). However, the Afterschool Alliance survey (2009) reported that higher percentages of minority children spend their hours in afterschool programs than their Caucasian counterparts. Asian Americans in general are more likely to be involved in academic-related activities or take lessons related to language, art, music, and dance (Kao, Tienda, & Schneider, 1996).

Much of the differences in activity participation rates based on ethnicity can be attributed to socioeconomic status. Youth coming from higher income and more highly

educated families were more likely to participate in all types of programs and with greater frequency (HFRP, 2007) since these families also have greater financial resources. Community features related to lower socioeconomic neighborhoods can also impact participation rates. Larson, Richards, Sims, and Dworkin (2001), conducted a study of urban African American 5th through 8th graders in Chicago, and found that the environment of urban neighborhood settings, such as safety and rates of crime and violence, can dictate activity patterns. Greater financial constraints and resulting disparities in per-student expenditure can also impact availability of programming in lower socioeconomic areas.

Impact of Activities

The following section summarizes the concurrent and longitudinal research findings around activity participation and youth outcomes, and will begin with an overview of the relationship between generalized activity participation and youth development. Known moderators and mediators of activity participation and outcomes will also be described briefly within each section. Of these extracurricular activities, youth sports, defined by Humphrey (2003) as "the organized interactions of children

in competitive and/or cooperative team or individual enjoyable physical activities" (p. 49), is by far the most prominent in the category of structured, voluntary activities (NHES, 2006) and continues to grow exponentially. As a result, sport and physical activity has been the most frequently researched of all extracurricular activities, and will serve as the focal point of discussion within each section.

Academic Outcomes

Extracurricular activity participation has been shown to have mixed concurrent and longitudinal effects on academic outcomes among youth. As Lipscomb (2007) notes, positive benefits can be attributed to a number of plausible mechanisms, but extracurricular activities may also negatively impact academics by sacrificing time previously focused on human capital acquisitions (for example, through time spent in wage paying jobs). Based on a nationally representative sample of high school youth, Broh (2002) similarly found that certain activities bolstered, while others diminished academic achievement. This issue will be further discussed in later sections of this review.

Activity participation has been positively associated with completing more years of education and college attendance (Barber, Eccles, & Stone, 2001) and the increased probability of completing college (Eccles et al., 2003). High school students who participate in extracurricular activities are less likely to drop out of school (Davalos et al., 1999) with effects being especially strong among at-risk adolescents, whose dropout rates were markedly lower for activity participants compared to non participants (Mahoney & Cairns, 1997). One to four hours of extracurricular activity participation each week was related to a reduced likelihood of dropping out of school (Zill et al., 1995). Although participation alone could not necessarily serve as a predictor for academic success, youth involved in activities generally maintained higher grade point averages than youth uninvolved in any activity (Eccles et al., 2003). In their comprehensive review of contemporary literature, Feldman and Matjasko (2005) reported mixed associations from early studies on extracurricular activity participation and grade point average, although more recent studies support a generally positive relationship between participation and academic achievement (Zill et al., 1995).

Early research employed correlational methods to examine participation's relationship with concurrent outcomes. However, correlational studies simply explain the co-existence of two phenomena, and most of the findings from early studies were unable to conclusively parse out the effect of activity participation from other sociodemographic predictors of educational attainment, such as family background, level of parent education, and intellectual ability (see review by Feldman & Matjasko, 2005). The implementation of longitudinal methodology has better enabled researchers to examine the impact of activity participation as predictors of academic outcomes. For example, the Carolina Longitudinal Study showed that participation in voluntary, structured activities could have a lasting positive effect on educational attainment and career achievement (Cairns & Cairns, 1994). The association between future-oriented cognitions/expectations and adult educational attainment was mediated by extracurricular activities, although other adolescent behaviors (such as vocational, volunteer, and delinquency) did not serve as mediators (Beal & Crockett, 2010).

Fredricks and Eccles (2006b) found similar relationships among a community-based sample of high school students: Participation in high school clubs and sports

predicted academic adjustment (grades, educational expectations, and tertiary educational status) and educational status (the number of years of education completed). In both cross-sectional and longitudinal analyses of high school students, extracurricular activity participants reported better grades and a more positive attitude towards school, and had higher academic aspirations than non-participants (Darling, 2005). Further, adolescents who participated in greater numbers of activities reported significantly higher school satisfaction and positive school experiences than those with minimal or no participation (Gilman, 2001). Because school satisfaction can directly influence academic achievement and adolescent motivation, these findings are particularly important.

Of all activities, athletic participation has been the most closely examined with relation to academic achievement, and whether it helps or interferes with academic development has been a long-standing debate within the educational community. Four basic needs of intellectual development are met through participation in sport and physical activity: 1) the need for challenging experiences; 2) the need for intellectually successful and satisfying experiences; 3) the need for the opportunity to solve

problems; and 4) the need for the opportunity to participate in creative experiences (Humphrey, 2003). Fulfillment of all four of these needs can serve to enhance a child's aptitude for learning. Partaking in sports can also be viewed as a character building activity, promoting connectedness within the community, and with family, and especially with the school (Fejgin, 2001b; Gould & Carson, 2008; Theokas, 2009).

The wide body of research confirms a generally positive association, particularly for adolescents. High school students who were more involved in competitive sports had higher grades, self-concept, and educational aspirations, a more internal locus of control, and fewer discipline problems than non-participants (Broh, 2002; Fejgin, 2001a). Sport participation was linked to higher grades in math and English and more time spent on homework, controlling for confounding demographic and environmental variables (Broh, 2002). Team sport participation in high school was associated with school enjoyment, higher than forecasted GPA, and predicted high school graduation, college attendance, and employment attainment into young adulthood (Eccles et al., 2003). In their review, Feldman and Matjasko (2005) found several gender differences: For girls, sport was linked to higher GPA and desire to go to

college, and for boys, sport participation (especially football and basketball) were linked to valuing educational attainment and higher educational aspirations.

Well-Being and Life-Satisfaction

In 2004, Park presented a compelling argument for examining the role of subjective well-being in the study of youth development. Life satisfaction has been found to be related to broad spectrums of psychological and social outcomes, as well as physical health, risk behaviors, and substance abuse: Low life satisfaction was associated with maladaptive interpersonal relationships, depression, anxiety, neuroticism, behavior problems, and violence, while high life satisfaction was positively correlated with self-esteem, self-efficacy, intrinsic motivation, healthy behaviors, and decreased substance use. Subjective well-being was also found to mitigate the deleterious impact of negative life events and stress, buffer against depression and suicide, and facilitate thriving through more adaptive coping mechanisms and emotional responses (see Park, 2004, for a full review). Similarly, Gilman (2001) reported that dissatisfaction with life among adolescents was linked to depression, anxiety, negative peer interactions, and substance abuse, while greater satisfaction with life was

associated with higher self-esteem, self-concept, self-mastery, and greater satisfaction with school experiences and relationships with family and friends.

Extracurricular activity participation can contribute greatly to psychological well-being and life satisfaction in youth (Gilman, 2001). Participation in extracurricular activities provides a context for the development of character and life skills, fosters the cultivation of interest, initiative, and intrinsic motivation, and can be a source of pleasure and engagement (Eccles et al., 2003; Feldman & Matjasko, 2007). In Australian adolescents, activity participants reported higher self-concept and self-worth than non-participants (Blomfield & Barber, 2009). For youth and adolescents, obtaining high social status, maintaining relationships and friendships, and peer acceptance are instrumental to their well-being, and are often cited as more salient than school performance (Eder & Kinney, 1995). Because extracurricular activities directly influence peer group associations, certain activities can elevate student visibility and social status within the schools and community, bolstering students' ability to build social capital (Broh, 2002).

Sport participation can teach transferrable life skills, such as time management, coping with stress,

character development, and leadership and communication skills (Gould & Carson, 2008) and has predicted better adolescent functioning, adjustment in several different domains, and well-being (Donaldson & Ronan, 2006). Sport participation served as a protective buffer against hopelessness and suicidality in adolescent girls and boys (Taliaferro, Rienzo, Pigg, Miller, & Dodd, 2009), and was associated with higher self-esteem in adolescent girls (Pedersen & Seidman, 2004), and found to protect against depressed mood associated with low grade point average and poor school performance among high school girls (Gore, Farrell, & Gordon, 2001).

Supporters of the functional perspective agree that sport is a fertile environment for teaching and learning social knowledge and competence, moral lessons of fair play, cooperation, teamwork, and winning and losing graciously. Additionally, athletic participation is often linked to elevated social status and membership in the leading crowd among youth and adolescents. Eder and Kinney (1995) summarized findings from early studies beginning in the 1960's, which supported the notion that athletic participation was valued and socially desirable, particularly among males, because it increased the likelihood that they would gain membership into the most

popular and influential crowd. However, social elevation through athletic participation is mediated by gender, and whether youth from each sex participated in gender-appropriate sports (Holland & Andre, 1994a, 1994b), by type of sport (e.g., interscholastic vs. intramural) (Broh, 2002), and school-specific variables (e.g., perceived social value of specific sports) (Gilman et al., 2004).

Regardless of the considerable body of research providing support for the benefit of sport programs with respect to positive youth development, there are several unfavorable effects to consider. First, "conflict theorists argue that while participation in school teams may result in a variety of positive outcomes, school sport is often detrimental to those individuals who do not participate and to the school organization, since it has the potential of increasing tension and antagonism between groups within the school" (Fejgin 2001, p. 97). Organized sport can have a converse effect to those students who do not possess athletic capabilities, leaving them feeling less proficient, and with lower self-concept than their athletic counterparts. This is true particularly because of the significant social status given to athletic youth among their peers.

Risk Behavior and Self-Regulation

The protective role of extracurricular activity participation can be theorized through a number of different lenses. As already discussed, partaking in activities enables students to learn valuable skills related to social, academic, and moral competencies, facilitates deeper connections with peers and adults, and aids in the marshalling of external and internal developmental assets. Recently, the construct of self-regulation has garnered the interest of researchers as another valuable psychological characteristic in lifespan development because of its association with risk-taking, deviance, delinquency, and other conduct problems, as well as health behaviors. High self-regulation was related to higher GPA, self-esteem, better social relationships, optimal emotional responses, as well as less psychopathology, binge eating, and alcohol abuse (Tangney, Baumeister, & Boone, 2004).

Duckworth and Seligman (2005) - the researchers who originally collected the data used for the current research study - intended to examine the relationship between self-discipline (here used interchangeably with self-regulation) and academic achievement among a group of academically gifted students. They found that self-discipline was a more

robust predictor of academic performance than IQ, and was able to predict which students' grades would improve over the course of the year. Further, eighth grade girls were more self-disciplined than their male peers, and earned higher grade point averages (Duckworth & Seligman, 2006). Self-regulation is not a fixed characteristic, but rather a malleable attribute that can be developed in traditional classroom-based settings through the acquisition of several component skills: 1) setting of proximal goals; 2) creating strategies to attain goals; 3) making adjustments to physical and social contexts so that they align with goals; 4) learning effective time use and management; 5) making attributions that connect effort to outcomes; and 6) integrating what was learned into future goal pursuits (Zimmerman & Ferrari, 2002; Zimmerman & Schunk, 2001).

Extracurricular activity contexts provide a natural forum for youth to gain these competencies through prompting youth to set goals, continually self-monitor, adjust and adapt goals as skills improve, and differentiate between the types of feedback and learn what to integrate and adapt, and thus can be considered a fertile domain for the development of self-regulation. A recent study by (Jonker, ElferinkGemser, & Visscher, 2009) demonstrated a close link between academic and athletic performance, and

suggested that self-regulation, developed through the goal-oriented and highly disciplined behaviors of athletes, could be the mechanism that explains the connection. In another study, higher levels of self-control were related to more participation in sports and physical activity (Wills, Isasi, Mendoza, & AINETTE, 2007).

Extracurricular activity participation has been shown to moderate the development of antisocial patterns, such as early school dropout and criminal arrest (Mahoney, 2000). In their comprehensive review of the literature, Feldman and Matjasko (2005) reported that, generally, participants were less likely to smoke cigarettes, use drugs, alcohol, and marijuana, and engage in sexually risky behavior, compared with non-participants. Barnes, Hoffman, Welte, Farrell, and Dintcheff (2007) found similar associations between extracurricular activity participation and reduced sexual activity, cigarette smoking, and drug use although they identified time spent with family as the greatest protective factor against all risk behaviors.

However, there are many studies that suggest that participation in sport fosters more deviant and risk-taking behavior compared with other activities (Eccles & Barber, 1999; Eccles et al., 2003; Snyder, 1994; Snyder & Spreitzer, 1974). Male and female high school senior athletes drank

and got drunk more often than non-athletes (Eccles et al., 2003). Using data from the 2005 Youth Risk Behavior Survey, Mays and Thompson (2009) reported that adolescent male sport participants were more likely to report heavy drinking than their non-athlete peers. Hughes and Coakley (1991) attempted to explain the pervasiveness of particular categories of deviant behavior, such as the use of steroids and other performance enhancing drugs, as a consequence of over-conforming to and internalization of the sport ethic. Some of the very same characteristics that hold youths' interest in sport can also influence deviant and criminal behavior. Some participants may look to satiate their sensation-seeking needs in outlets outside of the sport domain, and often through criminal behavior or abuse of illicit substances (Snyder, 1994).

Increased aggressive behavior was also exhibited more by athletes than their non-athlete peers (Mahoney & Stattin, 2000), especially among males (Kreager, 2007). Sport sociologists have contended that sport ethic and athletic identity plays a role in increased violent behavior because athletic participation, particularly in a mainstream sport like football and basketball, teaches athletes to be tough and aggressive. Nixon (1997) found that males who believed in the value of toughness in sport were more likely to

commit physically aggressive acts in everyday life, and that participation in a contact sport, such as football, increased the likelihood of both males and females exhibiting aggression outside of the sport arena (Nixon, 1997). These findings suggest that some athletes have a difficult time distinguishing the social contexts in which the use of aggression is acceptable from the social contexts and situations in which it is unacceptable.

Mediators/Moderators of Benefits

The study of activity participation and youth outcomes is inherently complex as it is difficult to isolate and systematically account for the multitude of social, interpersonal, developmental, and academic interactions and transactions that are taking place simultaneously in an adolescent's bioecological system. With extracurricular activities in general, the current empirical emphasis has been directed toward an integrated understanding of the environmental/contextual variables, dynamics of behavioral and psychological engagement, and moderating social-emotional characteristics and how they influence developmental outcomes (Rose-Krasnor, 2009). Several of the mediators/moderators that have been briefly noted will be expanded upon in this section of the literature review.

With each of these mediators/moderators, it is important to remember that they too cannot be neatly parsed out from one another. For example, socioeconomic status influences parent/child dynamics, which can also impact whether a child values a particular activity.

Socioeconomic Status

Socioeconomic status can first influence the availability of structured activities and participation rates, which in turn directly impact whether youth are even given the opportunity to augment their lives with these developmental experiences. There is some evidence that at-risk youth might benefit more from activity participation than youth not at-risk (Mahoney, 2000; Mahoney & Stattin, 2000) because they are less engaged with school, and because their parents are likely to take a less active role in their lives (Broh, 2002). For example, activity participation was found to moderate the effects of detached parent-adolescent relations - which are characterized by lack of parental interest, low levels of time spent together, and strained communication - on depressed mood in youth (Mahoney et al., 2002). Participation in activities similarly predicted life satisfaction for pregnant

adolescent females who were at risk for dropping out of school (Maton, 1990).

At-risk youth are also more likely to suffer the negative consequences of life events stress (Darling, 2005). In the face of challenges, many youth will grow and learn from their adversities by refining their coping skills and integrating their experiences into their increasingly complex and mature identities. However, life events are associated with a broad spectrum of negative outcomes, including pathology, psychological symptoms, risk-taking behaviors, substance abuse, delinquency, and poor school performance (Cowen, Pryor-Brown, Hightower, & Lotyczewski, 1991; Jackson & Frick, 1998). These findings are consistent with the theory that the compensatory role of extracurricular activities may be greater for youth who are starting with fewer internal and external developmental assets.

Conversely, youth from higher socioeconomic strata tend to start off with more developmental assets, such as positive parental relationships, greater resources allocated to their education and availability of school and community based activity programs, lower levels of life stress, and higher expectations for educational and occupational attainment. For more privileged youth, the

benefits of extracurricular activity participation may be markedly lower. In fact, parents from high-income, suburban communities often encourage youth to participate with the belief that it will promote their chances of gaining acceptance into some of the most competitive colleges and universities, or otherwise promote prestige and achievement (Luthar, Shoum, & Brown, 2006). While both at-risk and affluent families view activities, such as sport, as a means for upward mobility, several studies have suggested that the boost to educational and career aspirations is greater for low-income students than for high-income students (Darling, 2005).

Social Dynamics

Parental influences are not limited to adolescents from affluent areas. The developmental impact of activities is also influenced by the extent to which parents socially value their child's participation in a particular activity, parental attitudes around achievement versus enjoyment, and parental support. In a study of elementary school students, greater levels of perceived parental encouragement and support were associated with greater child activity participation, and also predicted affective dimensions of involvement: Increased parental pressure was associated

with decreased enjoyment in all activities (Anderson, Funk, Elliott, & Smith, 2003).

Peer contexts, associations, and connections are mediators of interest because social networks can determine the peer groups and norms that youth will associate with the most (Simpkins, Eccles, & Becnel, 2008), which will in turn influence the effects of activity participation on youth outcomes (Mahoney, 2000). The quality of relationships youth formed and maintained with other youth during participation mediated the outcomes associated with participation, that is, peers possessing positive characteristics would facilitate better adjustment (Simpkins et al., 2008). Another study echoed these findings: Youth who participated in clubs alongside higher achieving members were more likely to get their degrees, whereas clubs whose members did not perform as well academically did not appear to provide academic benefits (Lipscomb, 2007).

Coaches and adult leaders of youth programs are also important. To illustrate, Rutten and colleagues (2007) determined that variations in sociomoral environment and the quality of coach-athlete relationships contributed to the development of antisocial or prosocial behavior within organized sport contexts. Little league baseball

participants gained greater psychological benefits when they played with coaches who engaged in high levels of positive reinforcement for performance and effort, responded to mistakes with encouragement and technical instruction, and emphasized importance of enjoyment and mastery experiences (Smith & Smoll, 1990).

Patterns of Activity Participation

Youth are granted a multitude of opportunities to explore their talents and abilities through extracurricular activities throughout adolescence. Some researchers have noted that because participation can be sporadic or change from year to year, it is difficult to assess the impact of activities without accounting for changes or patterns in activity participation over time. To date, there have been only a handful of studies that have examined the cumulative effects of activity participation over the course of time. In their longitudinal study spanning eight years, Mahoney, Cairns, and Farmer (2003) found that consistent participation in extracurricular activities through adolescent years was positively related to educational status for both girls and boys later in life. Youth participation in at least one activity each year from 8th grade through 12th grade was related to college attendance,

and increased prosocial behaviors like voting and volunteering two years after 12th grade (Zaff, Moore, Papillo, & Williams, 2003). In their study, Randall and Bohnert (2009) reported that adolescents who spent more years or were involved in activities for a longer duration experienced the lowest levels of loneliness, social isolation, and peer victimization, although the effect was stronger for African American youth than for European American youth. Consistent participation affords youth the time necessary to forge deep and meaningful connections with supportive adults and peers (Fredricks & Eccles, 2006a), more deeply absorb the experiences associated with an activity context, and gain competency and comfort with their chosen activity (Fredricks & Eccles, 2006b).

There is also a growing body of research on the effects of different types of activities on youth outcomes. Many of these studies examine activities as singular phenomena with the assumption that participation in one activity mutually excludes participation in others. Because many youth partake in a wide variety of activities simultaneously, and at varying intensities over time, one of the most significant advances in research methodology in this area has been the examination of activity profiles (see Feldman & Matjasko, 2006). Using variable-centered

analyses, researchers have found that youth academic and psychosocial outcomes are influenced by duration, breadth, and total number of different activities (Fredricks & Eccles, 2006a). For example, Linver, Roth, and Brooks-Gunn (2009) recently found that sport participation, in addition to other activity, produced the most positive outcomes (academic risk, competence, character) in cluster analysis of youth activity profiles.

In youth sport, breadth of activities had differential effects: "Specializers" (who focus on playing just one sport) reported a deeper sense of community connection but higher levels of physical and emotional exhaustion, whereas "samplers" (who play more than one sport) reported greater exposure to diverse peer groups (Strachan, Cote, & Deakin, 2009). Several possible explanations have been proposed for these findings. Partaking in multiple activities might enable youth to balance out negative experiences of one activity with another, or generate more social capital through a variety of peer groups. Alternately, single-activity profiles may mean that youth are more seriously or more competitively engaged with that one activity, and therefore experience greater stress as a result of participation. As with other mediators, more research is

necessary to illuminate how patterns of participation affect youth outcomes.

Personal and Contextual Variables

Gilman and colleagues (2004) reminded researchers that simply getting an adolescent to participate in any activity is not sufficient for promoting positive outcomes. They argue that without accounting for a child's intrinsic interest in and enjoyment of that activity, and his or her self-concept of ability related to the activity, school psychologists and parents would be undermining the very mechanisms thought to promote positive outcomes. In Eccles' expectancy-value model, three other salient within-person variables were proposed: 1) beliefs about one's competence in a given activity; 2) expectations about how well one will do on upcoming tasks; and 3) assessments of the usefulness, importance, and interest in a specified activity (Wigfield & Eccles, 2000). These variables can influence motivation, persistence, enjoyment, and subsequent performance in any activity domain.

In research to date, little has been uncovered about the contextual differences in the qualitative experiences of different activities, which can be further influenced by other environmental factors, such as school size, the

extent to which activities are valued and supported by the school and community, perceptions of competitiveness and success within an activity group, and program quality. To illustrate, Pedersen and Seidman (2004) found that among urban, adolescent girls, higher levels of achievement in team sports predicted higher self-esteem, but this relationship was partially mediated by the girls' perceptions of competence and interest in team athletics. Activities related to the fine arts have been associated with outcomes such as increased social exposure and school identity even though these activities often have lower peer social status than athletics (McNeal, 1995). The interaction of activity with environmental factors such as perceived social value and personality characteristics need to be considered to arrive at a more nuanced picture of the role of activity participation in youth development (Guest & McRee, 2009).

Although the role of person-centered variables, such as personality, person-environment fit, and perceived value of activity participation have recently been recognized as critical areas for future research, there is little known about the impact of these variables on youth outcomes (Feldman & Matjasko, 2005; Rose-Krasnor, 2009). Therefore, models that weigh perceived personal value/enjoyment (like

Eccles' Expectancy Value Model) or congruence of activity choice with personality (like Person-Environment Fit model) into the beneficial or detrimental impact of extracurricular activities need to be tested in future research.

The Current Study

Several methodological and empirical contributions were made through the current study. First, a sample of academically gifted students from an economically and ethnically diverse population was examined in this study. Little is known about associations of activities with this specific population because much of the past research has focused on mid- to upper-class Caucasian, or low income, "at-risk" groups. Second, this study employed both longitudinal and cross-sectional perspectives, and examined activity participation as both concurrent phenomena and predictors of youth academic and psychosocial outcomes, accounting for sociodemographic variables. Only more recent studies have attempted to account for selection bias, which can greatly influence research findings. For example, Larson (2000) reported that several studies found a relationship between activity participation and higher self-esteem, locus of control, higher educational aspirations and achievement, and lower delinquency, but

once socioeconomic variables and parental support were taken into account, the effects were diminished because higher socioeconomic status and parental support alone predict better outcomes in youth and are considered confounding variables.

Third, students who provided the data for the current study reported their levels of activity participation in average minutes per week, a considerable improvement over many past studies, which have looked at activity participation as dichotomous variables. These data were used to test whether there is a curvilinear effect of time spent in activities relative to psychosocial and academic outcomes, and test for an over-scheduling effect. Several studies (e.g., Cooper, Valentine, Nye, & Lindsay, 1999; Marsh, 1992) found evidence for nonlinear effects of activity participation on academic outcomes, where too much activity yielded diminishing returns. Some argue that too many activities might be counterproductive to academic performance because time spent in activities can take away from time spent engaged in homework and other school related tasks (Gilman et al., 2004). More recently, Randall and Bohnert (2009) found that adolescents who engaged in activities in excess of 10 hours each week reported more depressive symptoms than those who did not participate at

all. The authors warn, however, against attributing increases in depression directly to over-involvement, and suggest that parental overemphasis on accomplishment may be what truly puts adolescents at risk for negative psychosocial outcomes related to activity participation.

Fourth, the protective role of extracurricular activity participation on the negative academic and psychosocial impact of life events stress was explored through this study. In Darling's (2005) study of high school students, higher levels of life events stress were related to greater substance abuse, higher depressive symptoms, and poorer academic performance. Despite Darling's hypothesis that extracurricular activity participation would buffer the negative impact of life events on youth outcomes, there was only modest evidence that activity participation attenuated substance abuse, and actually increased the negative association between life events and academic aspirations. Similar relationships between life events stress and academic and psychosocial outcomes were examined in this study with middle school aged youth.

Finally, the relationship between youth personality characteristics and activity participation will be described as a preliminary step to exploring person-

environment fit as another possible mediating variable of interest between activity participation and developmental outcomes. Neufeld and colleagues (2006) suggested that the dynamic interaction between a person and the environment, which has been explored in workplace and organizational psychology, remains a rather unstudied area relative to psychosocial and developmental outcomes. They proposed that congruence between person and environment can influence greater levels of engagement, satisfaction, enjoyment, and goal attainment. There are three basic assumptions that underlie the model of person-environment fit, which was first proposed by Holland (1966):

- 1) People tend to choose environments that are compatible with their personalities;
- 2) environments tend to reinforce and reward different patterns of abilities and interests;
- and 3) people tend to flourish in environments that are congruent with their dominant personality types (Feldman, Smart, & Ethington, 2004, p. 528).

If findings from this study hold Holland's assumptions true for extracurricular activity participation, they will better inform youth researchers on how to make more nuanced

and specialized recommendations in the applied realm, and possibly enable greater developmental benefits for children and adolescents. Through this study, the extent to which personality characteristics predict participation in specific activities was investigated as a preliminary step in proposing the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth.

CHAPTER 3

METHODOLOGY AND DATA ANALYSIS

The Purpose

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth, were also explored in this study. This chapter is comprised of the following sections: (a) research design, (b) participants, (c) instrumentation, (d) control and intervention groups, (e) procedures, and (f) data analysis.

Research Design

The current study employed secondary data analyses of existing data from a longitudinal research study. Dr. Angela Lee Duckworth, Assistant Professor of Psychology, originally conducted this study through the University of Pennsylvania. The intent of the study was to examine the development of character strengths in children, specifically, the role of self-discipline as a predictor of

academic achievement (Duckworth & Seligman, 2005). Dr. Duckworth granted permission to evaluate existing data for the purposes of this study.

Smith (2008) argued that secondary data analysis is not purely for the impoverished or idle researcher, and qualified the use of secondary analysis in educational research as having both potential pitfalls and advantages. Although a limitation of this approach is that it lacks the careful calculation and deliberate methodological planning that is involved with original research studies, there are many more potential societal, methodological, and theoretical benefits. Particularly with school-based research, where access to student data is largely restricted, secondary data analysis can provide robust opportunities for early researchers to expand knowledge without the resources and connections required to initiate an original study. It is, as the author describes, a "democratic research method" which can ensure that a broader scope of researchers have the opportunity for empirical study, and provides early career researchers with a chance to develop their competencies and interests (Smith, 2008).

With all phases of data collection complete, Dr. Angela Duckworth, the principal investigator of the current

study, granted permission for the use of the data. In the spring of 2009, several preliminary analyses were conducted on the data set to determine if further analyses would be warranted and worth pursuing. These analyses were conducted for one of the four cohorts in the sample for one wave of data collection, and the results of these analyses are included in *Appendix A*. Upon determining that there would be empirical value in using the data set to conduct further study, a protocol was submitted to Temple University's Office of Human Subjects Protection, and granted an exempt review and approval for protocol 12956 (see *Appendix B* for letter of approval).

This data set was unique in several ways. First, it included positive psychological measures not commonly used in previous research examining the role of extracurricular activity and youth development. For example, measures of self-discipline and life satisfaction were included as variables of interest. While other studies have focused on risk-behavior (like smoking, violent behavior, sexual risk-taking), the present dissertation examined the positive aspects of youth development as they related to extracurricular activity participation. Second, many of the previous activity participation studies used nationally representative samples with predominantly middle-upper

class Caucasian participants, or minority populations categorized as low-income/at-risk. Participants in the current study were academically gifted students from socioeconomically and ethnically diverse backgrounds. To date, there is a dearth of literature on the impact of extracurricular activity participation with relation to youth from this demographic, and this study contributed to a heightened understanding of the relationship of extracurricular activity and youth outcomes among youth from this population.

Participants

The participants were recruited from a public magnet school serving ethnically diverse students from 5th through 12th grades in Philadelphia. The school has a competitive admissions policy and selects academically gifted students from a wide range of family backgrounds, personality profiles, and interests. The original study participants consisted of four different cohorts of middle and high school students. However, the current study focused on the two cohorts of middle school youth:

1. Cohort I: Enrolled in the fall of 2002, at the start of their 5th grade year, and followed through fall of 2007 in their 10th grade year.
2. Cohort II: Enrolled in the fall of 2003, at the start of their 5th grade year, and followed through fall of 2007 in their 9th grade year.

Table 1 illustrates the specific waves (data collection time points) of data used for the present study, and the sample sizes associated with each cohort and wave.

Table 1

Data Collection by Cohort and Year

Year	2003-2004	2004-2005	2005-2006	2006-2007
Cohort I	6 (n=152)	7 (n=131)	8 (n=128)	9 (n=82)
Cohort II	5 (n=142)	6 (n=168)	7 (n=161)	8 (n=157)

Data were collected in the fall and spring semesters of each year. Sample sizes varied for each cohort for each year, and also varied for each of the statistical analyses conducted to address the proposed research questions. More detailed descriptions of data analysis procedures are included in the following sections.

Measures

Student self-report comprised the majority of the data collected. Academic data, including GPA, attendance, and performance on standardized exams were collected through school records. At specific waves, parents were also asked to complete questionnaires.

Demographic Data

Demographic data collected for students included gender, ethnicity, age, date of birth, household income, and free or reduced priced lunch status. Parents of the students provided demographic data for their children.

Inventory of Extracurricular Involvement

Students were asked to estimate the time spent (in average minutes per week) on three activities: sports/dance, music, and chess. These data were reported for both fall and spring semesters, and a sum of activity participation for the year was calculated from fall and spring data.

Academic Data

Grade Point Average. Student grade point averages (GPA) were calculated from grades recorded from all major subjects. The school provided quarterly report card data

throughout the year, which were then used to calculate a grade point average for the year. Grade point averages were then converted to percents for analyses.

Standardized Test Scores. Terra Nova scores, a standardized achievement designed by McGraw Hill Company to assess achievement in K-12 students, were collected for reading, language, math, and science (CTB/McGraw-Hill, 2001). The school provided test scores to the researchers from student academic records.

Psychosocial Measures: Well-Being

Huebner Life Satisfaction Scale (SLSS: Huebner, 1991b). The SLSS is a 7-item scale used to assess global life satisfaction in children. Students responded to each item using a 6-point Likert-type scale in which responses ranged from 1 (strongly disagree) to 6 (strongly agree). Items 3 and 4 were reverse scored. High scores on the SLSS represent high life satisfaction. Finally, all responses were averaged to yield a mean life satisfaction score between 1 and 6. See *Appendix C* for full measure.

In 1991, Huebner conducted a study to further validate the scale (Huebner, 1991a). Ten items used to assess satisfaction were interspersed with 20 additional items intended to measure affect, then administered to a sample

of 254 school-aged children in third through eighth grade. Huebner (1991a) found evidence for high internal consistency (alpha estimate of .86) for nine of the satisfaction items, and results from a principal components analysis confirmed that affective variables were independent of the satisfaction variables. This validation study contributed to refining of the SLSS scale, and clarified the conceptualization of life satisfaction for children and adolescents.

Positive and Negative Affect Scale for Children

(PANAS-C: Laurent et al., 1999): Students endorse 30 positive and negative emotions (e.g., delighted, active, afraid) using a 5-point Likert scale. This 30-item mood scale was developed to provide a brief measure of experienced positive and negative affect. Respondents were asked to rate the extent to which they experienced each particular emotion within a specified time period, with reference to a 5-point scale, which ranged from 1 (very slightly or not at all) to 5 (very much). See *Appendix D* for full measure.

The PANAS-C is adapted from the adult Positive and Negative Affect Schedule (PANAS: Watson, Clark, & Tellegen, 1988), which has demonstrated adequate internal consistency and evidence for construct validation and divergent

validity. Internal consistency reliabilities measured as alpha coefficients for each scale were acceptable, ranging from .86 to .90 for positive affect, and .84 to .87 for negative affect. The scales were also reasonably independent from each other, sharing only about 1% to 5% of their variance. Test-retest reliability for each scale was assessed after an 8-week interval, and no significant differences were found from comparisons. The researchers also concluded that the PANAS might be suitable as a measure of trait affect due to the high levels of stability of responses over time. Huebner and Dew (1995) conducted a preliminary validation of the PANAS with a group of 266 adolescents, and found similar psychometric properties. The PANAS demonstrated acceptable internal consistency (alpha = .84 for negative, and .85 for positive) with intercorrelations between the two scales at $-.14$ ($p > .01$).

Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965).

The RSE is a 10-item, unidimensional measure used to assess global self-esteem, with responses ranging on a four-point scale, from strongly agree to strongly disagree. The scale ranges from 0 to 30, and scores between 15 and 25 are within normal range, while scores below 15 suggest low self-esteem. For this study, mean scores were calculated by summing the responses and dividing by the number of items

on the survey. McCarthy and Hoge (1982) validated the scale using a sample of 103 students between grades 7th and 12th, and found acceptable reliability (alpha = .74), test-retest reliability (alpha = .77), and no significant differences between scores within a 7-month interval. See *Appendix E* for full measure.

Psychosocial Measures: Self-Discipline

Composite Self-Control. The original investigators for this research study, Duckworth and Seligman (2005, 2006), created a composite measure of self-control in an attempt to create a multidimensional assessment of self-discipline:

In the current investigation, we increased the validity of our self-discipline measure by creating a composite self-discipline score from parent, teacher, and self-report questionnaires and delay of gratification measures. Given the range of behaviors that require self-discipline and the limitations of any single measurement tool, we agree with Lucas & Baird (2006) that a comprehensive, multimethod battery of assessments is more reliable and meaningful than any

component measure alone (Duckworth & Seligman, 2006, p. 199).

The composite self-discipline score was derived from a combination of parent, teacher, and self-report questionnaires and delay of gratification measures:

We created a composite self-discipline score to increase validity and reduce multicollinearity. This composite self-discipline score was used in all subsequent analyses. We began by creating a composite self-reported self-discipline score as the mean of standardized scores for the Impulsivity subscale of the Eysenck I.6 Junior Questionnaire and the Brief Self-Control Scale. We then standardized this score and averaged it with standardized scores for teacher, parent, and delay of gratification measures. The internal reliability of this linear combination was $r = .96$, according to a formula specific to linear combinations of standardized scores (Nunnally, 1978) (Duckworth & Seligman, 2006, p. 201).

A full description of the component measures and the psychometric properties of each are described in detail in Duckworth and Seligman's article (2006).

Grit (Duckworth, Peterson, Matthews, & Kelly, 2007). A 12-item questionnaire was used to assess perseverance and passion for goals, and capture the attitudes and behaviors characteristic of high-achieving individuals. Items are rated on a 5-point scale from 1 (not at all like me) to 5 (very much like me). The scale was validated using an internet sample of 1,545 adult participants, and demonstrated high internal consistency ($\alpha = .85$). See *Appendix F* for full measure.

Life Events

Life Events Checklist (LEC: Johnson, McCutcheon, Sarason, & Spielberger, 1980). The LEC is a 46-item measure in which adolescents indicate the occurrence of stressful, major life events. A modified subset of 26 of the items was used for this study. Students were asked to indicate the presence or absence of the events, such as parental divorce, death of a loved one, and trouble with friends during the past year. See *Appendix G* for full measure.

Personality

Big Five Inventory (BFI; John & Srivastava, 1999). The BFI is a 44-item questionnaire that uses short phrases to measure Big Five personality traits (conscientiousness, agreeableness, extraversion, neuroticism, and openness). Participants endorse items such as "I see myself as someone who is talkative" using a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). Scale scores are computed as the participant's mean item response by adding all items scored on a scale and dividing by the number of items on the scale. See *Appendix H* for full measure.

The alpha reliabilities of the BFI scales typically range from .75 to .90 and average above .80. Test-retest reliabilities range from .80 to .90 over 3 months, with a mean of .85, and most intercorrelations among the five scales are low, rarely exceeding .30 (John & Srivastava, 1999). Benet-Martinez and John (1998) validated the BFI with a sample of college students and reported an alpha reliability mean of .83, and mean intercorrelations for the subscales at .19. Upon reviewing several longitudinal studies and meta-analyses, Caspi, Roberts, and Shiner (2005) found that the level of continuity and stability of personality differences in childhood and adolescence are remarkably consistent despite dramatic changes.

Procedures

The University of Pennsylvania's Office of Regulatory Affairs and Institutional Review Board approved human subjects and research protocol procedures in October 2002. In the original study, a letter and consent form were mailed to parents of all students. The letter explained the study procedures and solicited parental consent and student assent for the student's participation. The letter also emphasized that students could withdraw from the study without penalty at any time and for any reason. After two weeks, a second letter and consent form were mailed to each family for whom consent was not returned. Families who did not respond to the second letter were called at home. Only children for whom the researchers had both parent consent and student assent forms were eligible to participate.

All eligible students were administered paper and pencil questionnaires during their 15-minute homeroom period on consecutive school days. Directions and items were read aloud by either the Principal Investigator or homeroom teacher. The total estimated time necessary to complete all surveys was less than 90 minutes. The same procedures were followed during the fall and spring administration of questionnaires. There was minimal risk involved in this study. The assessment procedures were not

invasive and posed no physical threat to the participants. Participants were free to drop out of this study at any time without penalty, and confidentiality was assured at all phases of the project.

Data Analysis

The following section describes the subsets of data and analytical approaches used to address each specific aim and research hypotheses.

Study 1

To examine activity participation in 7th grade as a predictor of 8th grade outcomes, data for Study 1 consisted of merged data from two consecutive cohorts of 7th grade students (see Table 2). It was reasonable to expect that consecutive cohorts of students from the same school would not differ significantly from each other just one year apart. A series of chi-square and multivariate analysis of variance (MANOVA) were used to assess group differences at baseline. Cohort year was also entered into each regression equation as a predictor to account for baseline differences between the two groups.

Table 2

Data Analyzed for Study 1

Year	2003-2004	2004-2005	2005-2006	2006-2007
Cohort I	6 (n=152)	7 (n=131)	8 (n=128)	9 (n=82)
Cohort II	5 (n=142)	6 (n=168)	7 (n=161)	8 (n=157)

Specific Aim 1: The longitudinal relationship between extracurricular activity participation and youth academic and psychosocial outcomes, and differences in outcomes based on involvement with individual activities and total time spent involved with activities, were examined through specific aim 1.

Research Question 1.1: What is the relationship between extracurricular activity participation and youth academic and psychosocial outcomes? Descriptive statistics and Pearson correlations were used to provide an overall picture of participation rates in 7th grade.

Hypothesis 1.1: Activity participation in 7th grade will predict school performance in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status), and cohort were entered as predictors of each of the following: grade point average, and Terra Nova scores for reading, language, math,

and science. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity.

Multivariate associations can better capture the full network of relations among predictors and criteria, and are considered generally superior to univariate correlations for this reason (Stevens, 2002; Tabachnick & Fidell, 2007). Therefore, data were analyzed using a direct-entry (standard) multiple regression analysis (MRA) to determine whether each predictor made a statistically significant unique contribution. Effect sizes were calculated for the predictors using Cohen's (1988) f^2 , where values of .02 represent a small effect, values of .15 equal a medium effect, and values of .35 denote a large effect. Many statisticians have cautiously argued that the relative contribution of each of the significant predictors can be compared using standardized regression coefficients (e.g., Cohen, Cohen, West, & Aiken, 2003). Therefore, the effect sizes of the unique contributions were then compared using standardized regression coefficients. Coefficients "above .05 are considered small but meaningful; those above .10 are considered moderate, and those above .25 are considered large" (Keith, 2006, p. 62).

Hypothesis 1.2: Activity participation in 7th grade will predict well-being in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status), and cohort were entered as predictors of each of the following: life satisfaction, positive and negative affect, and self-esteem. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Direct entry multiple regressions were used to determine whether each predictor made a statistically significant unique contribution.

Hypothesis 1.3: Activity participation in 7th grade will predict self-discipline in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status), and cohort were entered as predictors of grit and composite self-discipline. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Direct entry multiple regressions were used to determine whether each predictor made a statistically significant unique contribution.

Hypothesis 1.4: There will be a curvilinear relationship between the level of extracurricular activity involvement and academic and psychosocial benefits for youth. This analysis tested for an “over-scheduling” effect to determine if there might be any negative outcomes associated with too much involvement. Curve estimation software in SPSS was employed to explore the possibility of a nonlinear relationship between total time spent in activity participation and academic and psychosocial outcomes. According to Garson (2009), curve estimation can be used as an exploratory tool to assess relative goodness of fit to compare models (linear, logarithmic, inverse, quadratic, cubic, power, compound, S-curve, logistic, growth, and exponential) where a single independent variable is used to predict a single outcome.

STUDY 2

To investigate the potential role of extracurricular activity as a protective buffer against life events and explore personality/activity fit as a mediator of benefits, data from two cohorts of students were used for Study 2. As with Study 1, the first two waves of data collection were completed during academic year 2002-2003. Because the measures for two of the criterion variables (Life Events

Checklist and Big Five Inventory) were each only administered once at two different waves of data collection, the two cohorts were analyzed together despite the fact that they were one year apart in school grade. While this may pose a limitation to the study findings, other studies have examined middle school youth as a collective group. The birthdays for the combined group spanned approximately 18 months (1/11/1991 - 6/4/1992). Although students were from different school years, the participants' chronological ages were relatively close together. A series of chi-square and multivariate analysis of variance (MANOVA) were used to assess statistically and practically significant differences between the two cohorts.

The analyses for Study 2 were focused on the exploratory portion of this study. Extracurricular activity participation as a protective factor against the deleterious effects of negative life events was explored through specific aim 2. The relationship between activity participation and youth personality traits was described as a preliminary step in exploring the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth through specific aim 3.

The results of these two aims informed future research and contributed to two relatively unexplored areas in extracurricular activity research.

Specific Aim 2. To examine the potential role of activity participation as a protective factor against negative outcomes, data from two cohorts of middle school students from school year 2004 - 2005 were analyzed. Cohort 1 consisted of 6th grade students, while cohort 2 consisted of 7th grade students (see Table 3). A series of chi-square and multivariate analysis of variance (MANOVA) were used to assess group differences at baseline. Cohort year was also entered into each regression equation as a predictor to account for baseline differences between the two groups.

Table 3

Data Analyzed for Study 2: Specific Aim 2

Year	2003-2004	2004-2005	2005-2006	2006-2007
Cohort I	6 (n=152)	7 (n=131)	8 (n=128)	9 (n=82)
Cohort II	5 (n=142)	6 (n=168)	7 (n=161)	8 (n=157)

Hypothesis 2: Extracurricular activity participation will protect youth from the negative effects of life events. Extracurricular activity participation (sport, music, chess) in school year 2004 - 2005, along with gender,

ethnicity, SES (determined by free or reduced price lunch status), cohort, and scores on the life events checklist were entered as predictors of each of the following: grade point average, and Terra Nova scores for reading, language, math, and science. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity.

To assess the relationship between activity participation and psychosocial outcomes, extracurricular activity participation (sport, music, chess) in school year 2004 - 2005, along with gender, ethnicity, SES (determined by free or reduced price lunch status) cohort, and scores on the life events checklist were entered as predictors of each of the following: 1) well-being (life satisfaction, positive and negative affect, and self-esteem); and 2) self-discipline (grit and composite self-control). The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity.

Specific Aim 3. To describe the relationship between youth personality characteristics and activity participation as a preliminary step in examining the potential role of personality/activity fit as a determinant of positive outcomes, follow up data from school year 2005

- 2006 from the same two cohorts used in specific aim 2 were analyzed. Cohort 1 consisted of 7th grade students, while cohort 2 consisted of 8th grade students (see Table 4). Cohort year was entered into each regression equation as a predictor to account for baseline differences between the two groups.

Table 4

Data Analyzed for Study 2: Specific Aim 3

Year	2003-2004	2004-2005	2005-2006	2006-2007
Cohort I	6 (n=152)	7 (n=131)	8 (n=128)	9 (n=82)
Cohort II	5 (n=142)	6 (n=168)	7 (n=161)	8 (n=157)

Hypothesis 3: Specific youth personality

characteristics will be associated with the type of activity in which they participate the most. For example, youth participating in sport are more likely to be extraverted than youth participating in chess. Pearson correlations will be used to assess the relationship between the five dimensions of personality measured through the Big Five Inventory (conscientiousness, agreeableness, extraversion, neuroticism, and openness).

CHAPTER 4

RESULTS AND DISCUSSION

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study.

Study 1

To examine activity participation in 7th grade as a predictor of 8th grade outcomes, data for Study 1 consisted of merged data from two consecutive cohorts of 7th grade students (see Table 2). It was reasonable to expect that consecutive cohorts of students from the same school would not differ significantly from each other just one year apart. A series of chi-square and multivariate analyses of variance (MANOVA) were used to assess group differences at baseline. Cohort year was also entered into each regression equation as a predictor to account for baseline differences between the two groups.

Demographic Information

An overview of the demographic information for participants of study 1 is provided in Table 5. Data from a total of 287 participants were included for analyses in study 1. Cohort 1 had 129 participants, and cohort 2 had 158 participants. Across both cohorts, there were 130 males and 157 females in this study. For ethnicity, 150 participants reported themselves as Caucasian, 62 as African American, 16 as Hispanic, 38 as Asian, and 2 as other.

Socioeconomic status was derived from free-reduced price lunch status. According to the National School Lunch Program Fact Sheet on the United States Department of Agriculture's website, the following guidelines must be met in order to qualify for free or reduced price lunch: "Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals" (USDA, 2010).

Chi-square analysis revealed no statistically significant differences between students in cohort 1 and cohort 2 by any of the demographic variables. Summary data

on students' demographic characteristics and chi-square analyses are contained in Table 5.

Table 5

Summary Demographics and Cohort Comparisons for Study 1

	Total		Cohort 1		Cohort 2		Chi-Square	
	(n = 287)		(n = 129)		(n = 158)			
	n	%	n	%	n	%	x²	sig
Gender								
Male	130	45.3	57	44.2	73	46.2		
Female	157	54.7	72	55.8	85	53.8	.117	.733
Total	287	100.0	129	100.0	158	100.0		
Race								
White	150	52.3	76	58.9	74	46.8		
Black	62	21.6	27	20.9	35	22.2		
Hispanic	16	5.6	10	7.8	6	3.8		
Asian	38	13.2	14	10.9	24	15.2	5.975	.201
Other	2	.7	0	0	2	1.3		
Total	287	93.4	127	98.4	141	89.2		
Lunch								
No Subsidy	223	77.7	102	79.1	121	76.6		
Free/Reduced Price	63	22.0	26	20.2	37	23.4	.397	.529
Total	287	99.7	128	99.2	158	100.0		

Outcomes

Table 6 contains descriptive statistics for each of the academic and psychosocial outcome variables.

Table 6

Summary of Seventh Grade Outcomes

	Study 1		Cohort 1		Cohort 2	
	n	M (SD)	n	M (SD)	n	M (SD)
Academic						
GPA	253	87.87 (6.24)	125	87.30 (6.17)	128	88.43 (6.28)
Reading	277	77.29 (12.20)	124	78.36 (13.03)	153	76.41 (11.44)
Language	277	80.36 (12.37)	124	79.98 (13.04)	153	80.67 (11.30)
Math	277	82.86 (12.08)	124	79.94 (11.67)	153	85.22 (11.92)
Science	276	73.98 (13.64)	124	72.90 (13.35)	152	74.87 (13.62)
Well-Being						
Life Satisfaction	275	4.73 (.95)	125	4.65 (.93)	150	4.79 (.97)
Positive Affect	276	3.66 (.73)	125	3.64 (3.70)	151	3.68 (.78)
Negative Affect	276	1.98 (.72)	125	2.07 (.78)	151	1.91 (.66)
Self Esteem	270	3.21 (.56)	122	3.13 (.55)	148	3.28 (.55)
Self-Discipline						
Grit	287	3.25 (.58)	123	3.26 (.54)	150	3.25 (.61)
Self-Control	232	.00 (.63)	129	-.02 (.61)	158	.02 (.64)

Based on means, the grade point averages and standardized test scores for students in this cohort are generally very high and representative of academically gifted students.

A series of multivariate analyses of variance (MANOVA) were used to determine if there were cohort differences at

baseline. Table 7 summarizes the results. At grade 7, the results of the MANOVA revealed that there was a statistically significant difference between students from cohort 1 and cohort 2 on academic outcomes ($F = 5.95$, $p = .000$, $\eta^2 = .109$).

Table 7

MANOVA Summary Table for Academic Outcomes by Cohort

	SS	df	MS	F	Sig.	η^2
GPA Grade 7	74.943	1	74.943	1.921	.167	.008
Reading Grade 7	485.520 ^a	1	485.520	3.388	.067	.014
Language Grade 7	25.165	1	25.165	.163	.687	.001
Math Grade 7	1970.165	1	1970.165	14.270	.000	.055
Science Grade 7	479.940	1	479.940	2.706	.101	.011

a. R Squared = .014 (Adjusted R Squared = .010)

However, the differences were isolated to scores on the Terra Nova math exam. Students in cohort 2 scored significantly higher on the Terra Nova math exam than students from cohort 1 ($F = 14.27$, $p = .000$, $\eta^2 = .055$). There were no statistically significant differences between students from cohort 1 or cohort 2 on reading, language, and science scores on the Terra Nova. Based on the results of MANOVA, there were no statistically significant differences between the two cohorts on any of the well-

being ($F = 1.31, p = .267, \eta^2 = .020$) and self-discipline ($F = .189, p = .828, \eta^2 = .001$) outcomes.

Study 1: Results for Specific Aim 1

The longitudinal relationship between extracurricular activity participation and youth academic and psychosocial outcomes, and differences in outcomes based on involvement with individual activities, and total time spent involved with activities, will be described in the following series of analyses.

Results for Research Question 1

What is the relationship between extracurricular activity participation and youth academic and psychosocial outcomes? Descriptive statistics and Pearson correlations were used to provide an overall picture of participation rates in 7th grade.

Time Spent in Activities. On the survey, students were asked to report on the average amount of time (in minutes) they participated in sport/dance, music, or chess each week. The total amount of time engaged in any extracurricular activity was calculated by summing the average time (in minutes) for each activity. Sport participation was the most popular activity, followed by music and then lastly by

chess. Table 8 summarizes data on time spent in activity participation.

Table 8

Minutes Spent in Activities in Seventh Grade

		SPORT	MUSIC	CHESS	SUM
Male	Mean	436.15	135.69	87.69	659.54
N = 130	(SD)	(331.49)	(208.05)	(231.13)	(554.03)
Female	Mean	333.25	152.48	27.52	513.25
N = 157	(SD)	(304.84)	(240.43)	(109.23)	(420.46)
No Subsidy or Applied/Denied	Mean	397.13	157.94	60.81	615.87
N = 223	(SD)	(337.08)	(238.03)	(195.25)	(509.78)
Free or Reduced Price Lunch	Mean	308.57	91.43	28.57	428.57
N = 63	(SD)	(234.33)	(161.59)	(80.54)	(343.47)
White	Mean	454.00	156.00	77.60	687.60
N = 150	(SD)	(328.30)	(221.03)	(223.37)	(530.48)
Black	Mean	319.36	126.77	20.32	466.45
N = 62	(SD)	(331.28)	(193.47)	(59.45)	(404.11)
Hispanic	Mean	348.75	93.75	48.75	491.25
N = 16	(SD)	(321.41)	(195.92)	(110.02)	(404.11)
Asian	Mean	216.32	187.89	45.79	450.00
N = 38	(SD)	(183.77)	(324.21)	(160.53)	(469.70)
Other	Mean	570.00	90.00	.00	590.82
N = 2	(SD)	(127.28)	(230.46)	(.00)	(496.06)

Differences by Gender. MANOVA analyses revealed statistically significant differences in activity participation by gender ($F = 5.41$, $p = .001$, $\eta^2 = .054$). Males spent significantly more time participating in sport ($F = 7.49$, $p = .007$, $\eta^2 = .026$) and significantly more time playing chess ($F = 8.39$, $p = .004$, $\eta^2 = .029$) than females.

Overall, males spent significantly more time participating in total activities than females ($F = 6.46$, $p = .012$, $\eta^2 = .022$).

Differences by Socioeconomic Status. There were statistically significant differences in time spent involved in activities based on socioeconomic status ($F = 2.62$, $p = .051$, $\eta^2 = .027$). Students of higher socioeconomic status (defined as having no lunch subsidy or having applied and denied for a lunch subsidy) spent significantly more time involved with activities than students of lower socioeconomic status (defined as receiving free or reduced price lunches). Higher SES students spent significantly more time participating in sport ($F = 3.82$, $p = .052$, $\eta^2 = .013$), in music ($F = 4.35$, $p = .038$, $\eta^2 = .015$), and in all activities ($F = 7.53$, $p = .006$, $\eta^2 = .026$) than their peers of lower socioeconomic status.

Differences by Ethnicity. A multivariate analysis of variance (MANOVA) for activity participation revealed activity participation differed significantly based on ethnicity ($F = 2.92$, $p = .002$, $\eta^2 = .032$). The two participants categorized as "other" ethnicity were not included in the MANOVA. There were significant differences in time spent participating in sport ($F = 7.12$, $p = .000$, $\eta^2 = .075$) and total amount of time spent in total activities

($F = 4.58$, $p = .004$, $\eta^2 = .050$). Ethnicity accounted for approximately 6% of the variance in time spent involved in sport, and approximately 4% of the variance in total time spent involved in all activities. Table 9 summarizes the results of the multivariate analysis of variance for activity participation.

Table 9

MANOVA Summary Table for Participation by Race

Dependent Variable	SS	df	MS	F	Sig.	η^2
Sport Grade 7	2081721.483 ^a	3	693907.161	7.115	.000	.075
Music Grade 7	144038.582	3	48012.861	.897	.443	.010
Chess Grade 7	152672.895	3	50890.965	1.518	.210	.017
Total Activity Grade 7	3276045.585 ^b	3	1092015.195	4.584	.004	.050

a. R Squared = .075 (Adjusted R Squared = .065)

b. R Squared = .050 (Adjusted R Squared = .039)

Post-hoc analyses using Tukey HSD revealed that Asian students and Black students spent significantly less time engaged in sport or dance than their White peers in 7th grade. There were no statistically significant differences in time spent involved in sport participation among the other comparisons. Table 10 summarizes the findings from the post-hoc comparisons for sport.

Table 10

Post-Hoc Testing for Sport/Dance by Ethnicity

Ethnicity	Means	Asian	Black	Hispanic	White
Asian	216.32	-			
Black	319.36	.380	-		
Hispanic	348.75	.486	.987	-	
White	454.00	.000*	.024*	.576	-

Post-hoc analyses using Tukey HSD revealed that Black students spent significantly less time engaged in all activities than their White peers in 7th grade. There were no statistically significant differences in time spent involved in sport participation among the other comparisons. Table 11 summarizes the findings from the post-hoc comparisons for total time spent involved in activities.

Table 11

Post Hoc Testing for Total Activity by Ethnicity

Ethnicity	Means	Asian	Black	Hispanic	White
Asian	450.00	-			
Black	466.45	.998	-		
Hispanic	491.25	.992	.998	-	
White	687.60	.039*	.016*	.421	-

Concurrent Correlations between Activity and Youth

Outcomes. Pearson correlations were calculated to examine the relationship between extracurricular activity participation in 7th grade and 7th grade academic outcomes. Table 12 summarizes findings for academic outcomes.

Table 12

Bivariate Correlations for Academic Outcomes (Concurrent)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
GPA Grade 7	Pearson Correlation	.012	.109	-.014	.052
	Sig. (2-tailed)	.849	.083	.822	.409
	N	253	253	253	253
Reading Grade 7	Pearson Correlation	-.059	.280**	.116	.133*
	Sig. (2-tailed)	.328	.000	.053	.027
	N	277	277	277	277
Language Grade 7	Pearson Correlation	-.052	.130*	.058	.047
	Sig. (2-tailed)	.388	.031	.339	.438
	N	277	277	277	277
Math Grade 7	Pearson Correlation	.059	.133*	.035	.112
	Sig. (2-tailed)	.331	.027	.566	.063
	N	277	277	277	277
Science Grade 7	Pearson Correlation	.055	.256**	.109	.193**
	Sig. (2-tailed)	.364	.000	.072	.001
	N	276	276	276	276

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Music participation in 7th grade was the only type of activity participation that was correlated with better academic outcomes. Seventh grade participation in music was associated with higher scores on the Terra Nova math,

language, reading, and science scores in 7th grade. Sport participation in 7th grade was not correlated with any of the academic outcomes in 7th grade. Total time spent involved in all activities in 7th grade was correlated with higher scores on Terra Nova reading and science in 7th grade.

Pearson correlations were used to assess concurrent and longitudinal relationships between activity participation in 7th grade, and well-being, defined as life satisfaction, positive and negative affect, and self-esteem in 7th grade. Table 13 summarizes findings for well-being.

Table 13

Bivariate Correlations for Well-Being (Concurrent)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
Life Satisfaction Grade 7	Pearson Correlation	.211**	-.025	.010	.130*
	Sig. (2-tailed)	.000	.684	.863	.032
	N	275	275	275	275
Positive Affect Grade 7	Pearson Correlation	.183**	.007	-.020	.115
	Sig. (2-tailed)	.002	.905	.735	.057
	N	276	276	276	276
Negative Affect Grade 7	Pearson Correlation	-.119*	.007	.004	-.073
	Sig. (2-tailed)	.047	.914	.941	.226
	N	276	276	276	276
Self-Esteem Grade 7	Pearson Correlation	.199**	.035	.043	.161**
	Sig. (2-tailed)	.001	.564	.483	.008
	N	270	270	270	270

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

More time spent in sport/dance participation in 7th grade correlated with higher levels of life satisfaction, more positive affect, less negative affect, and higher self-esteem in 7th grade. Music and chess participation were not related to any of the well-being variables in 7th grade. Students who spent more total time engaged in activities in 7th grade reported higher life satisfaction and self-esteem in 7th grade.

Pearson correlations were used to assess concurrent and longitudinal relationships between activity participation in 7th grade, and grit and self-discipline in 7th grade. Table 14 summarizes findings for self-discipline.

Table 14

Bivariate Correlations for Self-Discipline (Concurrent)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
Grit Grade 7	Pearson Correlation	.239**	.118	.040	.225**
	Sig. (2-tailed)	.000	.051	.509	.000
	N	273	273	273	273
Self Control Grade 7	Pearson Correlation	-.007	.116*	.029	.059
	Sig. (2-tailed)	.902	.049	.624	.316
	N	287	287	287	287

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Sport participation in 7th grade was correlated with higher levels of grit in 7th grade. Greater time spent in music in 7th grade was related to higher levels of self-

control in 7th grade. More time spent involved in activities was related to higher levels of grit in 7th grade.

Longitudinal Correlations between Activity and Youth Outcomes. Pearson correlations were calculated to examine the relationship between extracurricular activity participation in 7th grade and 8th grade academic outcomes. Table 15 summarizes findings for academics.

Table 15

Bivariate Correlations for Academic Outcomes (Longitudinal)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
GPA	Pearson Correlation	.009	.104	.055	.073
Grade 8	Sig. (2-tailed)	.889	.101	.388	.252
	N	251	251	251	251
Reading	Pearson Correlation	-.058	.239**	.062	.095
Grade 8	Sig. (2-tailed)	.339	.000	.309	.118
	N	275	275	275	275
Language	Pearson Correlation	-.096	.147*	.008	.008
Grade 8	Sig. (2-tailed)	.112	.015	.890	.890
	N	275	275	275	275
Math	Pearson Correlation	-.054	.215**	.114	.105
Grade 8	Sig. (2-tailed)	.370	.000	.059	.083
	N	275	275	275	275
Science	Pearson Correlation	.050	.218**	.127*	.178**
Grade 8	Sig. (2-tailed)	.412	.000	.035	.003
	N	275	275	275	275

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Again, music participation in 7th grade was the only type of activity participation that was correlated with

higher academic outcomes, and was associated with higher scores on the Terra Nova math, language, reading, and science scores in 8th grade. Sport participation in 7th grade was not correlated with any of the academic outcomes in 8th grade. Chess participation and total time spent involved in all activities in 7th grade were associated with higher Terra Nova science scores in 8th grade.

Pearson correlations were used to assess concurrent and longitudinal relationships between activity participation in 7th grade, and well-being, defined as life satisfaction, positive and negative affect, and self-esteem in 8th grade. Table 16 summarizes findings for well-being.

Table 16

Bivariate Correlations for Well-Being (Longitudinal)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
Life Satisfaction Grade 8	Pearson Correlation	.183**	.008	-.053	.103
	Sig. (2-tailed)	.003	.903	.389	.096
	N	262	262	262	262
Positive Affect Grade 8	Pearson Correlation	.214**	.017	-.057	.125*
	Sig. (2-tailed)	.000	.786	.355	.042
	N	265	265	265	265
Negative Affect Grade 8	Pearson Correlation	-.060	.036	.155*	.034
	Sig. (2-tailed)	.327	.555	.012	.581
	N	265	265	265	265
Self-Esteem Grade 8	Pearson Correlation	.083	.023	-.060	.042
	Sig. (2-tailed)	.182	.710	.338	.505
	N	258	258	258	258

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

More time spent in sport/dance participation in 7th grade correlated with higher levels of life satisfaction and higher levels of self-reported positive affect in 8th grade. Music participation in 7th grade was not related to well-being in 8th grade. For chess, greater time spent participating in 7th grade was associated with higher levels of self-reported negative affect in 8th grade. Students who spent more total time engaged in activities in 7th grade reported higher levels of positive affect in 8th grade.

Pearson correlations were used to assess longitudinal relationships between activity participation in 7th grade, and grit and self-discipline in 8th grade. Table 17 summarizes findings for self-discipline.

Table 17

Bivariate Correlations for Self-Discipline (Longitudinal)

		Grade 7 Sport	Grade 7 Music	Grade 7 Chess	Grade 7 Sum
Grit Grade 8	Pearson Correlation	.142*	.079	.011	.132*
	Sig. (2-tailed)	.022	.202	.856	.033
	N	263	263	263	263
CSC Grade 8	Pearson Correlation	-.043	.162**	.097	.082
	Sig. (2-tailed)	.475	.007	.106	.174
	N	277	277	277	277

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Sport participation in 7th grade was correlated with higher levels of grit in 8th grade. Greater time spent in music was related to higher levels of self-control in 8th grade. More time spent involved in activities was related to higher levels of grit in 8th grade.

Results for Hypothesis 1.1

Activity participation in 7th grade will predict school performance in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status) and cohort were entered as predictors of each of the following: grade point average, and Terra Nova scores for reading, language, math, and science. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Results from the MRA are summarized in Table 18.

Extracurricular activity participation in 7th grade did not make a statistically significant contribution to predicting grade point average in 8th grade.

Table 18

Activity Participation in Seventh Grade Predicting School Performance in Eighth Grade

Predictor	Eight-Grade Criterion				
	GPA	Reading	Language	Math	Science
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.067	-.158*	-.149*	-.097	-.119
Hispanic	-.032	-.100	-.001	.012	-.022
Asian	.164*	-.028	-.082	.170**	.076
Gender	.007	-.038	.192***	.001	-.158**
SES	-.197**	-.158*	-.222***	-.157*	-.121
Cohort	.06	-.080	.043	-.036	-.174**
Sport Grade 7	-.002	-.125*	-.130*	-.083	-.006
Music Grade 7	.061	.224***	.126*	.167*	.193***
Chess Grade 7	.033	-.027	.011	.053	-.005
Overall Model					
<i>R</i>	.299**	.378***	.393***	.347***	.380***
<i>R</i> ²	.090	.143	.154	.120	.144
<i>f</i> ²	.099	.167	.182	.136	.168

Note: $N = 250$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$

For reading, the overall association was statistically significant, $F(9, 264) = 4.89$, $p = .000$. Sport ($p = .05$) and music ($p = .001$) participation in 7th grade made statistically significant, unique contributions to the prediction of Terra Nova reading scores in 8th grade. However, sport was negatively related, while music was positively related to 8th grade reading. Regression coefficients for music participation in 7th grade represented the largest unique contribution to the equation,

and approached a large effect size. The linear combination of the predictors for reading ($f^2 = .167$) represented a medium effect size.

For language, the overall association was statistically significant, $F(9, 264) = 5.36, p = .000$. Sport ($p = .05$) and music ($p = .05$) participation in 7th grade made statistically significant, unique contributions to the prediction of Terra Nova reading scores in 8th grade. Similar to reading scores, sport was negatively related, while music was positively related to 8th grade language. Regression coefficients for both music and sport participation in 7th grade represented a moderate effect size. The linear combination of the predictors for reading ($f^2 = .182$) represented a medium effect size.

For math, the overall association was statistically significant, $F(9, 264) = 4.02, p = .000$. Music ($p = .006$) participation in 7th grade made a positive, statistically significant, unique contribution to the prediction of Terra Nova math scores in 8th grade, and represented a moderate effect size. The linear combination of the predictors for math ($f^2 = .136$) represented a medium effect size.

For science, the overall association was statistically significant, $F(9, 264) = 4.94, p = .000$. Music ($p = .001$) participation in 7th grade made a positive, statistically

significant, unique contribution to the prediction of Terra Nova science scores in 8th grade, and represented a medium to large effect size. The effect size for the linear combination of the predictors for math ($f^2 = .168$) represented a medium effect size.

Total time spent involved across all three activities in 7th grade did not make any statistically significant contributions to predicting academic outcomes in 8th grade. Table 19 summarizes results from the regressions.

Table 19

Total Activity Participation in Seventh Grade Predicting School Performance in Eighth Grade

Predictor	Eight-Grade Criterion				
	GPA	Reading	Language	Mathematics	Science
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.064	-.139*	-.136*	-.084	-.107
Hispanic	-.032	-.097	.001	.014	-.021
Asian	.175**	.018	-.047	.207***	.103
Gender	.012	-.004	.212***	.019	-.134*
SES	-.199**	-.177**	-.234***	-.169**	-.134*
Cohort	.056	-.082	.031	-.050	-.170**
Total Activity Grade 7	.058	.036	-.010	.077	.117
Overall Model					
<i>R</i>	.295**	.297***	.356***	.299***	.349***
<i>R</i> ²	.087	.088	.126	.090	.121
<i>f</i> ²	.095	.096	.144	.099	.138

Note: $N = 250$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

Results for Hypothesis 1.2

Activity participation in 7th grade will predict well-being in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status) and cohort were entered as predictors of each of the following: life satisfaction, positive and negative affect, and self-esteem. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Direct entry multiple regressions were used to determine whether each predictor made statistically significant unique contributions. Results from the MRA are summarized in Table 20.

Extracurricular activity participation in 7th grade did not make a statistically significant contribution to predicting life satisfaction or self-esteem in 8th grade. For positive affect, the overall association was statistically significant, $F(9, 254) = 4.89, p = .007$. Sport ($p = .000$) participation in 7th grade made a statistically significant, unique contribution to the prediction of positive affect in 8th grade. Regression coefficients for sport participation in 7th grade represented the largest unique contribution to the equation, and approached a large effect size. However, the linear

combination of the predictors for positive affect ($f^2 = .092$) represented a small to medium effect size.

Table 20

Activity Participation in Seventh Grade Predicting Well-Being in Eighth Grade

Predictor	Eight-Grade Criterion			
	Life Satisfaction	Positive Affect	Negative Affect	Self-Esteem
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black		.027	-.136*	
Hispanic		-.006	-.055	
Asian		-.044	-.151*	
Gender		.035	.075	
SES		.135*	-.004	
Cohort		.092	-.146*	
Sport Grade 7		.234***	-.105	
Music Grade 7		.025	.014	
Chess Grade 7		-.068	.141*	
Overall Model				
<i>R</i>	.216 ¹	.289**	.298**	.217 ²
<i>R</i> ²	.047	.084	.089	.047
<i>f</i> ²	.049	.092	.098	.049

Note: $N = 263$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

¹The overall analysis was not statistically significant ($p = .202$).

²The overall analysis was not statistically significant ($p = .212$).

For negative affect, the overall association was statistically significant, $F(9, 254) = 2.75$, $p = .004$. Chess ($p = .032$) participation in 7th grade made a statistically significant, unique contribution to the prediction of negative affect in 8th grade. Regression

coefficients for chess participation in 7th grade represented a moderate effect size. However, the linear combination of the predictors for negative affect ($f^2 = .098$) represented a small to medium effect size.

Total time spent involved across all three activities in 7th grade made a statistically significant contribution to predicting positive affect in 8th grade. Table 21 summarizes results from the regressions.

Table 21

Total Activity Participation in Seventh Grade Predicting Well-Being in Eighth Grade

Predictor	Eight-Grade Criterion			
	Life Satisfaction	Positive Affect	Negative Affect	Self-Esteem
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black		.021	-.134*	
Hispanic		-.010	-.053	
Asian		-.075	-.127	
Gender		.035	.069	
SES		.140*	-.006	
Cohort		.125*	-.180**	
Total Activity Grade 7		.153**	.012	
Overall Model				
<i>R</i>	.145 ¹	.233*	-.253**	.200 ²
<i>R</i> ²	.021	.054	.064	.040
<i>f</i> ²	.021	.057	.068	.042

Note: $N = 263$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

¹The overall analysis was not statistically significant ($p = .607$).

²The overall analysis was not statistically significant ($p = .176$).

For positive affect, the overall association was statistically significant, $F(79, 256) = 2.09, p = .045$. Total time spent in activities in 7th grade ($p = .016$) made a statistically significant, unique contribution to the prediction of positive affect in 8th grade. Regression coefficients for total participation in 7th grade represented the largest unique contribution to the equation, and represented a moderate to large effect size. However, the linear combination of the predictors for positive affect ($f^2 = .057$) represented a small to medium effect size.

Results for Hypothesis 1.3

Activity participation in 7th grade will predict self-discipline in 8th grade. Extracurricular activity participation (sport, music, chess) along with gender, ethnicity, SES (determined by free or reduced price lunch status) and cohort were entered as predictors of each of grit and composite self-discipline. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Direct entry multiple regressions were used to determine whether each predictor made a statistically significant unique contribution.

Extracurricular activity participation in any individual activity in 7th grade did not make a statistically significant contribution to predicting grit or self-control in 8th grade. Results from the MRA are summarized in Table 22.

Table 22

Activity Participation in Seventh Grade Predicting Discipline in Eighth Grade

Predictor	Eight-Grade Criterion	
	Grit	Composite Self-Control
	<i>B</i>	<i>B</i>
Black		.017
Hispanic		-.014
Asian		.179**
Gender		.235***
SES		-.072
Cohort		-.010
Sport Grade 7		-.009
Music Grade 7		.101
Chess Grade 7		.104
Overall Model		
<i>R</i>	.218 ¹	.350***
<i>R</i> ²	.047	.123
<i>f</i> ²	.049	.140

Note: $N = 184$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

¹The overall analysis was not statistically significant ($p = .191$).

However, total extracurricular activity participation in 7th grade did make a statistically significant contribution to predicting self-control in 8th grade. For

composite self-discipline, the overall association was statistically significant, $F(7, 268) = 4.79, p = .000$. Total activity participation ($p = .049$) in 7th grade made a statistically significant, unique contribution to the prediction of self-control in 8th grade. Regression coefficients for activity participation in 7th grade represented a moderate effect size. The linear combination of the predictors for self-control ($f^2 = .125$) represented a medium effect size. Results from the MRA are summarized in Table 23.

Table 23

Total Activity Participation in Seventh Grade Predicting Discipline in Eighth Grade

Predictor	Eight-Grade Criterion	
	Grit	Composite Self-Control
	<i>B</i>	<i>B</i>
Black		.023
Hispanic		-.012
Asian		.201**
Gender		.238***
SES		-.078
Cohort		-.028
Total Activity Grade 7		.118*
Overall Model		
<i>R</i>	.202 ¹	.333***
<i>R</i> ²	.041	.111
<i>f</i> ²	.043	.125

Note: $N = 184$; B = standardized regression coefficient; f^2 = Cohen's effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

¹The overall analysis was not statistically significant ($p = .154$).

Results for Hypothesis 1.4

There will be a curvilinear relationship between the level of extracurricular activity involvement and academic and psychosocial benefits for youth. This analysis tested for an "over-scheduling" effect to determine whether there are negative outcomes associated with too much involvement. Curve estimation software in SPSS was employed to explore the possibility of a nonlinear relationship between total time spent in activity participation and academic and psychosocial outcomes. According to Garson (2009), curve estimation can be used as an exploratory tool to assess relative goodness of fit to compare models (linear, logarithmic, inverse, quadratic, cubic, power, compound, S-curve, logistic, growth, and exponential) where a single independent variable is used to predict a single outcome. Therefore, none of the sociodemographic variables were entered into the equation as controls. This analysis was conducted in accordance with procedures outlined by Nair and Ramnarayan (2000) which follows linear regression but instead of finding the best linear fit, it also estimates the statistical significance of other types of models.

Total activity participation was entered as the predictor for each of the academic and psychosocial outcomes. The curve estimation program in SPSS evaluated

which of the models accounted for the most variance (determined by the highest F-value). Results showed that there were no statistically significant relationships between total time spent in activities in 7th grade, and grade point average, standardized language test scores, positive and negative affect, and composite self-control. Linear models best explained the relationship between total time spent in activities and Terra Nova reading ($F = 4.93$, $p = .027$) and science ($F = 10.66$, $p = .001$) exam scores. For math scores, a curvilinear (quadratic) model was the only association that was significant ($F = 3.50$, $p = .032$). Table 24 contains the model summary for math.

Table 24

Curve Estimation Model Summary for Math

Equation	R Square	F	df1	df2	Sig
Linear	.013	3.492	1	275	.063
Quadratic	.025	3.498	2	274	.032
Cubic	.025	2.324	3	273	.075
Compound	.012	3.476	1	275	.063
Growth	.012	3.476	1	275	.063
Exponential	.012	3.476	1	275	.063

For life satisfaction, linear, quadratic, and cubic models were all significant. However, the curvilinear (quadratic) model accounted for the most variance ($F = 5.41$,

$p = .005$). Table 25 contains the model summary for life satisfaction.

Table 25

Curve Estimation Model Summary for Life-Satisfaction

Equation	R Square	F	df1	df2	Sig
Linear	.017	4.668	1	273	.032
Quadratic	.038	5.413	2	272	.005
Cubic	.041	3.894	3	271	.009
Compound	.013	3.466	1	273	.064
Growth	.013	3.466	1	273	.064
Exponential	.013	3.466	1	273	.064

For self-esteem, all of the models were significant; however, the quadratic (curvilinear) relationship accounted for the most variance ($F = 5.47$, $p = .005$). Table 26 contains the model summary for self-esteem.

Table 26

Curve Estimation Model Summary for Self-Esteem

Equation	R Square	F	df1	df2	Sig
Linear	.026	7.160	1	268	.008
Quadratic	.039	5.470	2	267	.005
Cubic	.040	3.700	3	266	.012
Compound	.027	7.457	1	268	.007
Growth	.027	7.457	1	268	.007
Exponential	.027	7.457	1	268	.007

For grit, all of the models were significant, and compound, growth, and exponential models were all equally viable and accounted for exactly the same variance ($F = 15.29$, $p = .000$). In this instance, the growth model would be the most relevant because it is a time-based model. Table 27 contains the model summary for grit.

Table 27

Curve Estimation Model Summary for Grit

Equation	R Square	F	df1	df2	Sig
Linear	.050	14.412	1	271	.000
Quadratic	.072	10.542	2	270	.000
Cubic	.073	7.014	3	269	.000
Compound	.053	15.287	1	271	.000
Growth	.053	15.287	1	271	.000
Exponential	.053	15.287	1	271	.000

These results support the hypothesis that curvilinear associations explain more variance between time spent involved in extracurricular activities and certain developmental outcomes for youth.

Study 2

To investigate the potential role of extracurricular activity as a protective buffer against the negative effects of life events, and explore personality/activity fit as a mediator of benefits, data from two cohorts of students were used for Study 2. As with Study 1, the first two waves of data collection were completed during academic year 2002-2003. Because the measures for two of the criterion variables (Life Events Checklist and Big Five Inventory) were each only administered once at two different waves of data collection, the two cohorts were analyzed together despite the fact that they were one year apart in school grade. While this may pose a limitation to the study findings, other studies have examined middle school youth as a collective group. The birthdays for the combined group spanned approximately 18 months (1/11/1991 - 6/4/1992). Although students were from different school years, the participants' chronological ages were relatively close together. A series of chi-square and multivariate analyses of variance (MANOVA) were used to assess statistically and practically significant differences between the two cohorts.

Demographic Information

An overview of the demographic information for participants of study 2 and chi-square analyses are contained in Table 28.

Table 28

Summary Demographics and Cohort Comparisons for Study 2

	Total		Cohort 1		Cohort 2		Chi-Square	
	(n = 272)		(n = 160)		(n = 112)			
	n	%	n	%	n	%	x ²	sig
Gender								
Male	121	44.5	73	45.6	48	42.9		
Female	151	55.5	87	54.4	64	57.1	.204	.651
Total	272	100.0	160	100.0	112	100.0		
Race								
White	143	52.6	76	47.5	67	59.8		
Black	58	21.3	37	23.1	21	18.8		
Hispanic	13	4.8	4	2.5	9	8.0	8.005	.091
Asian	37	13.6	24	15.0	13	11.6		
Other	2	0.7	2	1.3	67	59.8		
Total	253	93.0	143	89.4	110	98.2		
Lunch								
No Subsidy	214	78.7	123	76.9	91	81.3		
Free/Reduced Price	57	21.0	37	23.1	20	17.9	1.029	.310
Total	271	99.6	160	100.0	112	100.0		

Data from a total of 272 participants were included for analyses in study 1. Cohort 1 had 160 participants, and cohort 2 had 112 participants. Across both cohorts, there were 121 males and 151 females in this study. On race, 143

participants reported themselves as Caucasian, 58 as African American, 13 as Hispanic, 37 as Asian, and 2 as other. Chi-square analysis revealed no statistically significant differences between students in each cohort on any of the demographic variables.

Outcomes

Table 29 contains descriptive statistics for each of the academic and psychosocial outcome variables.

Table 29

Summary of 2004-2005 Outcomes

	Study 2		Cohort 1 6 th Grade		Cohort 2 7 th Grade	
	n	M (SD)	n	M (SD)	n	M (SD)
Academic						
GPA	270	88.91 (6.07)	158	89.92 (5.77)	112	87.48 (6.22)
Reading	269	76.02 (13.32)	158	74.61 (13.19)	111	78.04 (13.31)
Language	269	78.10 (12.57)	158	76.59 (11.50)	111	80.25 (13.73)
Math	269	81.38 (11.35)	158	82.11 (11.12)	111	80.34 (11.66)
Science	269	72.59 (13.42)	158	72.41 (13.57)	111	72.85 (13.26)
Well-Being						
LSS	272	4.85 (.84)	160	4.97 (.77)	112	4.67 (.90)
PANAS-P	272	3.78 (.69)	160	3.88 (.68)	112	3.64 (.68)
PANAS-N	272	1.89 (.73)	160	1.77 (.66)	112	2.07 (.79)
RSE	272	3.25 (.56)	160	3.34 (.54)	112	3.13 (.56)
Self-Control						
Grit	271	3.39 (.57)	160	3.46 (.58)	111	3.28 (.54)
CSC	272	0.02 (.57)	160	0.01 (.57)	112	0.02 (.58)

As expected, the grade point averages and standardized test scores for students in this cohort are generally very high and representative of academically gifted students.

A series of multivariate analysis of variance (MANOVA) were used to determine if there were cohort differences at baseline. Table 30 summarizes the results. At grade 7, the results of the MANOVA revealed that there was a statistically significant difference between students from cohort 1 or cohort 2 on academic outcomes ($F = 7.024$, $p = .000$, $\eta^2 = .118$).

Table 30

MANOVA Summary Table for Academic Outcomes by Cohort

	SS	df	MS	F	Sig.	η^2
GPA Grade 7	374.414 ^a	1	374.414	10.527	.001	.038
Reading Grade 7	766.339 ^b	1	766.339	4.374	.037	.016
Language Grade 7	872.073 ^c	1	872.073	5.610	.019	.021
Math Grade 7	203.162	1	203.162	1.578	.210	.006
Science Grade 7	12.363	1	12.363	.068	.794	.000

a. R Squared = .038 (Adjusted R Squared = .034)

b. R Squared = .016 (Adjusted R Squared = .012)

c. R Squared = .021 (Adjusted R Squared = .017)

The 6th grade students in cohort 1 had significantly higher grade point averages than the 7th grade students in cohort 2 ($F = 10.53$, $p = .001$, $\eta^2 = .038$). The 7th grade

students in cohort 2 scored significantly higher on the Terra Nova reading ($F = 4.37, p = .037, \eta^2 = .016$) and language ($F = 5.61, p = .019, \eta^2 = .021$) exams than the 6th grade students from cohort 1. These cohort variations, although statistically significant, do not represent practically significant differences.

A series of multivariate analyses of variance (MANOVA) were used to determine if there were cohort differences in well-being and self-discipline. The results of the MANOVA revealed that there was a statistically significant difference between students from cohort 1 or cohort 2 on well-being ($F = 3.99, p = .004, \eta^2 = .056$) and self-discipline ($F = 5.27, p = .006, \eta^2 = .038$).

Based on the results of MANOVA, there were statistically significant differences between the two cohorts on all of the well-being outcomes. The 6th grade students in cohort 1 had significantly higher scores on life satisfaction ($F = 9.05, p = .003, \eta^2 = .032$), positive affect ($F = 8.19, p = .005, \eta^2 = .029$), and self esteem ($F = 10.09, p = .002, \eta^2 = .036$) than the 7th grade students in cohort 2. The 7th grade students in cohort 2 had significantly higher scores on negative affect ($F = 11.20, p = .001, \eta^2 = .040$) and grit ($F = 6.93, p = .009, \eta^2 = .025$) than the 6th graders in cohort 1. As with the academic

outcomes, these cohort variations, although statistically significant, do not represent practically significant differences. Table 31 summarizes the results.

Table 31

MANOVA Summary Table for Psychosocial Outcomes by Cohort

	SS	df	MS	F	Sig.	η^2
Life Satisfaction	6.173 ^a	1	6.173	9.053	.003	.032
Positive Affect	3.781 ^b	1	3.781	8.181	.005	.029
Negative Affect	5.775 ^c	1	5.775	11.195	.001	.040
Self-Esteem	3.032 ^d	1	3.032	10.086	.002	.036
Grit	2.214 ^e	1	2.214	6.932	.009	.025
Composite Self-Control	.019	1	.019	.059	.809	.000

a. R Squared = .032 (Adjusted R Squared = .029)

b. R Squared = .029 (Adjusted R Squared = .026)

c. R Squared = .040 (Adjusted R Squared = .036)

d. R Squared = .036 (Adjusted R Squared = .032)

e. R Squared = .025 (Adjusted R Squared = .021)

Study 2: Results for Specific Aim 2

Extracurricular activity participation will protect youth from the negative effects of life events. To examine the potential role of activity participation as a protective factor against negative outcomes, data from two cohorts of middle school students from school year 2004 - 2005 were analyzed.

Results for Hypothesis 2

Academics. Extracurricular activity participation (sport, music, chess) in school year 2004 - 2005, along with gender, ethnicity, SES (determined by free or reduced price lunch status), cohort, and scores on the life events checklist were entered as predictors of each of the following: grade point average, and Terra Nova scores for reading, language, math, and science. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Results from the MRA are summarized in Table 32.

Time spent involved in music was the only type of extracurricular activity participation that served as a protective factor against the negative effects of life events on academic outcomes.

Table 32

Activity Participation, Life Events, and Academic Outcomes

Predictor	Criterion				
	GPA	Reading	Language	Mathematics	Science
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.225***	-.09	-.165*	-.097	-.065
Hispanic	-.021	-.10	-.026	.001	-.028
Asian	.127	-.042	-.076	.121	.136*
Gender	.195***	-.058	.009	-.047	-.184**
SES	-.190***	-.203**	-.073	-.113	-.202***
Grade	-.193***	.121*	.168**	-.088	.02
Sport	-.058	-.054	-.043	-.077	.016
Music	.154**	.254***	.089	.176**	.239***
Chess	-.047	-.003	-.029	-.012	.001
Life Events	-.262***	-.054	-.132*	-.149*	-.138*
Overall Model					
<i>R</i>	.569***	.423***	.302**	.354	.459***
<i>R</i> ²	.324	.179	.092	.125	.211
<i>f</i> ²	.479	.218	.101	.143	.267

Note: $N = 254$; B = standardized regression coefficient; f^2 = Cohen's (1988) effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

Participation in music in 7th grade made a statistically significant, unique contribution to the prediction of grade point average, reading, mathematics, and science in 7th grade, but had no effect on language. Regression coefficients for music participation in 7th grade ranged from .154 - .254, representing moderate to large effect sizes. Cohen's f^2 ranged from .143 - .479, representing medium to large effect sizes for GPA, reading, math, and science.

To determine the relative magnitude of each unique contribution, the standardized regression coefficients for music participation and life events were compared and contrasted only when both coefficients were significant. Life events were 1.7 times more important in predicting grade point average than music participation. For math, the predictive power of music and life events were about the same for mathematics, and music participation was 1.73 times more important than life events in predicting science.

Total time spent in activities in 7th grade served as a protective factor against the negative effects of life events on reading and science performance in 7th grade only. For both reading and science scores, the predictive power of total activity participation was almost the same as life events on science scores. Standardized regression coefficients for total activity ranged from .135 - .180 for reading and science, respectively, representing moderate effect sizes. Cohen's f^2 represented a medium effect sizes for reading ($f^2 = .159$), and a large effect size for science ($f^2 = .225$). Results from the MRA for total activity participation, life events stress, and academic outcomes are summarized in Table 33.

Table 33

Total Activity Participation, Life Events, and Academic Outcomes

Predictor	Criterion				
	GPA	Reading	Language	Mathematics	Science
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.206***	-.062	-.153*	-.075	-.043
Hispanic	-.025	-.107	-.029	-.006	-.034
Asian	.149**	-.003	-.062	.153*	.163**
Gender	.217***	-.030	.022	-.027	-.158**
SES	-.206***	-.227***	-.083	-.133*	-.221***
Grade	-.194***	.129*	.169**	-.080	.021
Total Activity	.038	.135*	.014	.059	.180**
Life Events	-.274***	-.073	-.139*	-.164**	-.151**
Overall Model					
<i>R</i>	.551***	.370***	.291**	.315***	.429***
<i>R</i> ²	.304	.137	.085	.099	.184
<i>f</i> ²	.437	.159	.093	.110	.225

Note: $N = 254$; B = standardized regression coefficient; f^2 = Cohen's (1988) effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

Well-being. To examine the potential role of activity participation as a protective factor against the negative effects of life events on well-being, extracurricular activity participation (sport, music, chess) in school year 2004 - 2005, along with gender, ethnicity, SES (determined by free or reduced price lunch status) cohort, and scores on the life events checklist were entered as predictors of life satisfaction, positive and negative affect, and self-esteem. The regressions were repeated with total time spent in activity participation instead of time spent involved

with each activity. Results from the MRA are summarized in Table 34.

Table 34

Activity Participation, Life Events and Well-being

Predictor	Criterion			
	Life Satisfaction	Positive Affect	Negative Affect	Self-Esteem
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.126	.081	.006	.088
Hispanic	-.067	.034	.054	.011
Asian	-.109	-.094	.019	-.192***
Gender	.095	.100	-.155**	.147**
SES	-.045	.013	-.008	-.017
Grade	-.071	-.130*	.133*	-.160**
Sport	.153*	.236***	-.145*	.118*
Music	.020	-.073	.054	.021
Chess	-.026	-.019	-.029	.058
Life Events	-.272***	-.197**	.410***	-.378***
Overall Model				
R	.387***	.361***	.472***	.484***
R²	.150	.130	.223	.235
f²	.176	.149	.287	.307

Note: $N = 257$; B = standardized regression coefficient; f^2 = Cohen's (1988) effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

Time spent involved in sport was the only type of extracurricular activity participation that served as a protective factor against the negative effects of life events on well-being. Participation in sport in 7th grade made a statistically significant, unique contribution to the prediction of life satisfaction, positive and negative

affect, and self-esteem in 7th grade. Regression coefficients for sport participation in 7th grade ranged from .118 - .236, representing moderate to large effect sizes. Cohen's f^2 ranged from .149 - .307, representing medium to large effect sizes.

To determine the relative magnitude of each unique contribution, the standardized regression coefficients for music participation and life events were compared and contrasted when both coefficients were significant. Life events were 1.78 times more important in predicting life satisfaction than sport participation. However, sport participation's predictive power for positive affect was 1.2 times the predictive power of life events. Life events were a far more powerful predictor of negative affect, with life events being 2.83 times more important than sport participation in predicting negative affect. Life events were 3.20 times more powerful in predicting self-esteem than participation in sport. Despite relative magnitudes, sport participation consistently had an inverse relationship to well-being than life events. For example, while life events negatively impacted life satisfaction, sport participation was positively associated with greater life-satisfaction.

Total time spent in activities in 7th grade served as a protective factor against the negative effects of life events on self-esteem in 7th grade only. The predictive power of total activity participation was 2.75 times lower than life events on self-esteem but, as with the individual activities, total activity participation contributed positively to self-esteem, while life events had a negative relationship to self-esteem. Results from the MRA are summarized in Table 35.

Table 35

Total Activity Participation, Life Events and Well-being

Predictor	Criterion			
	Life Satisfaction	Positive Affect	Negative Affect	Self-Esteem
	<i>B</i>	<i>B</i>	<i>B</i>	<i>B</i>
Black	-.014	.056	.022	.081
Hispanic	-.087	.037	.051	.012
Asian	-.207***	-.142*	.045	-.201***
Gender	.008	.096	-.146**	.142**
SES	-.008	.036	-.022	-.011
Grade	-.158**	-.160**	.144**	-.162**
Total Activity	.038	.117	-.088	.136**
Life Events	-.392***	-.173**	.397***	-.374***
Overall Model				
<i>R</i>	.478***	.309***	.459***	.482***
<i>R</i> ²	.229	.096	.211	.233
<i>f</i> ²	.297	.447	.848	.304

Note: *N* = 257; *B* = standardized regression coefficient; *f*² = Cohen's (1988) effect size statistic; **p* = .05, ***p* = .01, ****p* = .001.

Self-discipline. To examine the potential role of activity participation as a protective factor against the negative effects of life events on self-discipline, extracurricular activity participation (sport, music, chess) in school year 2004 - 2005, along with gender, ethnicity, SES (determined by free or reduced price lunch status) cohort, and scores on the life events checklist were entered as predictors of grit and composite self-control. The regressions were repeated with total time spent in activity participation instead of time spent involved with each activity. Results from the MRA are summarized in Table 36.

Time spent involved in sport was the only type of extracurricular activity participation that served as a protective factor against the negative effects of life events on grit. Participation in sport in 7th grade made a statistically significant, unique contribution to the prediction of grit in 7th grade, but not for self-control. The regression coefficient for sport participation in 7th grade was .182, representing a moderate to large effect size. Cohen's f^2 was .170, representing a medium effect size.

Table 36

Activity Participation, Life Events, and Self-Discipline

Predictor	Criterion	
	Grit	Composite Self-Control
	B	B
Black	.052	.040
Hispanic	.029	.014
Asian	.044	.104
Gender	.149*	.261***
SES	-.008	-.029
Cohort	-.139*	.044
Sport	.182**	.082
Music	.062	-.020
Chess	.034	.053
LEC	-.254***	-.320***
Overall Model		
R	.381***	.418***
R2	.145	.174
f2	.170	.211

Note: $N = 257$; B = standardized regression coefficient; f^2 = Cohen's (1988) effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

To determine the relative magnitude of each unique contribution, the standardized regression coefficients for sport participation and life events were compared and contrasted when both coefficients were significant. Life events were about 1.4 times more important in predicting grit than sport participation. Despite relative magnitudes, sport participation had an inverse relationship to grit when compared with life events. Life events negatively

impacted grit, while sport participation was positively associated with greater levels of grit.

Total time spent in activities in 7th grade served as a protective factor against the negative effects of life events on grit in 7th grade. The predictive power of total activity participation was about the same as the power of life events on grit, but as with individual activities, total activity participation contributed positively to grit, while life events had a negative relationship to grit. Results from the MRA are summarized in Table 37.

Table 37

Total Activity Participation, Life Events, and Self-Discipline

Predictor	Criterion	
	Grit	Composite Self-Control
	B	B
Black	.045	.033
Hispanic	.030	.016
Asian	.028	.095
Gender	.151**	.252***
SES	-.001	-.023
Cohort	-.152**	.044
Total Activity	.201***	.078
LEC	-.245***	-.316***
Overall Model		
R	.375***	.414***
R2	.141	.171
f2	.164	.206

Note: $N = 257$; B = standardized regression coefficient; f^2 = Cohen's (1988) effect size statistic; * $p = .05$, ** $p = .01$, *** $p = .001$.

Study 2: Results for Specific Aim 3

To describe the relationship between youth personality characteristics and activity participation as a preliminary step in examining the potential role of personality/activity fit as a determinant of positive outcomes, follow-up data from school year 2005 - 2006 from the same two cohorts used in specific aim 2 were analyzed. Cohort 1 consisted of 7th grade students, while cohort 2 consisted of 8th grade students.

Results for Research Hypothesis 3

Pearson correlations were used to assess the relationship between the five dimensions of personality measured through the Big Five Inventory (conscientiousness, agreeableness, extraversion, neuroticism, and openness) and time spent involved in activities. Results revealed that sport participants possessed more extraverted personality characteristics. Music was associated with higher openness to experience. Chess was associated with lower levels of agreeableness. Table 38 summarizes the Pearson correlations.

Table 38

Bivariate Correlations for Activity and Personality

	Big Five Personality Dimensions				
	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
Sport	.230**	-.003	.084	-.127	-.022
Music	-.004	-.061	.024	.010	.252**
Chess	-.099	-.141*	-.088	.026	-.033
Total Activity	.112	-.078	.036	-.068	.096

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Based on Borghans, Duckworth, Heckman, and ter Wheel's (2008) descriptions of the Big Five personality facets (see Table 39) these associations match the unique contextual qualities of each individual activity. For extraverted students, sport provides a perfect environment by requiring constant activity, teamwork and collaboration, and excitement. For students who scored high on openness, their draw toward aesthetics, intellectual stimulation, and variety can be met through music participation. The match between low levels of agreeableness, characterized by trust, compliance, and altruism, is less clearly connected to chess.

Table 39

Big Five Dimensions and their Facets (taken from Borghans et al., 2008)

Factor	Facets	Definition of Factor
Openness to Experience (Intellect)	Fantasy, Aesthetics, Feelings, Actions, Ideas, Values	The degree to which a person needs intellectual stimulation, change and variety
Conscientiousness	Competence, Dutifulness, Achievement striving, Self-discipline, Deliberation	The degree to which a person is willing to comply with conventional rules, norms, and standards
Extraversion	Warmth, Gregariousness, Assertiveness, Activity, Excitement seeking, Positive emotions	The degree to which a person needs attention and social interaction
Agreeableness	Trust, Straight forwardness, Altruism, Compliance, Modesty, Tender-mindedness	The degree to which a person needs pleasant and harmonious relations with others
Neuroticism (Emotional Stability)	Anxiety, Angry hostility, Depression, Self-consciousness, Impulsiveness, Vulnerability	The degree to which a person experiences the world as threatening and beyond his/her control.

Source: Costa and McCrae (1992) and Hogan (2007)

Discussion for Research Questions and Hypotheses

Specific Aim 1

RQ1. The results of the analyses examining extracurricular activity participation relationship academic and psychosocial outcomes revealed that students spent the most time involved in sport/dance, followed by music and chess. Male students spent significantly more

time playing sport, chess, and involved in all activities than female students. Students of higher socioeconomic status spent more time involved in sport, music, and all activities than their lower socioeconomic peers. White students spent more time participating in sport/dance than their Black and Asian peers, and White students also spent more time involved in activities overall. These results mirror many of the previous research findings (Eccles et al., 2003; Feldman & Matjasko, 2005; Mahoney et al., 2009).

In examining concurrent and longitudinal associations between activity participation and academics, none of the activities were related to grade point average. Chess participation was only associated with higher science scores in 8th grade. Total time spent involved in all activities was correlated with higher scores on reading only in 7th grade, and higher scores on Terra Nova science in both 7th and 8th grade. Music participation was the only type of activity participation that was correlated with higher standardized test scores across all subjects, both concurrently and longitudinally. Broh (2002) found that participation in music groups and interscholastic athletics were the only types of activities that yielded consistent academic benefits. Interestingly, sport participation was not associated with gains in any academic domains among

this population. However, it is important to note that data for this study were collected from a group of academically gifted students who were specifically selected to attend this school based on their ability. High grade point averages and standardized test scores were characteristic of this cohort, so there was a considerable ceiling effect to consider in interpreting the results.

While sport/dance participation was not associated with any of the academic outcomes, it was the only activity consistently associated with greater well-being. More time spent in sport/dance participation correlated with higher levels of life satisfaction and positive affect concurrently and longitudinally, and lower levels of negative affect and higher levels of self-esteem concurrently.

Music participation was not related to well-being. For chess, greater intensity of participation in 7th grade was associated with higher levels of self-reported negative affect in 8th grade, which may be explained by the fact that the school's chess team is a nationally ranked team. Higher levels of negative affect can be expected from activities that come with a high pressure to succeed. Students who spent more total time engaged in activities in 7th grade

reported higher life satisfaction and self-esteem in 7th grade, and more positive affect in 8th grade.

For self-discipline, sport participation was correlated with higher levels of grit, while time spent in music was related to higher levels of self-control concurrently and longitudinally. More time spent involved in activities was related to higher levels of grit in both 7th and 8th grade. These findings are limited in that causal relationships cannot be established through correlational analyses, and bivariate correlations merely describe the coexistence of two phenomena. For example, it may have been the case that students who performed better in school self-selected into music activities.

H1.1: Accounting for sociodemographic selection variables, the results of the analyses revealed that none of the activities made a statistically significant contribution to the prediction of grade point average. Consistent with the results of the bivariate correlations, time spent involved in music was the only activity that made a significant positive contribution to predicting performance on standardized tests. The effect of music could also potentially be attributed to a peer effect: Youth participating in performing arts have been found to

have more academically oriented friends (Eccles et al., 2003).

Sport/dance made negative contributions to predicting reading and language scores but, again, the negative relationship may be indicative of a ceiling effect since these students were academically gifted. The mean standardized test scores for students in this school were already high, with low variability. Another plausible explanation is that youth spent much more time participating in sport/dance than any other activity, which might have impacted time spent engaged in schoolwork for those students. However, when total time spent in activity was entered into the regression equation as a predictor instead of individual activities, it did not make a statistically significant contribution, which suggests that the negative impact of sport can be more likely attributed to the type of activity rather than the time required to partake in activities. Review of past literature supported a generally positive relationship between sport participation and academic outcomes, so the negative associations with reading and language scores found in this study may be an artifact of this academically gifted sample. Still, these findings echo concerns raised by past studies on whether activity participation may be more beneficial

for youth who are academically at-risk for school failure (Mahoney & Cairns, 1997).

Additionally, several possible mediators and moderators were unaccounted for in this study. Since there is evidence that stability and consistency of participation over the course of several years, and interactions between race/gender and socioeconomic status are known to affect general relationship between activity participation and academic gains (Mahoney et al., 2009), future studies should examine these factors more carefully.

H1.2: After accounting for sociodemographic selection variables, results of the analyses indicated that activity participation in 7th grade made no significant contribution to predicting life satisfaction or self-esteem in 8th grade. This relationship was significant when examined using simple bivariate correlations, which confirm Feldman and Matjasko's (2005) concern that some of the earlier research on the extracurricular activity participation and youth outcomes could have overstated the benefits of activity participation by failing to account for moderating sociodemographic factors.

Sport participation did, however, make a large contribution to predicting positive affect in 8th grade. It is unclear whether these effects are products of exercise

and physical activity, which have been shown to reduce depression and anxiety and increase well-being in youth (Donaldson & Ronan, 2006) or through other mechanisms, such as achievement, enjoyment, and goal-attainment experienced through the process of sport participation. For this cohort of academically gifted students, who likely spend much of their time engaged in schoolwork and studying, sport/dance participation may have provided a much needed source of fun and social interaction.

Chess participation remained a significant predictor of negative affect, which can be attributed to the high level of competitiveness that comes with being involved with a nationally ranked chess team. As Eder and Kinney (1995) described, it is likely that this activity had higher visibility within the school's social environment because it is a nationally-ranked team. Consequently, students who are part of the team may experience higher levels of negative affect associated with the stress of performance as well as living up to expectations of teachers, peers, and parents. Chess' association with negative affect could also be attributed to contextual variables that were not accounted for in this study, such as the style of the coach, or negative team dynamics. The game of chess itself, which requires solitary, strategic,

and focused play against a single opponent, may not have had the same affective benefits of sport/dance, which likely offered more in the way of social interaction and opportunities for collaboration and teamwork with others. Finally, total activity participation only predicted positive affect. These findings support the assumptions of several of the plausible theories posed explaining psychological benefits of activity participation, including social capital theory, (Broh, 2002) and flow theory (Csikszentmihalyi, 1988).

H1.3: Despite the hypothesized relationship between activity participation and the development of self-discipline, participation in any one activity in 7th grade did not make a significant contribution to predicting grit or self-control in 8th grade. This cohort of academically gifted students may already have had high levels of self-discipline, as indicated by their academic proficiency. However, total activity participation did have predictive power for self-control. Involvement in a number of different activities might require a child to exercise more self-control in order to effectively manage time, struggle through difficulty, and balance responsibilities. These results could also mean that students with higher self-control chose to spend more time involved in activities.

For young adolescents, self-discipline may be a character strength that is acquired over the course of time, from early childhood into adolescence and young adulthood as a product of increasing responsibilities, and maturation of biological, emotional, and cognitive self-regulatory skills. Activity participation is a fertile environment for the acquisition of such skills, through the process of goal-setting, sustained effort, persistence, and feedback (Mahoney et al., 2009) and through meeting task, role, and time demands (Wood, Larson, & Brown, 2009). Self-regulatory processes are learned and refined by drawing on a number of resources, such as the guidance and instruction of teachers and coaches, strategy use and alteration, and self-evaluation (Zimmerman & Ferrari, 2002). Therefore, it is a construct that may be better captured through expanded time-perspectives rather than cross sectional research. Future studies should employ longitudinal methods that account for changes in self-discipline over time as a function of activity participation.

H1.4: The results showed evidence for curvilinear relationships between total time spent involved in extracurricular activity for some, but not all, academic and psychosocial outcomes for youth in this cohort. Curvilinear models explained more variance for Terra Nova

math scores, life satisfaction, self-esteem, and grit than linear models. These findings supported the notion that more activity participation does not always yield increasing developmental benefits, and supported the hypothesis that developmental returns may become diminished at very high levels of participation, mirroring Randall and Bohnert's (2009) findings that very high levels of activity participation can result in increased depressive symptoms.

However, Mahoney, Harris, and Eccles (2006) warn against misrepresenting the true cause of an over-scheduling effect because there are other factors that are more plausible mechanisms responsible for negative outcomes associated with high levels of involvement in activities. Parental support and pressure has been identified as one of the primary influences that mediate activity participation and affective experiences of youth engaged in activities, which in turn impact youth outcomes (Anderson et al., 2003).

Model estimation was only able to compare the variances explained by different models, and more advanced analytical methods need to be employed to determine whether there is a critical mass or specific point where beneficial effects plateau or begin shifting downward. This study was unable to draw more conclusive and exact inferences about the optimal level of extracurricular activity participation

required to produce the best outcomes, so future studies should explore this relationship in finer detail, and account for mediating factors.

Specific Aim 2

H2: Stressful life events had a significantly negative impact on almost all of the academic and psychosocial outcomes among adolescent youth. Life events were negatively associated with grade point average, and language, math, and science exam scores. The only activity type that served a protective role for academic outcomes was music, an effect that could be explained by a ceiling effect, that higher performing students self-selected into music activities, or that students involved in performing arts have more academically oriented friends (e.g., Eccles et al., 2003). In a small, longitudinal study by Peterson, Duncan, and Canady (2009), gifted youth were able to maintain high levels of academic achievement despite encountering many challenges and adversities. A similar phenomenon might explain the relatively small associations between activity participation and academic outcomes among the academically gifted youth in the current study.

Life events stress had the greatest impact on outcomes related to well-being represented by moderate to large

effect sizes. Sport was the only type of activity participation that served a protective role for well-being. After accounting for the impact of stressful life events and sociodemographic variables, sport participation was positively associated with increased life satisfaction, positive affect, self-esteem, and reduced negative affect. Contrary to previous research, which suggested that sport participation might be associated with higher levels of stress, the findings of this study support that sport participation can be a powerful vehicle for promoting well-being in youth. The protective role of sport might be explained by traditional views of sport as an opportunity to build social capital, experience flow and positive emotions, and develop initiative and teamwork. Another possible explanation is that students at this particular school are primarily academically oriented, and their experiences with sport may center on enjoyment and catharsis rather than emphasize high performance.

Specific Aim 3

H3: The tenets of environment-fit theories suggest that mismatches in person/activity fit can be developmentally detrimental because they reflect asynchrony between the child's abilities, motivations, interests and

strengths and the stimulation provided by a specific environmental context (Mahoney et al., 2009). As hypothesized, there was a significant relationship between specific youth personality characteristics and type of activity in which they participated the most. Moreover, the descriptions of the facets of each type of personality trait matched the qualitative descriptions of each individual type of activity. Again, it was impossible to draw inferences of causality through correlations, or clarify whether students with specific personality traits self-selected into specific activities, or if these personality traits were somehow acquired by the reciprocal influence of contextual and environmental factors associated with each activity. Still, these findings reinforce the need to consider the role of person-activity fit as a mediator of extracurricular activity participation and positive youth developmental outcomes.

Future studies should explore whether differences in person-environment fit can predict an adolescent's choice of activity, breadth, depth, and intensity of participation, affective experience, and ultimately success or failure related to performance. Further, since person-environment fit is dynamic and fluid, more research should be conducted on how to best adjust activity contexts to better suit the

psychological, social, and cognitive needs of youth at specific periods throughout development, and over the life-span (Mahoney et al., 2009).

General Discussion

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study.

The findings from the current study have made several methodological and empirical contributions to the literature on extracurricular activity participation and positive youth development. The relationship between activity participation and positive youth development was explored among a minimally studied population of academically gifted, economically and ethnically diverse sample of students. Employing both longitudinal and cross-sectional perspectives, activity participation as both concurrent phenomena and predictors of youth academic and

psychosocial outcomes were explored while accounting for sociodemographic selection variables. This study expanded to the small body of literature on middle school youth, since "we know relatively little about the effects of middle school extracurricular participation despite the fact that early adolescence is a period when youth begin to engage in risky behaviors and make more decisions about how to spend their time" (Fredricks & Eccles, 2008, p. 1040).

From these analyses, participation in music appeared to be related to the biggest gains in academic achievement for youth in this cohort. These findings may have been limited because the students in this cohort were specifically selected into the school for their academic ability, and already were high performing students based on mean grade point averages and test scores. Although there is some evidence that activities are distinctly beneficial for youth who are academically at-risk (e.g., Mahoney & Cairns, 1997), it would be imprudent to draw decisive conclusions that music is the only type of activity that would support academics in youth. The specificity of the unique population examined in this study may limit the ability to generalize findings to the population as a whole.

There was compelling evidence for the role of sport/dance participation as an enabler of youth well-being

(Simpkins et al., 2006). Youth in the study who participated in sport reported greater levels of positive affect. Higher levels of positive affect and lower levels of negative affect can also be attributed to the physical activity involved in sport/dance. For example, children who met recommended levels of physical activity for at least 1 hour of physical or sporting activity each day had fewer emotional problems one year later (Wiles et al., 2008) and lower levels of physical activity and higher levels of sedentary behavior were independently associated with diminished well-being in adolescents (Ussher, Owen, Cook, & Whincup, 2007).

Emerging research from positive psychology has raised awareness of the value and utility of positive emotions. Positive emotions have the capacity to broaden the scope of attention, raise awareness of the surrounding environment and increase openness to stimuli, build durable intellectual (problem solving, learning), physical (coordination, cardiovascular health), social (bonding, inter-personal relationships), and psychological (resilience, goal orientation) resources, and can serve as effective antidotes to physiological activation and cardiovascular reactivity that result from experiencing negative emotions (Cohn, Fredrickson, Brown, Mikels, &

Conway, 2009). These findings reinforced the salience of physical activity in cultivating youth well-being and positive emotions, which can, in turn, facilitate optimal development of broader social, interpersonal, and intellectual resources.

While many previous research studies have examined activity participation as dichotomous variables, the students in the current study reported their levels of activity participation in average minutes per week. These data were used to test whether there is a curvilinear effect of time spent in activities relative to psychosocial and academic outcomes, and test for an over-scheduling effect, or evidence for nonlinear associations. The results of this research study supported curvilinear relationships for math, life satisfaction, self-esteem, and grit, and once again emphasized the necessity of creating more sophisticated tools and more sensitive instruments for measuring youth activity participation.

While Darling's (2005) study of high school students was only able to find modest evidence that activity participation attenuated associations between life events and academic aspirations and adjustment, the current study found support for the protective role of extracurricular activity participation on the negative academic and

psychosocial impact of life events stress on middle school aged youth. Life events stress was a significant predictor of poorer academic outcomes, diminished well-being, and lower levels of self-discipline. Accounting for the negative impact of life events, music participation was again found to be a positive predictor of academic outcomes, and sport/dance a positive predictor of higher life satisfaction, positive affect, and self-esteem, and lower levels of negative affect. Despite challenges and adversity in a child's life, extracurricular activity may provide connections with supportive social networks, a means for catharsis and escape, and buffer the negative impact of life events stress on youth academic and psychosocial outcomes.

Finally, one of the tenets of Holland's (1966) person-environment fit model was explored to determine whether youth participated in activities that appeared to be the most compatible with their personalities. Consistent with Holland's first assumption, sport was associated with higher extraversion, music with higher openness to experience, and chess with lower agreeableness. These data pose interesting questions about the qualitative aspects of each of these activities and whether there is an interaction between person-centered variables and activity

choice and experience. If congruence between person and environment can influence greater levels of engagement, satisfaction, enjoyment, and goal attainment, the interaction between personality and activity should be explored in future studies as a potential mediator of positive developmental benefits.

The greatest limitation to this study was that the participants in this study were limited to two cohorts of students from a single school, and so the findings from this study may be highly influenced by traits that are specific to this particular geographic region, school, and grade. As such, results from the data cannot be reliably extended to the general population. Bronfenbrenner's (1979) ecological perspective provides a broad, contextual view of how a variety of environmental, biological and social factors can influence development, and a framework for understanding the role of extracurricular activities in development. Even with recent advances in research methodology and refinements in theoretical perspectives, there is still much room to improve research in the area of activity participation. Future studies should include a more thorough assessment of participation in a wide array of activities and include analyses to account for different participation profiles (see Zarrett et al., 2009), include

longitudinal data, and a larger, more diverse sample of students.

The preponderance of research on activity participation and youth development has focused on the following populations: 1) White, suburban, middle-upper class youth; 2) At-risk, low-income youth; and 3) high school students (Fredricks & Eccles, 2006b). The present study contributed to overcoming the dearth of empirical studies examining the role of extracurricular activity participation and positive youth development among academically gifted middle-school youth. Future studies should continue to fill gaps in the literature by extending similar studies to more diverse populations of youth, such as younger, middle/upper class minority, urban, and youth of diverse academic abilities.

According to Mahoney and colleagues (2009), future studies should consider participation as a multifaceted construct. Youth today participate in multiple activities at the same time and, as such, the instruments and measures used to assess participation frequency, breadth, and depth should be more detailed and sensitive to variations in order to enable researchers to glean a more comprehensive, multidimensional picture of youth activity participation. Past studies revealed the importance of examining activity

participation as profiles and portfolios, rather than singular phenomena, as they are related to developmental consequences (Feldman & Matjasko, 2007; Fredricks & Eccles, 2006a; Zarrett et al., 2009). Future studies should use instruments that measure actual time spent involved in activities, rather than using dichotomous yes/no variables, and improve on current research design by augmenting self-report data with more objective measures of participation, including parent report and attendance records.

While longitudinal designs have improved researchers' abilities to look at activity participation as predictors of youth outcomes later in life, future studies should also employ methods to account for the effects of temporal variations and cumulative effects of participation. Early adolescence is a time of formidable shifts in identity, self-concept, and peer group identification, and also a time for exploring passions and interests. Therefore, future studies should utilize methods that account for year-to-year variations in participation (e.g., Darling, 2005) and the cumulative effects of activities over the course of childhood and adolescence.

The present study did not explore micro-level factors related to the qualitative experiences of activity participation. Students were asked to estimate the average

time (in minutes) they spent engaged in a particular type of activity but, from those data, the author had no information on contextual variations related to each activity. Chatzisarantis and Hagger (2007) found differences in psychological well-being among collegiate participants of interscholastic, intramural, and recreational sports: Participants of recreational sports reported greater psychological well-being compared with competitive athletes. Future studies should consider how and to what extent these types of factors influence youths' experiences of activity participation and associated outcomes.

Future researchers may want to utilize process data to better understand the mediating role of program design and delivery, structure, and quality on youth outcomes. Much of the research on activity participation to date has not accounted for process-related variables. Without analyzing what actually takes place during the hours of participation, researchers are assuming that all activities have generally the same characteristics, and assuming that the process is irrelevant to producing desired or unwanted outcomes. Program evaluators would argue that these process-oriented variables are precisely what determine outcomes above and beyond the activity itself (e.g., Catalano et al., 2004).

Mixed qualitative and quantitative designs, such as those employed by Larson, Hansen, and Moneta (2006) and Hansen, Larson, and Dworkin (2003) would better illuminate aspects of positive and negative developmental experiences that occur in the context of activity participation.

While ecological theory provides a broad framework for guiding youth activity research, future studies should test more specific theoretical models through which developmental benefits could be explained. For example, Simpkins and colleagues (2008) examined the mediating role of peer group characteristics on activity breadth and adolescent adjustment and found that friends' positive characteristics were significant mediators of participation on a number of outcomes, such as depressive symptoms, self-worth, and risk behavior. Broh (2002) attempted to describe the precise mechanisms associated with the developmental model, leading crowd hypothesis, and social capital model, to explain developmental consequences. Future studies should examine less explored theories, such as flow theory, in an effort to refine the theoretical models that underlie activity research.

The quality of studies investigating the role of extracurricular activity participation appears to be improving with the passing of time. The greatest

improvement for future studies may be simply the use of randomized control or experimental designs. Without comparison groups, it is difficult to parse out the effects of a particular activity from developmental changes that might be occurring simultaneously, and generalize findings to other populations. However, employing these designs with young populations would come with serious ethical and practical barriers, particularly since there are many more youth who participate in extracurricular activities than those who do not. Although experimental designs would be able to provide more conclusive evidence of the developmental influence of activity participation, the benefits of this approach would have to be weighed against the costs of depriving some youth of the opportunity to participate.

Implications for Researchers

Based on the results of study, the following suggestions are noted for future researchers interested in pursuing this area of study. First, although secondary data analyses of existing data provided the opportunity to examine associations between extracurricular activity and youth outcomes among a unique demographic of youth, the costs and benefits of secondary analytic approaches should

be carefully considered prior to pursuing this method of research. The author spent a considerable amount of time becoming acquainted with and garnering a full and comprehensive understanding of the structure and organization of the data set prior to conducting analyses. Many of the analyses were also limited by the original design of the study, and several times through the course of the study, the author encountered errors within the data set that needed to be resolved before further analyses could be completed. Completion of the project was only possible because the author had access to the raw data files and was able to communicate with the original researchers, and future investigators should ensure that these resources are available prior to taking on a project that employs secondary data analysis.

This study asked very specifically about three different types of activity engagement: sport and/or dance, music, and chess. Data on involvement with other types of activities, such as school clubs or creative arts or theater were not available and therefore not accounted for in this study. Overlaps in activity participation were not considered in any sophisticated way, nor was year-to-year variability or cumulative effects of participation over several years. If resources are available, future studies

should be designed to provide insight into student volition or choice regarding activity participation, and account for the mitigating role of external factors such as level of parental pressure, quality of programming, and peer group variations. These data were not available and therefore are not accounted for in the analyses. Based on recommendations from past studies, mediators and moderators of benefits should be more closely examined in future studies. The author also recommends closer investigation of the moderating effects of gender, socioeconomic status, and ethnicity in future studies.

The findings from this study also suggest that future studies should employ mixed methods, blending both quantitative and qualitative research approaches to gain a more nuanced understanding of who benefits from activity participation and why. In order to truly gain an expansive appreciation for the impact of activities on youth development, it is necessary to dig deeper, beyond peripheral and superficial connections. For example, the author was only able to explain the negative associations with chess participation because information about the school's nationally ranked chess team was available on the school website. Without this information, it would have been easy to draw the conclusion that chess participation

could not be considered a developmental asset. On the individual level, there are even more distinctions to consider. For example, does being the star or captain of a sport team enable better or worse outcomes than a child who spends most of his/her time sitting on the bench? Is the degree of success and visibility associated with a particular activity more important than the activity itself? Clearly, the study of extracurricular activity involvement is far more complex, and future researchers should consider mixed methods to gain a clearer understanding of how benefits are attained.

Implications for Practitioners

The findings from this study have implications for public and educational policy, as well as for applied practice. The results of this study reinforced Gilman, Meyers, and Perez's (2004) suggestion that it is not merely enough to get an adolescent involved in an activity. School psychologists need to consider other factors, such as perceived social status, intrinsic interest, and social networks associated with an activity prior to making recommendations to students to enhance their academic or psychosocial development. Parents should be better informed of research findings to enable them to make more judicious

decisions about the breadth, frequency, and level of activity participation to optimize youth outcomes.

For the providers of extracurricular activity opportunities, how programs are created, structured, and delivered should all be informed through empirical research. This study presented a distinctly positive youth development approach to evaluating the impact of extracurricular activity on youth development. In their analysis of program evaluations, Catalano and colleagues (2004) found that the most effective programs used both negative and positive indicators of youth development to assess program success. While it is important to consider how activities can be used to ameliorate deficits in youth, it is equally important to consider what youth might gain from these developmental contexts. To reiterate, problem-free is not the only marker for a fully-prepared, psychologically and socially healthy youth. The findings from this study offered a method of assessing positive developmental gains and served as a reminder for practitioners to seriously consider building what is best in youth while preventing problems.

Many youth programs also struggle with retention issues, low attendance, and attrition. The findings from this study suggest that there may be ways to enhance

engagement with youth programs by considering person-environment fit. If synchronicity between personality traits and developmental needs can be better matched with what activity contexts can offer, youth may be more intrinsically motivated to attend, experience more flow and positive emotions, and ultimately gain more from their time spent involved with activities. Knowledge of person-environment fit can also aid in creating targeted marketing, recruitment, and outreach strategies, thus saving time and resources.

Finally, the findings from this study have implications for policy makers and the allocation of funding to extracurricular activity initiatives. The developmental benefits of activity participation for youth appear to be most important to outcomes related to well-being for academically gifted youth. Despite their socioeconomically and ethnically diverse backgrounds, and despite the fact that these youth experienced high levels of life stress, the academic benefits from activities were far less marked when compared with the psychosocial gains. If policy makers prioritize the reduction of educational disparities, these findings suggest that funding should be shifted to at-risk students rather than being allocated to academically gifted youth. However, if the goal of

educational policy makers is to provide programs that bolster well-being in youth, then findings from studies such as this one can help inform future funding decisions.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND
RECOMMENDATIONS FOR FUTURE RESEARCH**Summary**

The purpose of this study was to describe the relationship between extracurricular activity participation and concurrent and longitudinal youth academic and psychosocial development in academically gifted youth. Extracurricular activity participation as a potential protective factor against the negative effects of life events, and the theoretical role of personality/activity fit as a determinant of positive developmental benefits in youth were also explored in this study.

Secondary data analysis was conducted using data provided by two cohorts of academically gifted middle school youth from a public magnet school in Philadelphia (see chapter 4 for participant demographics and descriptions of data sources). The concurrent (same year) and longitudinal (one year later) relationships between activity participation and academic performance, well-being, and self-discipline were examined in Study 1. In Study 2, the potential role of extracurricular activity as a protective buffer against and life events and the role of

personality/activity fit as a mediator of benefits was examined in exploratory analyses.

Academic outcomes were measured through grade point averages and scores on the Terra Nova standardized exam for reading, language, math and science. Well-being was measured using the following measures: 1) Hueber's Life Satisfaction Scale (SLSS; Huebner, 1991a; Appendix C); 2) Positive and Negative Affect Scale for Children (PANAS-C; Laurent et al., 1999); and 3) Rosenberg Self Esteem Scale (RSE; Rosenberg, 1989; Appendix E). Self-discipline was measured using the Grit scale (Duckworth et al., 2007; Appendix F) and a multidimensional, composite measure of self-control (Duckworth & Seligman, 2005).

Study 1 revealed that students spent the most time involved in sport/dance, followed by music, and lastly chess. After controlling for sociodemographic selection factors, music participation was the only type of activity that was related to academic achievement for youth. Time spent in music made a significant contribution to predicting performance on reading, language, math, and science standardized exams. Sport made significant negative contributions to predicting reading and language exam scores. However, these findings are limited by a ceiling effect caused by high mean scores on grade point average

and exam scores characteristic of academically gifted youth. Sport/dance participation was the only activity associated with well-being, making a significant contribution to the prediction of positive affect. The results also revealed nonlinear associations between time spent in activities and standardized math scores, life satisfaction, self-esteem, and grit, and once again emphasized the necessity of creating more sophisticated tools and more sensitive instruments for measuring youth activity participation.

The results of Study 2 also revealed support for the protective role of extracurricular activity participation on the negative academic and psychosocial impact of life events stress on middle school aged youth. Life events stress was a significant predictor of poorer adolescent outcomes across all of the domains. Accounting for the negative impact of life events, music participation was a positive predictor of academic outcomes, and sport/dance a positive predictor of higher life satisfaction, positive affect, and self-esteem, and lower levels of negative affect. Exploratory analyses revealed that youth participated in activities that appeared to be the most compatible with their personalities. Sport was associated with higher extraversion, music with higher openness to experience, and chess with lower agreeableness.

Conclusions

The following conclusions were made according to the findings from the current study. Each conclusion was derived from specific aims and associated research questions and hypotheses, respectively.

Specific Aim 1

RQ1. Academically gifted students spent the most time engaged in sport/dance, followed by music, and finally chess. From multivariate analysis of variance (MANOVA) analyses, males spent more time engaged in sport and chess, and in total activities. Students of higher socioeconomic status spent significantly more time involved in sport, music, and in total activities. Asian and Black students spent significantly less time in sport/dance than their White peers. Using Pearson correlations to establish concurrent relationships, results showed that more time spent in music was significantly related to higher scores on reading, language, math, and science standardized exams. More time spent in sport was significantly related to higher life satisfaction, positive affect, and lower negative affect. Both chess and sport were associated with higher self-esteem. Significant, positive relationships were revealed between time spent in sport and grit, and music participation and composite self-discipline.

Longitudinally, more time spent in music was again significantly related to higher performance on standardized exams. There was a positive, significant relationship between chess participation and science exam scores. There was a positive, significant relationship between time spent in sport and life satisfaction and positive affect, and time spent in chess and negative affect. For self-discipline, the longitudinal relationships were the same as the concurrent relationships.

H1.1. After accounting for the effects of sociodemographic selection factors using multiple regression analysis (MRA), results revealed that music participation in 7th grade made a statistically significant contribution to predicting higher scores on all subjects of the Terra Nova exam in 8th grade. Sport participation was a negative predictor of reading and language exam scores. Chess participation did not make a significant contribution to predicting any of the academic outcomes.

H1.2. After accounting for the effects of sociodemographic selection factors using multiple regression analysis (MRA), results revealed that sport participation in 7th grade made a significant positive contribution to predicting positive affect in 8th grade,

while chess participation in 8th grade predicted negative affect in 8th grade.

H1.3. After accounting for the effects of sociodemographic selection factors using multiple regression analysis (MRA), the results revealed that time spent involved in any of the activities in 7th grade did not significantly contribute to the prediction of self-discipline in 8th grade.

H1.4. Curve estimation analyses were used to test for curvilinear relationships between total time spent in activity participation and youth outcomes. Results revealed that nonlinear (quadratic) models explained more variance in predicting math, life-satisfaction, and self-esteem. Growth curve models best explained the association between grit and time spent in activities.

Specific Aim 2

H2. Using multiple regression analysis (MRA) to factor in the effects of sociodemographic selection variables and the impact of stressful life events, time spent in music was the only type of activity that protected against the negative effects of life events stress in predicting academic outcomes (grade point average, reading, math, and science). Sport was the only activity that protected against the negative effects of life events stress in

predicting well-being. More time spent in sport made statistically significant contributions to predicting greater life satisfaction, positive affect, self-esteem, and lower negative affect.

Specific Aim 3

H3. Pearson correlations were used to determine whether specific personality characteristics would be associated with participation in specific activities. Time spent in sport/dance was significantly related to higher extraversion. Time spent in music was significantly related to higher openness. Time spent in chess was significantly related to lower agreeableness.

Recommendations for Future Research

The following recommendations for future research are suggested by the limitations, results, and conclusions from the current study:

1. Future studies should continue to fill gaps in the literature by extending similar studies to more diverse populations of youth, such as younger, middle/upper class minority, urban, and youth of diverse academic abilities.

2. Future studies should use instruments that measure actual time spent involved in activities, rather than using dichotomous yes/no variables, and improve on current

research design by augmenting self-report data with more objective measures of participation, including parent report and attendance records.

3. Future studies should also employ methods to account for the effects of temporal variations and cumulative effects of participation and utilize methods that account for year-to-year variations in participation and the cumulative effects of activities over the course of childhood and adolescence.

4. Future studies should consider how and to what extent micro-level factors related to the qualitative aspects of activity participation influence youths' experiences of activity participation and associated outcomes.

5. Future researchers may want to utilize process data to better understand the mediating role of program design and delivery, structure, and quality on youth outcomes.

6. While ecological theory provides a broad framework for guiding youth activity research, future studies should test more specific theoretical models through which developmental benefits could be explained, and examine less explored theories, such as flow theory, in an effort to refine the theoretical models that underlie activity research.

7. The greatest improvement for future studies may be simply the use of randomized control or experimental designs. Without comparison groups, it is difficult to parse out the effects of a particular activity from developmental changes that might be occurring simultaneously, and generalize findings to other populations.

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APPENDIX A
PRELIMINARY STUDY

In the spring of 2009, several preliminary analyses were conducted on the data set to determine if further analyses would be warranted and worth pursuing. These analyses were conducted for one of the four cohorts in the sample for one wave of data collection. Of 188 students, 106 (63.3%) consented to participate in the study.

Demographics

To determine whether students who consented to participate in the study differed significantly from those who did not, chi-square analyses were conducted and revealed no statistically significant differences on gender, race, and income category variables between the students who were enrolled vs. students who were not enrolled in the study.

Summary data on students' demographic characteristics are contained in Table 1.

Table 1: Summary Demographics

		In Study (n = 106)		Not In Study (n = 82)		Chi-Square	
		Frequency	Valid Percent	Frequency	Valid Percent	χ^2	sig
Gender	Male	47	44.3	46	56.1	2.557	.110
	Female	59	55.7	36	43.9		
	Total	106	100.0	82	100.0		
Race	White	61	57.5	37	45.1	3.901	.272
	Black	22	20.8	26	31.7		
	Hispanic	9	8.5	5	6.1		
	Asian	12	11.3	10	12.2		
	Total	104	98.1	78	95.1		
Lunch	No Subsidy	86	81.1	61	74.4	1.546	.214
	Free/Reduced Price	19	17.9	21	25.6		
	Total	105	99.1	82	100.0		
Income Median yearly income per year determined by zip code from census	Up to \$25,000	22	20.8	20	25.0	2.356	.502
	\$25,001 - \$32,000	31	29.2	18	22.5		
	\$32,001 - \$39,000	27	25.5	26	32.5		
	\$39,001 and above	26	24.5	16	20.0		
	Total	106	100	80	100		

Activity Participation

To determine if there was a difference in participation in sport, music, or chess by any of the socio-demographic variables, each activity was coded as a dichotomous variable (0 = no, 1 = yes). Chi-square analysis revealed no statistically significant differences in participation in music or chess participation by any of the socio-demographic variables. However, chi-square analysis revealed a statistically significant difference in sport participation by race, $\chi^2 (3, N = 104) = 7.77, p = .051$.

An ordinal variable was calculated by summing the total number of activities (sport, music, chess) for each student to account for the fact that many students partake in more than one activity. Chi-square analysis revealed no statistically significant difference in participation in the number of activities by any of the socio-demographic variables.

On the survey, students were asked to report on the average amount of time (in minutes) they participated in sport, music, or dance each week. The total amount of time engaged in any extracurricular activity was calculated by summing the average time (in minutes) for each activity. Sport participation was the most popular activity, followed by music and then lastly by chess. One way analysis of variance revealed no differences in intensity of participation in chess or music by any of the socio-demographic variables. Table 2 summarizes data on time spent in activity participation.

Table 2: Time Spent in Activity Participation (in minutes)

		SPORT	MUSIC	CHESS	SUM (All Activities)
Male	Mean	266.81	95.74	52.34	414.89
	(SD)	(186.96)	(135.56)	(115.59)	(305.71)
	N	47	47	47	47
Female	Mean	206.44	99.66	46.78	352.88
	(SD)	(180.44)	(152.61)	(136.03)	(347.33)
	N	59	59	59	59
Total	Mean	233.21	97.92	49.25	380.38
	(SD)	(184.95)	(144.64)	(126.82)	(329.46)
	N	106	106	106	106
No Subsidy + Applied and Denied	Mean	248.72	99.77	53.02	401.51
	(SD)	(192.33)	(141.94)	(133.03)	(325.04)
	N	86	86	86	86
Free or Reduced Lunch	Mean	161.05	91.58	34.74	287.37
	(SD)	(134.61)	(163.55)	(99.13)	(350.47)
	N	19	19	19	19
Total	Mean	232.86	98.29	49.71	380.86
	(SD)	(185.80)	(145.28)	(127.34)	(331.00)
	N	105	105	105	105
Up to \$25,000	Mean	230.45	124.09	55.91	410.45
	(SD)	(205.44)	(155.83)	(164.13)	(403.17)
	N	22	22	22	22
\$25,001 - \$32,000	Mean	203.22	100.65	77.42	381.29
	(SD)	(189.69)	(140.19)	(149.55)	(361.18)
	N	31	31	31	31
\$32,001 - \$39,000	Mean	252.22	47.78	21.11	321.11
	(SD)	(192.32)	(100.63)	(68.52)	(241.84)
	N	27	27	27	27
\$39,001 and above	Mean	251.54	124.62	39.23	415.38
	(SD)	(157.17)	(171.12)	(105.90)	(310.00)
	N	26	26	26	26
Total	Mean	233.21	97.92	49.25	380.37
	(SD)	(184.95)	(144.64)	(126.82)	(329.46)
	N	106	106	106	106
White	Mean	268.52	97.87	63.44	429.84
	(SD)	(186.50)	(137.68)	(143.57)	(323.19)
	N	61	61	61	61
Black	Mean	234.55	102.27	30.00	366.82
	(SD)	(169.11)	(158.65)	(92.58)	(316.26)
	N	22	22	22	22
Hispanic	Mean	153.33	6.67	0	160.00
	(SD)	(146.54)	(13.23)		(144.65)
	N	9	9	9	9
Asian	Mean	105.00	160.00	57.50	322.50
	(SD)	(151.63)	(188.58)	(142.71)	(423.32)
	N	12	12	12	12
Total	Mean	232.50	98.08	50.19	380.77
	(SD)	(182.83)	(145.49)	(127.86)	(328.82)
	N	104	104	104	104

A one-way analysis of variance for sport participation by race revealed intensity of participation differed significantly by race ($F= 3.54$, $p = .017$, adjusted $r^2 = .096$).

Race accounted for about 10% of the variance in sport participation. Post-hoc analyses using Tukey HSD revealed that, on average, Asian students spend significantly less time engaged in sport than their White peers. There were no statistically significant differences in the intensity of sport participation among the other comparisons. Table 3 summarizes the results.

Table 3: Analysis of Variance for Sport Participation by Race

Descriptive Statistics

Race	Mean	Std. Deviation	N
White	268.5246	186.50144	61
Black	234.5455	169.10767	22
Hispanic	153.3333	146.54351	9
Asian	105.0000	151.62753	12
Total	232.5000	182.82970	104

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	330737.332	3	110245.777	3.542	.017	.096
Intercept	2262006.328	1	2262006.328	72.682	.000	.421
Race	330737.332	3	110245.777	3.542	.017	.096
Error	3112212.668	100	31122.127			
Total	9064800.000	104				
Corrected Total	3442950.000	103				

a. R Squared = .096 (Adjusted R Squared = .069)

Multiple Comparisons

	(I) Race	(J) Race	Mean Differenc e (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	White	Black	33.9791	43.87301	.866	-80.6506	148.6088
		Hispanic	115.1913	62.99375	.266	-49.3964	279.7789
		Asian	163.5246*	55.71094	.021	17.9652	309.0840
	Black	White	-33.9791	43.87301	.866	-148.6088	80.6506
		Hispanic	81.2121	69.80441	.651	-101.1701	263.5944
		Asian	129.5455	63.30997	.178	-35.8684	294.9593
	Hispani c	White	-115.1913	62.99375	.266	-279.7789	49.3964
		Black	-81.2121	69.80441	.651	-263.5944	101.1701
		Asian	48.3333	77.79155	.925	-154.9174	251.5841
Asian	White	- 163.5246*	55.71094	.021	-309.0840	-17.9652	
	Black	-129.5455	63.30997	.178	-294.9593	35.8684	
	Hispanic	-48.3333	77.79155	.925	-251.5841	154.9174	

Based on observed means. The error term is Mean Square (Error) = 31122.127.

*. The mean difference is significant at the .05 level.

Academic Outcomes

Separate groups t-tests revealed no statistically significant differences between males and females on any of the academic outcomes. Correlation analyses were performed on the intensity of extracurricular activity participation and academic outcomes (Table 4), as measured by the Terra Nova test, a standardized achievement designed by McGraw Hill Company to assess achievement in K-12 students, and Grade Point Average as percent. Higher participation in sport was only correlated with higher scores on the Terra Nova reading assessment. Higher participation in music was correlated with higher scores on the Terra Nova math, reading, science, and mean score (calculated without the

science score). Intensity of chess participation was not correlated with any of the academic outcomes. Higher Terra Nova reading and mean scores were correlated with higher intensity of total activity participation.

Table 4: Correlation of Activity with School Outcomes (n = 106)

		SPORT	MUSIC	CHESS	SUM
Terra Nova Language Score	Pearson r	-.073	.111	.041	.024
Terra Nova Math Score	Pearson r	.032	.201*	.081	.138
Terra Nova Reading Score	Pearson r	.201*	.259**	.137	.279**
Terra Nova Science Score	Pearson r	.071	.211*	.118	.178
Mean Terra Nova Score (no Science)	Pearson r	.066	.254**	.114	.193*
GPA as Percent (2005-2006)	Pearson r	.158	.109	.035	.150

*. Correlation is significant at the .05 level (2-tailed)

**. The correlation is significant at the .01 level (2-tailed)

Participation in any individual activity (sport, music, or chess) was not significantly correlated with time spent involved with homework or watching television. However, greater intensity of participation in the total amount of activities was significantly correlated with less time watching television ($r = -.209$, $p = .034$).

Psychosocial Variables

Univariate analysis of variance was used to assess gender differences for psychosocial variables. Women scored significantly higher on the Brief Self Control Scale ($F = 3.96$, $p = .048$, adjusted $r^2 = .028$), on the Big Five

Inventory's Conscientiousness ($F= 4.47$, $p = .037$, adjusted $r^2 = .032$) and Openness ($F= 4.34$, $p = .040$, adjusted $r^2 = .031$) subscales. No other gender differences were detected for any of the other psychosocial variables. Table 5 presents the results of the correlation analyses.

Table 5: Correlations for Activity Participation and Psychosocial Variables (n = 106)

		SPORT	MUSIC	CHESS	SUM
Brief Self Control Scale	Pearson r	.021	.089	-.065	.026
Life Satisfaction Scale	Pearson r	.132	.005	-.100	.038
PANAS Positive Affect	Pearson r	.214*	.022	-.044	.113
PANAS Negative Affect	Pearson r	.083	.117	.274**	.203*
Grit	Pearson r	.216*	.155	.005	.191*
Rosenberg Self-Esteem Scale	Pearson r	.042	-.007	-.238*	-.071
Eysenck Junior Impulsivity	Pearson r	-.015	-.097	.027	-.041
BFI Extroversion Score	Pearson r	.271**	-.011	-.136	.095
BFI Agreeableness Score	Pearson r	.012	.008	-.240*	-.082
BFI Conscientiousness Score	Pearson r	.152	.113	-.112	.092
BFI Neuroticism Score	Pearson r	-.080	-.087	.128	-.034
BFI Openness Score	Pearson r	-.051	.233*	-.026	.064

*. Correlation is significant at the .05 level (2-tailed)

** . The correlation is significant at the .01 level (2-tailed)

More time spent in sport/dance participation correlated with higher levels of self-reported positive affect as measured by the PANAS, higher levels of grit, as

measured by the GRIT scale, and higher scores on the Big Five Inventory Extraversion subscale. Music participation was only correlated with higher scores on the Big Five Inventory Openness score. For chess, greater intensity of participation was associated with higher levels of self-reported negative affect as measured by the PANAS, and lower self-esteem as measured by the Rosenberg Self-Esteem Scale, and lower scores on the Big Five Inventory Agreeableness scale. Students who spent more time engaged in any of the activities scored higher on the GRIT and negative affect.

Self-Regulatory Behavior

To assess behavioral aspects of self-regulation, students were asked to answer a 12 item questionnaire that asked them to recall how many times over the past month or week (depending on the item) they engaged in specific behaviors (see Table 6). The questionnaire appears to assess four different behavioral aspects of self-regulation.

Table 6: Student Reported Behavioral Self-Regulation Items

Factor	Questionnaire Items
Decision Making	Last month, how many times did you ride in a car without a seatbelt?
	Last month, how many times did you buy something on impulse?
	Last month, how many times did you go shopping just to browse but ended up buying something?
Health Behavior	Last week, how many days did you eat junk food?
	Last week, how many days did you exercise?
	Last week, how many days did you go to bed later than you intended?
	Last week, how many days did you wake up later than you intended?
School-related Behavior	Last week, how many days did you fail to turn in a required homework assignment?
	Last week, how many days did you come to every class prepared?
	Last week, how many days did you lose something important?
	Last week, how many days did you remember to bring home everything you needed for that evening's homework assignments?
Emotion Regulation	Last week, how many days did you lose your temper?

First, Pearson Correlations were calculated for each individual item and sport, music, and chess participation. Logically, greater intensity of sport participation was positively correlated with exercise ($r = .318, p = .001$). Greater intensity of chess participation was correlated with higher incidences of students losing their temper ($r = .211, p = .034$) and students losing something important ($r = .299, p = .003$). Second, a factor analysis of the questionnaire was completed to determine whether it did assess these four different constructs (Tables 7.1 and 7.2).

Table 7.1: Factor Analysis**Total Variance Explained**

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.822	23.518	23.518	1.878	15.654	15.654
2	1.844	15.370	38.888	1.803	15.024	30.678
3	1.215	10.126	49.014	1.654	13.784	44.462
4	1.107	9.226	58.240	1.653	13.778	58.240
5	.962	8.016	66.255			
6	.789	6.575	72.830			
7	.693	5.776	78.607			
8	.636	5.296	83.903			
9	.592	4.932	88.835			
10	.528	4.402	93.236			
11	.427	3.561	96.797			
12	.384	3.203	100.000			

Extraction Method: Principal Component Analysis.

Table 7.2: Factor Analysis Rotated Component Matrix**Rotated Component Matrix^a**

	Component			
	1	2	3	4
Last month, how many times did you buy something on impulse?	.807			
Last month, how many times did you go shopping just to browse but ended up buying something?	.749			
Last month, how many times did you ride in a car without a seatbelt?	.552			
Last week, how many days did you remember to bring home everything you needed for that evening's homework assignments?		.742		
Last week, how many days did you come to every class prepared?		.620		
Last week, how many days did you exercise?		.609		
Last week, how many days did you eat junk food?				
Last week, how many days did you wake up later than you intended?			.772	
Last week, how many days did you go to bed later than you intended?			.675	
Last week, how many days did you lose something important?			.583	
Last week, how many days did you lose your temper?				.803
Last week, how many days did you fail to turn in a required homework assignment?				.626

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

The results as presented in Table 7.1 and 7.2 show that factor 1 (decision making) was the only factor that maintained its original items, and accounted for about 15.66% of the variance. The new factors were correlated with each of the types of activities. Chess participation was highly correlated with factor 4, which encompasses students losing temper and failing to turn in required homework ($r = .227$, $p = .029$). Intensity of participation in any of the other activities was not correlated with the remaining factors.

Predictors of Participation

To ascertain whether particular psychosocial variables predicted participation in sport, music or chess, regression analyses were completed using the variables that were the most highly correlated with each activity (see Table 5). Regression analyses were not conducted on music since only one of the psychosocial variables was shown to correlate with participation (BFI Openness).

For sport, higher scores on the BFI Extraversion Subscale and higher scores on the GRIT scale best predicted higher intensity of participation in sport. When the effect of all of the other variables were entered, a step-wise regression revealed that Extraversion accounted for about

6.5% of the variance ($r = .271$, $\text{adj } r^2 = .065$, $p = .005$), and GRIT and Extraversion together accounted for about 10% of the variance ($r = .336$, $\text{adj } r^2 = .113$, $p = .002$). Table 8 summarizes the results of the step-wise regression for sport.

Table 8: Step-wise Regression for Sport Participation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271 ^a	.074	.065	178.85256
2	.336 ^b	.113	.095	175.90791

a. Predictors: (Constant), BFI Extroversion Score

b. Predictors: (Constant), BFI Extroversion Score, Grit (a7)

ANOVA^c

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	264732.663	1	264732.663	8.276	.005 ^a
	Residual	3326776.771	104	31988.238		
	Total	3591509.434	105			
2	Regression	404319.205	2	202159.602	6.533	.002 ^b
	Residual	3187190.229	103	30943.594		
	Total	3591509.434	105			

a. Predictors: (Constant), BFI Extroversion Score

b. Predictors: (Constant), BFI Extroversion Score, Grit (a7)

c. Dependent Variable: SPORT_0506

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-39.522	96.382		-.410	.683
	BFI Extroversion Score	79.336	27.578	.271	2.877	.005
2	(Constant)	-252.762	138.080		-1.831	.070
	BFI Extroversion Score	75.158	27.195	.257	2.764	.007
	Grit (a7)	69.155	32.560	.198	2.124	.036

a. Dependent Variable: SPORT_0506

For chess, higher scores on the PANAS Negative Affect Subscale best predicted higher intensity of participation. When all of the other variables were entered, a step-wise regression revealed that negative affect accounted for about 6.7% of the variance ($r = .274$, $\text{adj } r^2 = .066$, $p = .005$) in chess participation. Table 9 summarizes the results of the step-wise regression.

Table 9: Step-wise Regression for Chess Participation

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.274 ^a	.075	.066	122.56560

a. Predictors: (Constant), PANAS Negative Affect (a7)

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	126417.653	1	126417.653	8.415	.005 ^a
Residual	1562321.970	104	15022.327		
Total	1688739.623	105			

a. Predictors: (Constant), PANAS Negative Affect (a7)

b. Dependent Variable: CHESS_0506

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-33.514	30.913		-1.084	.281
PANAS Negative Affect (a7)	2.466	.850	.274	2.901	.005

a. Dependent Variable: CHESS_0506

Discussion and Future Directions

Consistent with previous research, the most popular extracurricular activity for youth was sport and/or dance.

Also consistent with previous findings, Hispanic youth in this study generally appear to participate far less frequently in extra-curricular activities than their peers, and Asian youth participated less in sport than their peers. Among this cohort, participation in music appeared to be related to the biggest gains in academic achievement.

Consistent with research from Simpkins, Fredricks, Davis-Kean, and Eccles (2006) youth in the study who participated in sport reported greater levels of positive affect, and perseverance (measured by Grit), and possessed more extraverted personality characteristics. Music was associated with higher openness to experience.

Interestingly, chess was related to higher levels of negative affect, lower self-esteem, and lower agreeableness. These data pose interesting questions about the qualitative aspects of each of these activities. By nature, sport and dance offer more opportunities for goal striving and attainment, skill development with immediate feedback mechanisms, and triumph in competitive venues. Generally speaking sport activities are more highly socially valued by peers, teachers, and parents, and involve more opportunities for social interaction than music and chess.

In this study, lower levels of self-esteem were related to participation in chess. These students also

experienced higher levels of negative affect that may be related to the intensely strategic nature of the game of chess. Not surprisingly, higher levels of activity across the board were related to higher levels of negative affect and higher levels of grit. A student who is involved in many different activities might learn more about how to manage time, struggle through difficulty, and balance their responsibilities, thus having higher grit. Juggling many different activities can also result in negative affect because of the many strains and pressures to perform well in each of the venues.

This study showed no support for the relationship between sport and music participation and specific self-regulatory behaviors. For this cohort of students, chess participation was associated with students losing their temper and failing to turn in homework assignments. Since participation in chess was also associated with lower scores on the Big Five Agreeableness subscale, it would make sense that these students would also be more likely to engage in these specific behaviors.

The current study aimed to examine the role of extracurricular activity participation on academic and psychosocial outcomes, and behavioral self-control among a cohort of 8th graders. It is important to note several

obvious limitations of the study design. This study asked very specifically about 3 different types of activity engagement: sport and/or dance, music, and chess. Data on involvement with other types of activities, such as school clubs or creative arts or theater were not collected for these students. Further, the analyses were not able to account for overlaps in activity participation in any sophisticated way. Secondly, this study was a cross sectional examination of a small cohort of 106 8th graders from a single school, and so the findings from this study may be highly influenced by traits that are specific to this particular geographic region, school, and grade. As such, results from the data (especially the regressions for predicting activity participation) cannot be reliably extended to the general population. Future studies should include a more thorough assessment of participation in a wide array of activities include analyses to account for different participation profiles (see Zarrett, Fay, Li, Carrano, Phelps & Lerner, 2009), include longitudinal data, and a larger, more diverse sample of students.

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APPENDIX B
IRB APPROVAL LETTER



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Office for Human Subjects Protections
Institutional Review Board
Medical Intervention Committees A1 & A2
Social and Behavioral Committee B

3400 North Broad Street
Philadelphia, Pennsylvania 19140
Phone:215.707.3390 Fax:215.707.8387
e-mail: richard.throm@temple.edu

MEMORANDUM

To: **SACHS, MICHAEL**
CHP-KINESIOLOGY (0907)

From: Richard C. Throm
Director, Office for Human Subjects Protection
Institutional Review Board Coordinator

Date: 09-Feb-2010

Re: Exempt Request Status for IRB Protocol:
12956: The Role of Extracurricular Activity in Positive Youth Development

It has been determined by Expedited Review that this study qualifies for exemption status as follows:

45 CFR 46 Protection of Human Subjects

Section 101 (b): Unless otherwise required by department or agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

Exemption 4: Collection or Study of Existing Data. Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subject.

Nothing further is required from you at this time; however, if anything in your research design should change, you must notify the Institutional Review Board immediately.

If you should have any questions, please feel free to contact me at 215-707-8757.

Thank you for keeping the IRB informed of your clinical research.

APPENDIX C
STUDENT'S LIFE SATISFACTION SCALE
(Huebner, 1991)

Directions: We would like to know what thoughts about life you have had during the past several weeks. Think about how you spend each day and night and then think about how your life has been during most of this time. Here are some questions that ask you to indicate your satisfaction with your overall life. Circle the words next to each statement that indicate the extent to which you agree or disagree with each statement. For example, if you Strongly Agree with the statement "Life is great," you would circle those words on the following sample item;

Life is great.

Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
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It is important to know what you REALLY think, so please answer the questions the way you really think, not how you should think. This is NOT a test. There are NO right or wrong answers.

1. My life is going well.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
2. My life is just right.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
3. I would like to change many things in my life.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
4. I wish I had a different kind of life.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
5. I have a good life.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
6. I have what I want in life.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree
7. My life is better than most kids.					
Strongly Disagree	Moderately Disagree	Mildly Disagree	Mildly Agree	Moderately Agree	Strongly Agree

Huebner, E. S. (1991). Initial development of the Students' Life Satisfaction Scale. *School Psychology International*, 12, 231-243.

APPENDIX D
 POSITIVE AND NEGATIVE AFFECT SCALE FOR CHILDREN
 (Laurent et al., 1999)

Feelings and Emotions (PANAS-C)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then circle the appropriate answer next to that word.

Indicate to what extent you have felt this way during the past few weeks.

Feeling or emotion	Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
Interested	1	2	3	4	5
Sad	1	2	3	4	5
Frightened	1	2	3	4	5
Alert	1	2	3	4	5
Excited	1	2	3	4	5
Ashamed	1	2	3	4	5
Upset	1	2	3	4	5
Happy	1	2	3	4	5
Strong	1	2	3	4	5
Nervous	1	2	3	4	5
Guilty	1	2	3	4	5
Energetic	1	2	3	4	5
Scared	1	2	3	4	5
Calm	1	2	3	4	5
Miserable	1	2	3	4	5
Jittery	1	2	3	4	5
Cheerful	1	2	3	4	5
Active	1	2	3	4	5
Proud	1	2	3	4	5
Afraid	1	2	3	4	5
Joyful	1	2	3	4	5
Lonely	1	2	3	4	5
Mad	1	2	3	4	5
Fearless	1	2	3	4	5
Disgusted	1	2	3	4	5
Delighted	1	2	3	4	5
Blue	1	2	3	4	5
Daring	1	2	3	4	5
Gloomy	1	2	3	4	5
Lively	1	2	3	4	5

Note. Adaptation and extension of (a) the Positive and Negative Affect Scale (PANAS), from "Development and validation of brief measures of Positive and Negative Affect: The PANAS scales," by D. Watson, L. A. Clark, and A. Tellegen, 1988, *Journal of Personality and Social Psychology*, 54, pp. 1063–1070. Copyright 1988 by American Psychological Association; and (b) the Expanded Form of the PANAS (PANAS-X) from "*The PANAS-X: Preliminary manual for the Positive and Negative Affect Schedule—Expanded form*," by D. Watson and L. A. Clark, 1991, Unpublished manuscript, Southern Methodist University, and from "*The PANAS-X: Manual for the Positive and Negative Affect Schedule—Expanded form*," by D. Watson and L. A. Clark, 1994, Department of Psychology, University of Iowa. Copyright 1991 and 1994 by D. Watson and L. A. Clark. PANAS-X adapted with permission. PANAS-C = Positive and Negative Affect Scale for Children.

APPENDIX E
ROSENBERG SELF-ESTEEM SCALE
(Rosenberg, 1989)

Rosenberg Self-Esteem Scale

Below is a list of statements dealing with your general feelings about yourself.

If you **STRONGLY AGREE**, mark SA.

If you **AGREE**, mark A.

If you **DISAGREE**, mark D.

If you **STRONGLY DISAGREE**, mark SD.

	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I feel that I am a person of worth, at least on an equal plane with others.				
2. I feel that I have a number of good qualities.				
3. All in all, I am inclined to feel that I am a failure.				
4. I am able to do things as well as most other people.				
5. I feel I do not have much to be proud of.				
6. I take a positive attitude toward myself.				
7. On the whole, I am satisfied with myself.				
8. I wish I could have more respect for myself.				
9. I certainly feel useless at times.				
10. At times I think I am no good at all.				

Scores are calculated as follows:

* For items 1, 2, 4, 6, and 7:

Strongly agree = 3

Agree = 2

Disagree = 1

Strongly disagree = 0

* For items 3, 5, 8, 9, and 10 (which are reversed in valence):

Strongly agree = 0

Agree = 1

Disagree = 2

Strongly disagree = 3

The scale ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem.

Rosenberg, Morris. 1989. *Society and the Adolescent Self-Image*. Revised edition. Middletown, CT: Wesleyan University Press.

APPENDIX F
GRIT SCALE
Duckworth, Peterson, Matthews, & Kelly (2007)

Directions: Please respond to the following 17 items. Be honest – there are no right or wrong answers.

	NOT AT ALL LIKE ME	NOT MUCH LIKE ME	SOMEWHAT LIKE ME	MOSTLY LIKE ME	VERY MUCH LIKE ME
1. I aim to be the best in the world at what I do.	1	2	3	4	5
2. I often set a goal but later choose to pursue a different one.	1	2	3	4	5
3. I am diligent.	1	2	3	4	5
4. Failures double my motivation to succeed.	1	2	3	4	5
5. I am ambitious.	1	2	3	4	5
6. My interests are consistent from year to year.	1	2	3	4	5
7. I am doggedly persistent.	1	2	3	4	5
8. I become interested in new pursuits every few months.	1	2	3	4	5
9. I am not as diligent as most people.	1	2	3	4	5
10. I finish whatever I begin.	1	2	3	4	5
11. New ideas and new projects sometimes distract me from old ones.	1	2	3	4	5
12. I am a hard worker.	1	2	3	4	5
13. I have been obsessed with a certain project for a short time but later lost interest.	1	2	3	4	5
14. I have difficulty maintaining my focus on projects that take more than a few months to complete.	1	2	3	4	5
15. My interests change from year to year.	1	2	3	4	5
16. Achieving something of lasting importance is the highest goal in life.	1	2	3	4	5
17. I think achievement is overrated.	1	2	3	4	5
18. Setbacks don't discourage me.	1	2	3	4	5
19. I am driven to succeed.	1	2	3	4	5
20. I have overcome setbacks to conquer an important challenge.	1	2	3	4	5

21. I do not always finish what I begin.	1	2	3	4	5
22. I have achieved a goal that took years of work.	1	2	3	4	5

Directions for scoring the Grit Scale

For questions 1, 2, 4, 6, 8, 11, 12, 14, 15, and 17, assign the following points:

- 5 = Very much like me
- 4 = Mostly like me
- 3 = Somewhat like me
- 2 = Not much at all like me
- 1 = Not like me at all

For questions 3, 5, 7, 9, 10, 13, and 16, assign the following points:

- 1 = Very much like me
- 2 = Mostly like me
- 3 = Somewhat like me
- 4 = Not much at all like me
- 5 = Not like me at all

Grit is calculated as the average score for items 2, 3, 5, 6, 7, 8, 9, 10, 11, 14, 16, and 17.

The Consistency of Interest subscale is calculated as the average score for items 3, 5, 7, 9, 10, and 16.

The Perseverance of Effort subscale is calculated as the average score for items 2, 6, 8, 11, 14, and 17.

The Brief Grit Scale score is calculated as the average score for items 3, 6, 7, 8, 9, 10, 11, and 17. Ambition is calculated as the average score for items 1, 4, 12, 13, and 15.

Grit Scale citation

Duckworth, A.L., & Quinn, P.D. (2009). Development and validation of the Short Grit Scale (Grit-S). *Journal of Personality Assessment*, 91, 166-174.

<http://www.sas.upenn.edu/~duckwort/images/Duckworth%20and%20Quinn.pdf>

Duckworth, A.L., Peterson, C., Matthews, M.D., & Kelly, D.R. (2007). Grit:

Perseverance and passion for long-term goals. *Journal of Personality and Social Psychology*, 9, 1087-1101.

APPENDIX G
LIFE EVENTS CHECKLIST
Johnson, McCucheon, Sarason, & Spielberger, 1980

Instructions: If any of the events listed below occurred in the past 6 months, please put a check in the column marked 6 months. If any of the events listed happened between 6 and 12 months ago, please put a check in the column marked 12 months.

1. One of your parents/stepparents died.
2. A brother or sister died.
3. Your parents/stepparents got divorced.
4. Your parents/stepparents got separated.
5. One of your grandparents died.
6. One of your parents/stepparents was hospitalized.
7. One of your parents was remarried.
8. A brother or sister was born.
9. A brother or sister was hospitalized.
10. A parent/stepparent lost a job.
11. Major increase in the family income.
12. Major decrease in the family income.
13. Start of a new problem between your parents or stepparents.
14. End of a problem between your parents or stepparents.
15. Change in parent/stepparent's job so he/she has less time at home.
16. A new adult moved into your home.
17. You failed a grade in school.
18. You were suspended from school.
19. Start of a new problem between you and your parents/stepparents.
20. End of a problem between you and your parents/stepparents.
21. You had to go to juvenile court.
22. You failed to achieve something you really wanted.
23. Your pet died.
24. You were hospitalized for an illness or injury.
25. A close friend died.
26. You started using drugs or alcohol.
27. You stopped using drugs or alcohol.

APPENDIX H
BIG FIVE INVENTORY
John & Srivastava (1999)

Directions: The following statements concern your perception about yourself in a variety of situations. Your task is to indicate the strength of your agreement with each statement, utilizing a scale in which 1 denotes strong disagreement, 5 denotes strong agreement, and 2, 3, and 4 represent intermediate judgments. In the boxes after each statement, click a number from 1 to 5 from the following scale:

1. Strongly disagree
2. Disagree
3. Neither disagree nor agree
4. Agree
5. Strongly agree

There are no "right" or "wrong" answers, so select the number that most closely reflects you on each statement. Take your time and consider each statement carefully

	STRONGLY DISAGREE	DISAGREE	NEITHER DISAGRE NOR AGREE	AGREE	STRONGLY AGREE
1. ...Is talkative	1	2	3	4	5
2. ...Tends to find fault with others	1	2	3	4	5
3. ...Does a thorough job	1	2	3	4	5
4. ...Is depressed, blue	1	2	3	4	5
5. ...Is original, comes up with new ideas	1	2	3	4	5
6. ...Is reserved	1	2	3	4	5
7. ...Is helpful and unselfish with others	1	2	3	4	5
8. ...Can be somewhat careless	1	2	3	4	5
9. ...Is relaxed, handles stress well	1	2	3	4	5
10. ...Is curious about many different things	1	2	3	4	5
11. ...Is full of energy	1	2	3	4	5
12. ...Starts quarrels with others	1	2	3	4	5
13. ...Is a reliable worker	1	2	3	4	5
14. ...Can be tense	1	2	3	4	5

15. ...Is ingenious, a deep thinker	1	2	3	4	5
16. ...Generates a lot of enthusiasm	1	2	3	4	5
17. ...Has a forgiving nature	1	2	3	4	5
18. ...Tends to be disorganized	1	2	3	4	5
19. ...Worries a lot	1	2	3	4	5
20. ...Has an active imagination	1	2	3	4	5
21. ...Tends to be quiet	1	2	3	4	5
22. ...Is generally trusting	1	2	3	4	5
23. ...Tends to be lazy	1	2	3	4	5
24. ...Is emotionally stable, not easily upset	1	2	3	4	5
25. ...Is inventive	1	2	3	4	5
26. ...Has an assertive personality	1	2	3	4	5
27. ...Can be cold and aloof	1	2	3	4	5
28. ...Perseveres until the task is finished	1	2	3	4	5
29. ...Can be moody	1	2	3	4	5
30. ...Values artistic, aesthetic experiences	1	2	3	4	5
31. ...Is sometimes shy, inhibited	1	2	3	4	5
32. ...Is considerate and kind to almost everyone	1	2	3	4	5
33. ...Does things efficiently	1	2	3	4	5
34. ...Remains calm in tense situations	1	2	3	4	5
35. ...Prefers work that is routine	1	2	3	4	5
36. ...Is outgoing, sociable	1	2	3	4	5
37. ...Is sometimes rude to others	1	2	3	4	5
38. ...Makes plans and follows through with them	1	2	3	4	5
39. ...Gets nervous easily	1	2	3	4	5
40. ...Likes to reflect, play with ideas	1	2	3	4	5
41. ...Has few artistic interests	1	2	3	4	5
42. ...Likes to cooperate with others	1	2	3	4	5
43. ...Is easily distracted	1	2	3	4	5
44. ...Is sophisticated in art, music, or literature	1	2	3	4	5