The Pennsylvania State University

The Graduate School

College of Health and Human Development

THE ECOLOGY OF CHILDREN AND ADOLESCENTS' ACADEMIC ADJUSTMENT

A Thesis in

Human Development and Family Studies

by

Aryn M. Dotterer

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

December 2006

The thesis of Aryn Dotterer was reviewed and approved* by the following:

Susan M. McHale
Professor of Human Development
and Family Studies
Thesis Advisor
Chair of Committee

Ann C. Crouter
Professor of Human Development
and Family Studies

Linda M. Burton
Professor of Human Development
and Sociology

Alan Booth
Distinguished Professor of Sociology,
Human Development, and Demography

Douglas M. Teti
Professor of Human Development
Professor in Charge of the Graduate Program
Human Development and Family Studies

* Signatures are on file in the Graduate School

ABSTRACT

The goal of this research was to examine the nature and correlates of youth's academic adjustment. The first two studies examined school engagement among African American adolescents. School engagement is a multidimensional construct comprised of affective, behavioral, and cognitive dimensions. In this research, affective school engagement was measured via school bonding, behavioral engagement was measured via school grades, and cognitive engagement was measured via school self-esteem. Study 1 explored connections between youth's time in out-of-school activities and school engagement. Out-of school activities provide opportunities for learning and developing new skills, building social ties, and facilitating identification with social institutions, which may have implications for school engagement. Participants were 140, 6th through 9th grade African American adolescents from working and middle class, two-parent families. Youth's out-of-school activities were measured with a series of 7 nightly phone calls and focused on time in structured (homework, academically-oriented, extracurricular/sports) and unstructured (watching television, hanging out with peers) activities. School engagement was assessed during the home interview. Regression analyses controlling for parent's education and youth age showed that more time in extracurricular activities was associated with greater school self-esteem and school bonding. In addition, more time spent on homework was associated with greater school bonding for boys. Conversely, more time watching television was associated with lower school self-esteem and school bonding. Study 2 examined the relation between experiences with discrimination and school engagement as well as the role of racial socialization and ethnic identity as protective factors among 148, 6th through 12th grade African American adolescents from working and middle class two-parent families.

This study focused on experiences of discrimination from teachers and peers at school. Results documented that greater experience with discrimination at school was associated with lower school self-esteem and school bonding. Parent racial socialization had an additive effect on school self-esteem and school bonding, but did not moderate the association between discrimination and school engagement. For boys, ethnic identity also had an additive effect on school self-esteem and school bonding. For girls, ethnic identity moderated the relation between discrimination and school bonding: When girls experienced more discrimination and had lower ethnic identity, they had lower school bonding. Study 3 was based on 9 waves of data from a study of family relationships and youth development among European American families and examined the developmental pattern and correlates of youth's interest in academics. Given that 47% of high school drop outs cite lack of interest as a major reason for dropping out of school, identifying factors that contribute to or ameliorate decline in interests is an important area of research. Using a multi-level modeling strategy, this study examined individual growth trajectories of youth's interest in academics as a function of age, gender, school transitions, and parent characteristics. The overall pattern of change was one of decline, although the rate of change varied somewhat for boys compared to girls. The transition to junior high was negatively related to academic interests, while father's education level was positively related to academic interests. Results also documented that mothers' interest in academics buffered the decline in academic interests across the transition to junior high. Finally, declines in academic interest were linked to declines in grade point average.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

Chapter 4. Study 3: The Development and Correlates of Academic Interests from Childhood through Adolescence

ACKNOWLEDGMENTS

Chapter 1

GENERAL INTRODUCTION

A core developmental task of adolescence is acquiring knowledge and skills for adult

roles (Elliot & Feldman, 1990). As such adolescence is a critical time for achievement

(Henderson & Dweck, 1990). Tasks at school are more difficult than in childhood and students

are evaluated more often and usually more strictly than they were in elementary school (Eccles,

Wigfield, & Schiefle, 1998). Adolescents may view their school successes and failures as

measures of future possibilities in the adult world (Henderson & Dweck, 1990).

In addition to academic achievement, researchers have increasingly become concerned

with adolescents' school engagement (see Jimerson, Campos, & Grief, 2003; Fredricks,

Blumenfeld, & Paris, 2004 for reviews). School engagement is a multidimensional construct

comprised of affective, behavioral, and cognitive dimensions. In the research literature school

engagement has been measured in many different ways. For instance the affective dimension of

school engagement has been measured in terms of students' sense of belonging to school

(Voelkl, 1997), school attachment (Johnson, Crosnoe, & Elder, 2001), and school identification.

Behavioral school engagement has been measured by homework completion (Connell, Spencer,

& Aber, 1994; Finn & Rock, 1997), school attendance (Connell, Spencer, & Aber, 1994;

Johnson, Crosnoe, & Elder, 2001) and grade point average (Jordan, 2000; Manlove, 1998).

Finally, the cognitive dimension of school engagement has been measured via students' self-

efficacy, motivation, and educational aspirations (Jimerson, Campos, & Grief, 2003). Although

the operationalization of school engagement varies across studies, researchers agree that being

engaged in school is critical to students' school success, and many studies show that lack of

school engagement is a primary reason for school drop out (Bridgeland, DiJulio, & Morison, 2006; Finn & Rock, 1997; Mahoney, 2000).

Recent reports indicate that high school drop out continues to be an issue in the United States: one out of three students drops out before completing high school (Bridgeland, DiJulio, & Morison, 2006). High school drop out among low-income and ethnic minority youth is an even greater concern as these youth are at an increased risk for dropping out of school. With the changing economy, it is becoming a necessity for individuals to obtain post-secondary education and the socioeconomic only widens between those who drop out of school and those who obtain higher education. Achievement in school has been linked to future employment and occupational success as well as health and well-being. It is for these reasons that adolescent schooling and academic achievement are issues of concern for researchers and practicitioners alike.

These three research papers are grounded in an ecological model of development (Bronfenbrenner, 1979). The first paper focuses on connections between African American adolescents' time use outside of school and their school engagement. Adolescent development is influenced by activities and experiences that are afforded within different ecological contexts (Bronfenbrenner, 1989). Activities in one context both influence and are influenced by different contexts to afford opportunities for or set constraints on youths' involvement in particular activities. In addition, involvement in different kinds of activities are linked because time is a limited resource and spending time on one activity may preclude involvement in another activity. From a developmental perspective, activity participation is an opportunity for learning and developing new skills (Bronfenbrenner, 1979; Larson & Verma, 1999), which may be related to school engagement. In addition, participation in school-relevant activities (e.g., sports, clubs,

homework) facilitates school engagement (Finn, 1989). How youth spend their time has implications for school engagement. Thus, I examine connections between out-of-school activities and school engagement. The second paper focuses on the relation between sociocultural factors and school engagement. Moving beyond status variables such as race, this paper focuses on the socio-cultural experiences of African American youth, specifically their experiences with racial discrimination and its links to school engagement; given research showing that racial socialization is a protective factor, I also examine whether racial socialization moderates this association. The third paper examines the developmental pattern of and individual differences in European American adolescents' interests in reading, writing, language arts, mathematics, and science from middle childhood through late adolescence. One of the most widely cited reasons for declines in academic engagement is the transition to junior high and high school. In this study I examine the extent to which ecological transitions predict decline in academic interests. Parental influences are also important in students' academic motivation and achievement (Eccles, Adler, & Kaczala; Jacobs & Eccles, 2000; Wentzel, 1998). Grounded in social learning theory ideas about parents as effective role models, in this paper I examine the extent to which parents' own interests in academic subject matter, expectations for their offspring's educational attainment, and parental education may moderate patterns of change in adolescents' academic interests. Finally, I also examine the extent to which changes in adolescent's interest in academics are related to changes in school grades.

Chapter 2

Study 1: Implications of Out-of-School Activities for School Engagement

in African American Adolescents

Abstract

The connection between out-of-school activities and school engagement was examined in young adolescents. Participants were 140, 6th through 9th grade African American adolescents. Youth's out-of-school activities were measured with a series of 7 nightly phone calls and focused on time in structured (homework, academically-oriented, extracurricular/sports) and unstructured (watching television, hanging out with peers) activities. School engagement was assessed during a home interview in terms of affective (e.g. school bonding), behavioral (e.g. school grades), and cognitive (e.g. school self-esteem) dimensions. Regression analyses controlling for parents' education and youth grade in school showed that more time in extracurricular activities was associated with greater school self-esteem and school bonding. In addition, more time spent on homework was associated with greater school bonding for boys. Conversely, more time watching television was associated with lower school self-esteem and school bonding.

Introduction

The academic achievement of African American adolescents has long been a concern of educators, policy makers and researchers. Past research has documented a pattern of underachievement in African American adolescents who earn lower grades and attain less education than non-Hispanic White students (Gonzales, Cauce, Friedman, and Mason, 1996). A more general concern is that African American students are less engaged in school than youth from other racial and ethnic groups (Ainsworth-Darnell & Downey, 1998; Fordham & Ogbu, 1986). In addressing these concerns, Wong and Rowley (2001) called for studies of ethnic minority students' schooling to move beyond between-group comparisons to examine processes that explain the within-group variation. Accordingly, in the present study, we focus on working and middle class African American adolescents from two-parent families, an understudied group of ethnic minority youth.

In charting a course for research on school engagement, Wong and Rowley (2001) also suggested that researchers move beyond the study of grades and test scores as academic outcomes because these constructs reflect a narrow view of students' educational experiences. Thus in this investigation we take a multidimensional approach to the study of school engagement, examining factors that account for within-group variation in school bonding, school self-esteem, interest in academics, and grade point average among African American adolescents. Specifically, our investigation focuses on the links between time use and school engagement. Research on the connections between youth's time use and adjustment has burgeoned during the past decade (Bianchi & Robinson, 1997; Eccles & Barber, 1999; Holland & Andre, 1987, 2000; Larson, 1994; McHale, Crouter, & Tucker, 2001). In addition to their psychological adjustment and risky behavior, how youth spend their time outside of school may

have important implications for school engagement, because certain activities such as extracurricular or sports activities have the potential to foster school bonding and build skills that are beneficial for school-related competencies.

School Engagement

In their review of the literature, Jimerson, Campos, and Greif (2003) identified three dimensions of school engagement: affective, behavioral, and cognitive. The affective dimension reflects an emotional link to school and refers to students' sense of belonging to school. The affective component of school engagement has been conceptualized as school attachment (Johnson, Crosnoe, & Elder, 2001) and reflects the extent to which students feel close to people at their school, feel a part of their school, and are happy to be at their school. Voelkl (1997) referred to the affective bond between students and their schools as "identification with school." The second, behavioral dimension of school engagement includes students' observable actions or performance. Behavioral assessments of school engagement include: completing homework (Connell, Spencer, & Aber, 1994; Finn & Rock, 1997), school attendance, paying attention (Connell, Spencer, & Aber, 1994; Johnson, Crosnoe, & Elder, 2001), and school grades (Jordan, 2000; Manlove, 1998). Finally, the cognitive dimension includes students' perceptions and beliefs related to self, school, teachers, and other students. Examples of this dimension include students' sense of self-efficacy as well as their academic motivation and aspirations (Jimerson, Campos, & Greif, 2003).

Previous research on school engagement has most often focused on its affective and behavioral dimensions. For example, Finn and Rock (1997) examined behavioral engagement among low-income minority students. Students were classified as resilient (academically successful and completed high school), nonresilient completers (not academically successful, but

completed high school), and nonresilient (dropouts). Findings showed that the resilient students worked harder, had fewer absences, engaged in more learning activities, and did more homework than nonresilient students. In addition, Voelkl (1997) examined the behavioral and affective dimensions of school engagement in 181 African American and 1,150 White eighth grade students. Results showed that students who participated more in learning-related activities in the classroom also reported more school identification (sense of belonging and valuing school). Sirin and Sirin (2005) studied the affective and behavioral dimensions of school engagement as well as students' perceptions of their educational futures in middle-class African American adolescents and found that behavioral engagement and educational expectations were positively related to academic achievement as measured by school grades

Although recent research highlights the multidimensional nature of school engagement (Fredricks, Blumenfeld, & Paris, 2004; Jimerson, Campos, & Greif, 2003), we know very little about the cognitive dimension, and most work fails to assess all three components of school engagement. Accordingly, the first goal of the present study was descriptive: We begin by characterizing the affective, behavioral, and cognitive dimensions of school engagement among working and middle class African American youth and examine the linkages between these three dimensions of school engagement.

In an effort to explain variation in school engagement, a number of investigations have examined background or status variables such as race/ethnicity, gender, and socioeconomic status. For example, studying a nationally representative sample of high school youth, Johnson, Crosnoe, and Elder (2001) found that African American students reported lower levels of school attachment (sense of belonging) but were more likely to pay attention and complete homework (indicators of behavioral engagement) than their White and Hispanic counterparts. Voelkl

(1997), however, found that African American students had higher levels of school identification (sense of belonging and valuing school) than White students. These investigators and others also have studied gender differences in school engagement, documenting that girls were more engaged than boys (Connell, Spencer, & Aber, 1994; Johnson, Crosnoe, & Elder, 2001; Sirin & Sirin, 2005; Voelkl, 1997). Finally, socioeconomic status, as measured by parents' educational attainment, has been positively linked to school engagement (Johnson, Crosnoe, & Elder, 2001). Measuring socioeconomic status in terms of students' participation in a free-lunch program, however, Voelkl (1997) found no connections between SES and affective school engagement. One reason why previous work reports mixed findings regarding participant characteristics and school engagement may be due to the difference in measurement of school engagement. This also provides further evidence for the importance of utilizing multidimensional constructs to assess school engagement.

Daily Activities and School Engagement

Research linking school engagement to other academic outcomes has documented that students who are engaged in school are more likely to succeed in school and less likely to drop out (Finn & Rock, 1997; Holland & Andre, 1987; Mahoney, 2000; Sirin & Sirin 2004). The participation-identification model (Finn, 1989) is one perspective that has been offered to explain school dropout as a developmental process. This model holds that the likelihood of high school completion is maximized when students maintain multiple and expanding forms of participation in school-relevant activities. In contrast, the failure of a student to participate in school-relevant activities or to develop a sense of identification with school may have negative effects on school-related outcomes. At the most general level this model suggests that how adolescents spend their time is important for fostering school engagement. One approach to examining how adolescents

spend their time is to study their daily activities during non-school hours. In the present study we assess the connections between adolescents' daily activities and school engagement.

The extent to which youth's involvement in activities outside of school is beneficial to development has been debated in the literature. A zero-sum model suggests that time in activities that are not narrowly focused on academic pursuits interferes with students' focus on academic activities (Coleman, 1961). According to this model, extracurricular activities compete with time devoted to academics. In contrast, a developmental perspective proposes that extracurricular activities promote youth development overall and therefore foster school adjustment (Holland & Andre, 1987). For example, developmentalists posit that organized, constructive activities benefit youth by providing opportunities for learning new skills (Bronfenbrenner, 1979; Eccles, Barber, Stone, Hunt, 2003; Larson & Verma, 1999; Mahoney & Cairns, 1997).

Structured activities outside of school may also facilitate the development of social ties (Eccles & Barber, 1999; Larson, 1994). Time in organized activities, for example may bring youth into contact with peers and adults who share their interests. Interactions with well-adjusted peers who share similar goals and aspirations, in turn, can motivate youth to do well in school and spark interest in future educational and occupational pursuits (Eccles, Barber, Stone, & Hunt, 2003; Jordon & Nettles, 2000). From a sociological perspective, time in organized activities such as sports facilitates social bonds between individuals and social institutions, including school. Conversely, time in unstructured, unsupervised activities such as hanging out with friends affords youth the opportunity to engage in risky behaviors (Osgood et. al., 1996).

A body of research documents links between time use and academic adjustment in adolescence (Eccles, Barber, Stone, & Hunt, 2003; Marsh, 1992). Most of this work focuses on

adolescents' school-based extracurricular participation and documents that students who participate in extracurricular activities have higher academic achievement (Camp, 1990; Gerber, 1996; Marsh, 1992). In a recent longitudinal study, Mahoney, Carins, and Farmer (2003) examined connections between activity participation and educational attainment. Their results showed that consistent extracurricular activity participation during adolescence predicted later educational status in young adulthood. Focusing on sports participation, Jordan (2000) found that involvement in team and individual sports was positively related to GPA, general self-concept, and academic self-confidence. Eccles, Barber, Stone and Hunt (2003) also found that participation in team sports, performing arts, and student government/school spirit clubs was positively related to grade point average and self-report of school enjoyment. Although theoretical work suggests that extracurricular activities facilitate school bonding, previous work has not examined this association.

A few studies have examined how youth spend their time outside of school more generally. For example, Powell, Peet, and Peet (2002) studied time in out-of-school activities in a sample with first-grade children. Results indicated that time in literacy-oriented activities was positively associated with report card grades. Jordon and Nettles (2000) also used broader conceptualizations of youth's time outside of school and found that students who spent more time in structured activities (e.g., youth groups, sports) as well as students who spent more time alone in skill-building activities (computers, hobbies, reading) had higher math and science achievement. Using a nationally representative sample, Schreiber and Chambers (2002) categorized adolescents' after-school activities as in- or out-of-school, academic or nonacademic and organized or unorganized. Focusing on results for eighth grade African American adolescents, the researchers found that participation in out-of-school nonacademic organized

activities (e.g., neighborhood clubs, nonschool team sports) was negatively related to math achievement, and participation in out-of-school academic unorganized activities (e.g., homework) was positively related to math achievement. Cooper et al. (1999) also examined the relation between after-school activities and academic achievement as measured by standardized tests and teacher-assigned grades among students in grades 6 through 12. Using a questionnaire, adolescents reported approximately how much time they spent on homework, working at a job, extracurricular activities, structured groups outside of school, and watching television. They found that more time in extracurricular activities and less time in jobs and watching television were associated with higher test scores and grades. In addition, more time on homework was associated with better grades.

In the present study, we expanded the measurement of youth's out-of-school time by studying their daily activities via seven nightly phone interviews. Researchers have used a variety of methods for studying youths' activities. A few common strategies include categorizing participation into yes/no or asking youth to estimate the amount of time they spend on activities. Our measurement of time use, a modified daily diary procedure, improves upon previous work because we were able to more accurately assess activity durations: youth reported their activities using a cued-recall procedure (which facilitates memory) and reported on a specific and recent period of time (i.e. the day's activities). In addition, because we collected data on activities over seven days (two weekend days and five weekdays) we were able to maintain a more complete picture of how youth spend their time than we would get if we only studied three or four days.

Given our interest in school engagement, we focused on structured activities such as extracurricular and sports participation as well as on academic-focused activities (homework,

reading) because these activities have been shown to facilitate identification with school. We hypothesized that time in homework, academically-oriented activities, and extracurricular activities would be positively associated with school engagement as measured by school self-esteem, school bonding, and GPA. Conversely, time in unstructured activities may take students away from constructive activities that facilitate the development of competencies, and we hypothesized that time watching television and hanging out unsupervised would be negatively related to school engagement. This study also expanded on prior work in its focus on a range of measures of school engagement. Previous research suggests that extracurricular activities benefit adolescents by enhancing their feelings of connectedness to their school; however school bonding has not been assessed in previous work. In the present study, we assessed students' school bonding in addition to academic achievement and school self-esteem. Given gender differences in time use (McHale, Crouter, & Tucker, 2001; Posner & Vandell, 1999) and the different school experiences of African American boys compared to girls (Ferguson, 2000; Johnson & Englehard, 1991; Pollard, 1993) we also examined whether gender moderated the relation between out-of-school activities and school engagement.

Methods

Participants

The data were drawn from the first phase of a longitudinal study of gender socialization and development in two-parent African American families. Participants were recruited from two large eastern cities using two different recruitment strategies. First, we hired African Americans who resided in the targeted communities to recruit families by posting flyers in local businesses, providing information on the study to local churches, and distributing flyers at youth activities. Interested families then contacted the recruiters who passed on their names to the project office.

Approximately half the sample was recruited using this procedure. We also purchased a

marketing firm list that included names and addresses of African American students in grades 4

through 7 who lived in the geographic region of interest. We sent letters to families that

described the study and included an 800 number to call and a postcard to return to the project

office if the family fit the study criteria and was interested in participating. Because the

marketing firm could not determine family structure or either presence or age of siblings,

however, many letters went to families that did not meet project criteria. Of 1,796 letters sent,

131 were returned by the post office as undeliverable. Of the 142 families that expressed

interest, 93 were eligible and 49 ineligible. Of those eligible, 86 of the families recruited via the

marketing list were interviewed and 7 were not either because the family could not be located

based on the information provided on their postcards or because the family was too busy to

schedule an interview during the time frame of the study (i.e., the school year).

Sample characteristics are presented in Table 1. All of the participating families self-

identified as African American or Black. In terms of social class, families ranged from working

to middle-class as reflected in parents' occupations, education and family income. The present

analyses focused on 140 adolescents (47% girls 53% boys) in grades 6 through 9. On average,

adolescents were 13.07 years old (SD 1.13); most adolescents attended public or charter schools

(74%), and the remainder attended private or parochial school.

Procedures

Two procedures were used for data collection. First, home interviews were conducted

with mothers, fathers, and offspring. The interviews began with a brief description of the study.

Informed consent was then obtained, and the family was paid a $200 honorarium. Family

members were interviewed separately about their personal qualities and family relationships.

Following the home interview, seven evening telephone interviews were also conducted. These

calls were scheduled at each family's convenience. During the calls, youth reported on their

daily activities outside of school hours. Specifically, youth were asked how many times they had

participated in each of 72 kinds of activities, including 48 free-time activities, 15 household

tasks, and 9 personal activities, from the time they woke up that morning until the time of the

call. For each activity reported, youth were asked how long the activity had lasted and with

whom they had engaged in that activity.

Measures

Parents' education was assessed during the parent portion of the home interview. Both

mothers and fathers reported on their highest level of education obtained using a scale in which

12 = high school graduate, 14 = some college, and 16 = college graduate. The mean of mothers'

and fathers' education levels, which were correlated, $r = .53$, $p < .001$, was used a control.

School self-esteem was measured ten items from the school subscale of the Hare Area-

Specific Self-Esteem Scale (Hare, 1996). Items were rated using a 4-point Likert-type scale

ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores on this scale denote

greater school self-esteem (e.g. "I usually have been proud of my report card"). Cronbach's

alpha reliability for this sample was .80.

School bonding was assessed with five items adapted from prior research (Fine, 1991;

Voelkl, 1997) that reflected students' sense of belonging to their schools (e.g., "I feel close to

people at my school"). Responses were rated along a 5-point Likert-type scale ranging from 1

(*strongly disagree*) to 5 (*strongly agree*). Cronbach's alpha reliability for this sample was .78.

Grades were obtained from youth's report cards during the home interview. Grade point

average was calculated from grades in math, science, social studies, and language arts. Letter

grades were assigned numerical scores (A = 4, and so forth) such that high scores signified

higher grades.

Adolescents' activities were measured via data collected in telephone interviews.

Specifically adolescents' reports were aggregated across the seven calls to construct indices of

the duration of time in minutes that youth spent in five categories of activities: (1) academically-

oriented activities (reading, going to the library); (2) homework; (3) sports/extracurricular

activities (organized sports, student government, yearbook, drama, theatre, scouts); (4) watching

television; and (5) hanging out (not really doing any activities, just hanging around). As an

index of interreporter agreement, parents' and youth's report of their joint activities were

correlated. Correlations ranged from .74 to .79.

<div align="center">Results</div>

Preliminary Analyses

As a preliminary step, we examined the distributions of both the dependent and

independent variables. These analyses revealed that the dependent variables were all normally

distributed, but the independent variables (the activity measure) were not. Accordingly, square

root transformations were performed on the independent variables.

Next, descriptive statistics were computed on adolescents' time in out-of-school activities

and school engagement. As shown in Figure 1, adolescents spent most of their time outside of

school watching television ($M = 323.37$, $SD = 209.03$), followed by doing homework ($M = 179.41$, $SD = 133.06$), and participating in extracurricular activities ($M = 114.20$, $SD = 180.41$).

They spent the least amount of time doing other academically-oriented activities ($M = 36.46$, $SD = 47.16$) and hanging out with friends with no adults present ($M = 29.79$, $SD = 55.98$).

An examination of the nature of adolescents school engagement revealed that youth scored above the midpoints on school self-esteem ($M = 30.79$, $SD = 4.59$) and school bonding ($M = 3.81$, $SD = 0.83$). In addition, youth earned average grades in school ($M = 2.75$, $SD = 0.80$). Gender differences in adolescents' time in out-of-school activities and school engagement were examined with t-tests. Girls tended to spend more time on homework than boys, $t (140) = 1.69$, $p = 0.09$. There were, however, no differences between girls' and boys' time in academically-oriented activities, extracurricular activities, watching television, or hanging out with friends. There also were no gender differences in school bonding, school self-esteem, or grade point average.

Time is finite and thus spending time on one activity means having less time to do another. To examine potential trade offs in youth's time use we assessed the correlations between the out-of-school activities separately for girls and boys, partialling out parents' education and youth's grade in school. As Table 2 shows, for both girls and boys, time spent on homework was not related to time spent in extracurricular activities, watching television, or hanging out with friends. For boys, time spent in academically-oriented activities was positively related to time in homework. For girls, time spent in academically-oriented activities was negatively related to extracurricular activities. For boys, time in extracurricular activities was negatively related to time spent watching television. Finally, for girls, time spent hanging out with friends was negatively related to time spent doing homework.

We also examined partial correlations between the three indicators of school engagement, again controlling for parents' education and grade. School bonding was positively correlated with school self-esteem, $r = .47$, $p < .01$, and school self-esteem was positively related to GPA, $r = .32$, $p < .01$, but school bonding was not significantly related to GPA, $r = .05$, $p = .57$.

Links Between Out-of-School Activities and School Engagement

We conducted separate regression models by activity using a hierarchical approach to examine the links between out-of-school activities and school engagement. The control variables (parental education, age, and gender) and predictor variables time in homework activities, academically-oriented activities, extracurricular activities, watching television, and hanging out were entered in the first step. In the second step the interaction between gender and each activity variable was entered. The interaction terms were created by taking the cross-product of gender and each activity variable. Variables were mean-centered before creating the interaction terms in order to reduce collinearity and facilitate in the interpretation of effects (Aiken & West, 1991).

Beginning with school self-esteem (Table 3), the results revealed that time spent in extracurricular activities was positively related to school self-esteem and time spent watching television was negatively related to school self-esteem. The more time adolescents spent in extracurricular activities, the higher their school self-esteem was. Adolescents who spent more time watching television had lower school self-esteem. These effects were not moderated by gender.

Turing to school bonding, time spent on homework was a significant positive predictor of school bonding, but this effect was qualified by a significant homework time X gender interaction (see Table 3). The interaction was probed according to procedures outlined by Aiken and West (1991) and indicated that homework time was a significant and positive predictor of school bonding for boys, $B = .46$, $p < .01$, but homework time was unrelated to school bonding for girls, $B = .10$, $p = .41$. Time spent on extracurricular activities was also significant positive predictor of school bonding, and this association did not differ for boys and girls. In contrast,

time spent watching television was a significant negative predictor of school bonding, but this association was qualified by a significant interaction with gender: Time watching television was negatively related to school bonding for boys, $B = -.31$, $p < .05$, but there was no association for girls, $B = .03$, $p = .84$.

Finally, turning to school grades, we found a significant hang out X gender interaction for GPA. Probing this interaction (Aiken & West, 1991) showed that although the slopes for hanging out were significantly different for boys ($B = -.17$, $p < .10$) and girls ($B = .22$, $p < .10$), neither slope was significantly different from zero.

Discussion

Researchers and educators have been concerned about African American youth's school engagement given findings of their lower academic achievement compared to youth from other ethnic groups. Thus, identifying factors that promote school engagement in this population is an important area of research. Previous work suggests that how youth spend their time outside of school has implication for school engagement. In the present study, we built on prior work by (1) focusing on African American youth from two-parent, working and middle class families; (2) using a multidimensional conceptualization of school engagement to more fully understand the school experiences of these adolescents; and (3) expanding on the measurement of time in out-of-school activities by using a modified "daily diary" approach to collect data in a series of seven nightly telephone calls.

Much of the research related to school outcomes among African American youth has either been focused on between-group comparisons (e.g. comparisons of European American adolescents to African American adolescents) or has focused on African American youth considered to be "at risk" because of socioeconomic status, family structure, or urban residence.

As a result, we know little about the school engagement of African American youth who are not necessarily "at risk" for poor school outcomes. Thus, we began this investigation by examining three dimensions of school engagement among African American adolescents from two-parent, working and middle class families. We found that adolescents scored above the midpoints on school self-esteem and school bonding and earned average grades. Although these youth did not excel academically, they do not appear to be at risk for school failure either. Contrary to previous research showing that African American girls have higher academic achievement and school bonding than boys (Connell, Spencer & Aber, 1994; Sirin & Sirin, 2005), we found no gender differences in school self-esteem, school bonding, or GPA with this sample of youth from middle and working class two-parent families. Previous research has tended to focus on low-income youth, and may be the basis for different patterns of findings.

As expected, we found that time in homework and extracurricular activities were positively associated with some aspects of school engagement. Specifically, boys who spent more time on homework had higher levels of school bonding. This is an interesting finding given that homework is a required activity. It appears that homework may be beneficial for promoting school bonding, for boys in particular.

Coleman's zero-sum model (1961) suggests that adolescents who put their energies into sports and other non-academic activities are less likely to pursue academic objectives. Our results, however, indicated that time spent in extracurricular activities did not seem to interfere with time spent on homework. We also found that time in extracurricular activities was positively related to both school self-esteem and school bonding. These findings are consistent with theories about the benefits of participation in structured activities, which hold that such activities provide adolescents with opportunities to learn and develop skills (Bronfenbrenner,

1979; Larson & Verma, 1999). Participating in sports and clubs may facilitate learning organizational, planning, and time management skills that are important for school success. In addition, participation may implications for the "self-system" (Holland & Andre, 1986). For example, participating on a sports team may promote self confidence, which may be why we found extracurricular activities to be positively related to school self-esteem. In addition, sport and club activities may facilitate the development of qualities such as determination and perseverance. Individuals with these characteristics may be less likely to give up when they face challenging tasks at school, which also may explain why we found an association between extracurricular activities and school-self-esteem.

Our finding that time in extracurricular activities was positively related to school bonding is consistent with the idea that extracurricular activities can facilitate a positive identification with institutions such as school (Marsh, 1992). Youth who participate in these types of activities may develop positive relationships with teachers and peers and therefore feel like an important part of their school.

As predicted, we found that time watching television was negatively related to school engagement. Specifically, adolescents who spent more time watching television had lower school self-esteem, and boys who watched more television had lower school bonding. Given that time watching television was negatively related to time in extracurricular activities, it may be that youth who spend more time watching television miss out on participating in extracurricular activities that facilitate school engagement. Surprisingly, we did not find that unsupervised peer time was negatively related to school engagement. However, the amount of time that adolescents spent in unsupervised peer time, was generally small. Had more youth spent time in this activity a link between hanging out and school engagement may have emerged.

Out-of-school activities were differentially related to aspects of school engagement: We found that time in out-of-school activities was related to school self-esteem and school bonding, but not to school grades. Thus it seems that the benefits of out-of-school activities have more of a bearing on aspects of school engagement such as school self-esteem and school bonding than on academic performance as measured by school grades. This finding however, is important because even though these students did not excel academically, another way to keep them engaged in school (via school self-esteem and school bonding) is through the kinds of out-of-school activities they pursue.

Although we found links between out-of-school activities and school engagement, our correlational design means that we cannot draw conclusions about the direction of these effects. One of the problems with studying activities is that of selection effects (see Holland & Andre, 1987). Individuals may have characteristics that lead them into particular activities, which in turn, facilitates their school engagement. For example, youth who are "school-oriented" may chose to participate in academic clubs that then lead to school engagement. Only experimental research with random assignment could establish causality between out-of-school activities and school engagement.

The results of this study highlight the importance of structured extracurricular activities for school engagement, particularly school self-esteem and school bonding. While funding for extracurricular activities is often the first to be cut from school and community budgets when funds are low, it is important to note that these types of programs are important for school self-esteem and school bonding. Attachment to social institutions such as school has been shown to reduce the likelihood that adolescents will engage in risky behaviors (Hirschi, 1969; Osgood et

al., 1996) and students who are engaged in school are less likely to drop out (Finn & Rock, 1997;

Mahoney, 2000).

References

Bianchi, S. M. & Robinson, J. (1997). What did you do today? Children's us of time, family

composition, and the acquisition of social capital. *Journal of Marriage and the Family,*

59, 332-344.

Camp, W. (1990). Participation in student activities and achievement: A covariance structural

analysis. *Journal of Educational Research*, *83*, 272–278.

Coleman, J. S. (1961). *The adolescent society*. New York: Free Press.

Connell, J., Spencer, M. B., Aber, J. L. (1994). Educational risk and resilience in African

American youth: Context, self, action, and outcomes in School. *Child Development,*

65, 493-506.

Cooper, H., Valentine, J. C., Nye, B., & Lindsay, J. J. (1999). Relationships between five after-

school activities and academic achievement. *Journal of Educational Psychology, 91,*

369-378.

Eccles, J. S.& Barber, B. L. (1999). Student council, volunteering, basketball, or marching

band: What kind of extracurricular involvement matters? *Journal of Adolescent*

Research, 14, 10-43.

Eccles, J. S., Barber, B. L., Stone, M., & Hunt, J. (2003). Extracurricular activities and

adolescent development. *Journal of Social Issues, 59,* 865-889.

Ferguson, A. A. (2000). Bad Boys: Public School in the Making of Black Masculinity. Ann

Arbor, MI: The University of Michigan Press.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59,* 117-142*.*

Finn, J. D. & Rock, D. A. (1997). Academic success among students at risk for school failure.

Journal of Applied Psychology, 8, 221-234.

Fordham, S. & Ogbu, J. (1986). Black students' school success: Coping with the "Burden of 'Acting White'". *Urban Review, 18*(3), 176-206.

Fredricks, J., Blumenfeld, P, & Paris, A. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74,* 59-109.

Gerber, S. (1996). Extracurricular activities and academic achievement. *Journal of Research and Development in Education*, *30(1)*, 42–50

Gonzales, N., Cauce, A. M., Friedman, R., and Mason, C. (1996). Family, peer, and neighborhood influences on academic achievement of African American adolescents: One year prospective effects. *American Journal of Community Psychology, 24*(3), 365-387.

Hare, B. R. (1996). Hare General and Area-Specific Self-Esteem measure. In *Handbook of Tests and Measurements for Black Populations*. Reginald Jones (Ed.). Cobb & Henry: Hampton, VA.

Hirschi, T. (1969). Causes of delinquency. Berkeley: University of California Press.

Holland, A. & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research, 57,* 437-466.

Jimerson, S., Campos, E., & Greif, J. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist, 8,* 7-27.

Jordan, W. (1999). Black high school students' participation in school-sponsored sports activities: Effects on school engagement and achievement. *Journal of Negro Education, 68,* 54-71.

Jordan, W. & Nettles, M. (2000). How students invest their time outside of school: Effects on school-related outcomes. *Social Psychology of Education, 3,* 217-243.

Johnson, M. K., Crosnoe, R., & Elder, G. (2001). Students' attachment and academic engagement: The role of race and ethnicity. *Sociology of Education, 74,* 318-340.

Larson, R. (1994). Youth organizations, hobbies, and sports as developmental contexts. In R.K. Silbereisen & E. Todt (Eds.), Adolescence in context: The interplay of family, school, peers, and work in adjustment (pp. 46-65). New York: Springer-Verlag.

Larson, R. & Verma, S. (1999). How children and adolescents spend time across the world: Work, play, and developmental opportunities. *Psychological Bulletin, 126,* 701-736.

Mahoney, J. & Carins, R. B. (1997). Do extracurricular activities protect against early school dropout? *Developmental Psychology, 33*, 241-253.

Mahoney, J., Carins, R. B., & Farmer, T. (2003). Promoting interpersonal competence and educational success through extracurricular activity participation. *Journal or Educational Psychology, 93,* 409-418.

Manlove, J. (1998). The influence of high school dropout and school disengagement on the risk of school-age pregnancy. *Journal of Educational Pscyhology, 91,* 62-75.

Marsh, H. W. (1992). Extracurricular activities: A beneficial extension of the traditional curriculum or a subversion of academic goals? *Journal of Educational Psychology, 84,* 553-562.

McHale, S .M., Crouter, A. C., & Tucker, C. J. (2001). Free-time activities in middle childhood: Links with adjustment in early adolescence, *Child Development, 72,* 1764-1778.

Osgood, D. W., Wilson, J. K., O' Malley, P. M., Bachman, J. G., & Johonston, L. D. (1996). Routine activities and individual deviant behavior. *American Sociological Review, 61*, 635-655.

Phinney, J. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. *Journal of Adolescent Research, 7*, 156-176.

Posner, J. K. & Vandell, D. L. (1999). After school activities and the development of low-income children: A longitudinal study. *Developmental Psychology*, *35*, 868-879.

Powell, D. R., Peet, S. H. & Peet, C. E. (2002). Lower-income children's academic achievement and participation in out-of-school activities in first grade. *Journal of Research in Childhood Education, 16*, 202-211.

Schreiber, J. & Chambers, E. (2002). After-school pursuits, ethnicity, and achievement for 8th- and 10th-grade students. *The Journal of Educational Research, 96,* 90-100.

Sirin, S. R. & Sirin L. (2005). Components of school engagement among African American adolescents. *Applied Developmental Science, 9,* 5-13.

Sirin, S. R. & Sirin L. (2004). Exploring school engagement of middle-class African American adolescents. *Youth & Society, 35,* 322-340.

Voelkl, K. E. (1997). Identification with school. *American Journal of Education, 105*, 294-318.

Wong, C. & Rowley, S. (2001). The schooling of ethnic minority adolescents. *Educational Psychologist, 36,* 57-66.

Table 1

Means and Standard Deviations for Background Characteristics of the Sample (N = 140)

Variables	*M*	*SD*
Mother's education	14.63	1.89
Father's education	14.38	2.25
Family income	90,393	60,510
Youth age	13.07	1.13
Youth grade	7	1

Table 2

Correlations Between Out-of-School Activities with Parents' Education and School Grade Partialed Out (N = 140)

Variables	1	2	3	4	5	*M (Boys)*	*SD*
1. Homework	–	.22†	.13	-.01	.04	160.41	116.34
2. Academically-oriented	.05	–	-.03	.04	-.03	35.09	49.98
3. Extracurricular	.06	-.33**	–	-.47**	-.06	138.63	204.03
4. Television	-.06	-.11	.08	–	.19	300.66	214.60
5. Hang out	-.27*	.09	-.02	.05	–	36.75	62.17
M (Girls)	205.00	38.55	89.06	350.34	19.64		
SD	148.54	44.52	148.39	200.54	41.91		

Notes. All out-of-school activities were square root transformed to correct skewness; means are based on nontransformed values.

Boys are above the diagonal; girls are below the diagonal.

†*p* < .10. **p* < .05. ***p* < .01.

Table 3

Links Between Out-of-School Activities and School Engagement (N = 140)

	School Self-Esteem		School Bonding		GPA	
Variable	*B*	SE	*B*	SE	*B*	SE
Homework	0.12	.07	0.29**	.01	-0.12	.01
Homework*gender	0.09	.15	0.26*	.03	-0.04	.02
R^2		.02		.13		.09
F for change in R^2		0.52		4.13**		2.69*
Academic	0.02	.81	-0.08	.02	0.16	.03
Academic*gender	-0.18	.20	0.07	.04	0.00	.03
R^2		.02		.03		.10
F for change in R^2		0.44		0.86		3.00**
Extracurricular	0.26**	.05	0.22**	.01	-0.05	.01
Extracurricular*gender	-0.07	.09	0.13	.02	-0.23	.02
R^2		.06		.08		.10
F for change in R^2		2.34+		2.23*		2.97**
Television	-0.26**	.06	-0.17*	.01	-0.02	.01
TV*gender	-0.09	.12	-0.26*	.02	-0.01	.02
R^2		.07		.08		.08
F for change in R^2		2.56*		2.31*		2.24*
Hang out	-0.13	.09	-0.07	.02	-0.03	.02
Hang out*gender	-0.17	.18	-0.01	.03	-0.30	.03
R^2		.03		.02		.11
F for change in R^2		0.81		0.76		3.24**

Note: Variables were centered at their means.

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

List of Figures

26%

48%

5%

17%

4%

- Homework
- Academically-oriented
- Extracurricular
- Hang out
- Television
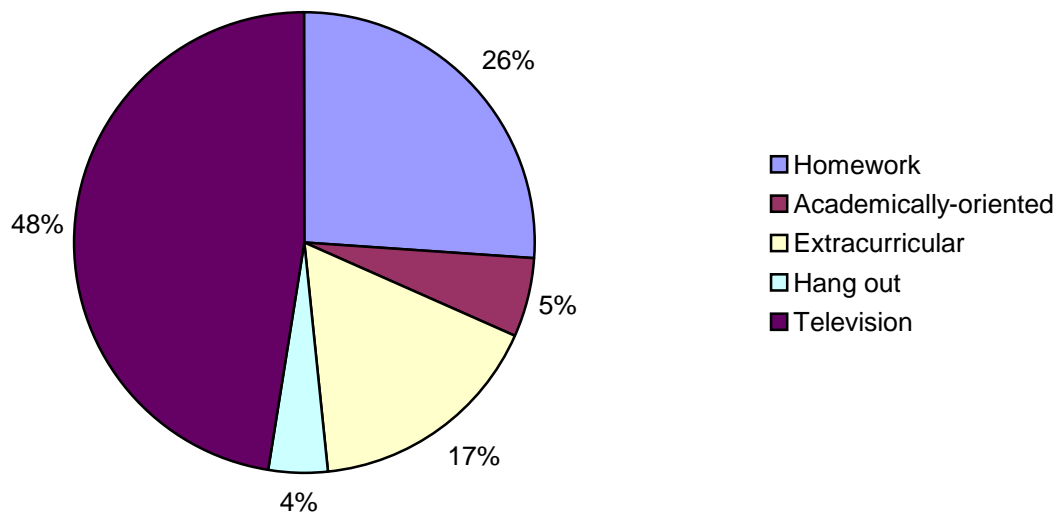
Chapter 3

Study 2: Sociocultural Factors and School Engagement among African American Youth: The Roles of Racial Discrimination, Racial Socialization and Ethnic Identity

Abstract

This study investigated the relation between racial discrimination and school engagement and the role of racial socialization and ethnic identity as protective factors among 148, 6th through 12th grade African American adolescents from working and middle class two-parent families. Youth were interviewed in their homes about their ethnic identity, discrimination experiences at school, and school engagement (school bonding, school grades, school self-esteem); parents were interviewed about their racial socialization practices. Analyses revealed that discrimination was negatively related to school self-esteem and school bonding. Racial socialization had an additive effect on school self-esteem and school bonding, but did not moderate the association between discrimination and school engagement. For boys, ethnic identity had an additive effect on school self-esteem and school bonding, but for girls, ethnic identity moderated the relation between discrimination and school bonding: When girls experienced more discrimination and had lower ethnic identity, they also had lower school bonding.

Introduction

School engagement refers to how students feel, behave, and think about their school experiences and has been identified as a critical for the academic achievement of African American adolescents (Steele, 1992). Although researchers and policymakers have been concerned about the underachievement of African American youth, much of the research has focused on low-income students who are at-risk for school failure. This focus over generalizes the experience of low-income students to African American youth as a whole and ignores possible within-group variation. With some important exceptions (Sirin & Sirin, 2004), we know very little about school engagement and its correlates among working and middle-class African American youth.

One of the issues that sets minority youths school experiences apart from those of other students is racial discrimination. Recent research highlights the importance and pervasiveness of racial/ethnic discrimination for minority youth in the United States (Brown & Bigler, 2005; Stone & Han, 2004; Wong, Eccles, & Sameroff, 2003). Experiences with discrimination have been identified as a potential risk factor for African American adolescents (Comer, 1995; Fisher & Shaw, 1999; Stevenson, McNeil, Herrero-Taylor, & Davis, 2005; Wong, Eccles, & Sameroff, 2003). Indeed, experiences of discrimination have been linked to poor psychological functioning in African American youth (Fisher & Shaw, 1999; Simmons, Murry, McLoyd, Lin, Cutrona, Conger, 2002). More recently researchers have examined how discrimination is related to achievement motivation and performance (Wong et al., 2003; Neblett et al., 2006). The relation between discrimination and youth school engagement (e.g. school self-esteem and school bonding), however, has not yet been investigated.

In contrast to discrimination experiences, racial socialization and ethnic identity are mechanisms that may promote resiliency among minority youth (Miller, 1999). Racial socialization may serve as a protective factor by enhancing the ability of African American adolescents to cope with race-related stressors such as discrimination (Stevenson, Reed, Bodison, & Bishop, 1997). Previous studies have found that youth's experiences with discrimination are linked to parents' racial socialization practices (Hughes & Johnson, 2001; Stevenson, McNeil, Herrero-Taylor, & Davis, 2005), suggesting that parents may help youth cope with these negative experiences. Researchers have posited that ethnic identity can also promote resiliency among minority youth (Miller, 1999). Racial socialization and ethnic identity are thought to promote effective coping and psychological strength (Scott, 2003), which are important for overcoming the negative effects of race discrimination.

The purpose of the present study was to examine sociocultural factors related to school engagement among African American youth. We drew on an ecological model of human development (Bronfenbrenner, 1979) to study connections between adolescents' experiences with discrimination and school engagement. Using a risk and resilience framework, we also examined the extent to which racial socialization and ethnic identity buffered the association between discrimination and school engagement. The ecology of adolescents' school experiences was measured in terms of experiences with discrimination by teachers and peers to examine the following research questions: (1) How do experiences of discrimination by teachers and peers relate to school engagement among African American adolescents? (2) Do parents' racial socialization practices or youth ethnic identity moderate the relation between youth's experiences with discrimination and their school engagement?

School Engagement

In their review of the literature, Jimerson, Campos, and Greif (2003) identified three dimensions of school engagement: Affective, behavioral, and cognitive. The affective dimension reflects an emotional link to school and refers to students' sense of belonging to school. The affective component of school engagement has been conceptualized as school attachment (Johnson, Crosnoe, & Elder, 2001) and reflects the extent to which students feel close to people at their school, feel a part of their school, and are happy to be at their school. Voelkl (1997) referred to the affective bond between students and their schools as "identification with school". The second, behavioral dimension of school engagement includes students' observable actions or performance. Behavioral assessments of school engagement include: Completing homework (Connell, Spencer, & Aber, 1994; Finn & Rock, 1997), school attendance, paying attention (Connell, Spencer, & Aber, 1994; Johnson, Crosnoe, & Elder, 2001), and school grades (Jordan, 2000; Manlove, 1998). Finally, the cognitive dimension includes students' perceptions and beliefs related to self, school, teachers, and other students. Examples of this dimension include students' sense of self-efficacy as well as their academic motivation and aspirations (Jimerson, Campos, & Greif, 2003).

In an effort to explain variation in school engagement, a number of investigations have examined background or status variables such as race/ethnicity, gender, and socioeconomic status. For example, studying a nationally representative sample of high school youth, Johnson, Crosnoe, and Elder (2001) found that African American students reported lower levels of school attachment (sense of belonging) but were more likely to pay attention and complete homework (indicators of behavioral engagement) than their White and Hispanic counterparts. Voelkl (1997), however, found that African American students had higher levels of school identification

(sense of belonging and valuing school) than White students. These investigators and others also have studied gender differences in school engagement, documenting that girls were more engaged than boys (Connell, Spencer, & Aber, 1994; Johnson, Crosnoe, & Elder, 2001; Sirin & Sirin, 2005; Voelkl, 1997). Finally, socioeconomic status, as measured by parents' educational attainment, has been positively linked to school engagement (Johnson, Crosnoe, & Elder, 2001). Measuring socioeconomic status in terms of students' participation in a free-lunch program, however, Voelkl (1997) found no connections between SES and affective school engagement.

In sum, the results from these studies are mixed, with only some finding that African American students score lower in some aspects of school engagement, but not others. These mixed findings highlight the importance of using a multidimensional conceptualization of school engagement, as focusing on one aspect of school engagement may provide an incomplete picture of school experiences. In addition, previous work has not taken into account experiences such as discrimination that set minority youth school experiences apart from the majority group. Discrimination at school may impinge on school engagement by undermining self-confidence and sense of belonging in the school.

Experiences with Discrimination

In the United States minority groups are frequent targets of prejudice and discrimination (Spencer & Dornbusch, 1990). Such experiences may have an impact on youth's achievement in school and set their experiences apart from majority group adolescents. Spencer and Dornbusch (1990) also point out that discrimination experiences permeate all social classes. The resources that youth from advantaged backgrounds have available to buffer the effects of discrimination, however, are likely to differ from the resources available to socio-economically disadvantaged youth. For example, parents with more education are more likely to engage in racial

socialization practices with their offspring (Hughes & Chen, 1997) and racial socialization has been positively linked to adolescents' perceived control over discriminatory experiences (Scott, 2004).

Stereotype threat refers to the psychological effects of prejudice experienced by individuals. Aronson, Quinn, and Spencer (1998) defined stereotype threat as "the discomfort targets feel when they are at risk of fulfilling a negative stereotype about their group; the apprehension that they could behave in a way as to confirm the stereotype" (pg. 85). They argue that stereotype threat can undermine academic achievement by influencing performance on mental tasks and by prompting students to protect their self-esteem by disengaging from the threatened domain. This theory proposes that in order to protect their self-esteem, minority adolescents may de-identify with academic achievement, lowering the value they attach to academic achievement and detaching their self-esteem from academic experiences. Several researchers, however, have found no evidence of greater academic de-identification from school among African American students as compared to other groups (Eccles, 2001 cf. Eccles, Wigfield, Byrnes, 2003; Steinberg, Dornbusch, & Brown, 1992).

More generally, experiences with discrimination have been conceptualized as a risk factor for African American adolescents' well-being and adjustment (Wong, Eccles, & Sameroff, 2003; Scott, 2004; Stevenson, McNeil, Herrero-Taylor, & Davis, 2005). For example, racial discrimination has been linked to depressive symptoms in African American youth (Simmons, Murry, McLoyd, Cutrona, & Conger, 2002). Examining psychological adjustment in African American college students, Fisher and Shaw (1999) found that reports of racist events were related to poorer mental health, particularly among those with less racial socialization experience. Despite the concern that experiences with discrimination are a risk factor for

negative outcomes in minority youth, only a handful of studies have examined connections between experiences with discrimination and academic outcomes. One important exception is Wong et al.'s (2003) study of ethnic discrimination and school adjustment in African American youth. These researchers found that perceived discrimination by peers and teachers was negatively related to academic motivation (e.g., importance of school, utility value of school, beliefs about their own academic competence) but was not significantly related to academic achievement as measured by school grades. These findings underscore the importance of examining the relation between experiences with discrimination and dimensions of school engagement beyond academic achievement, such as school bonding or school self-esteem.

Cultural Resources

Ethnic minority families are both a part of and apart from the dominant culture (Wilson, Cooke, Arrington, 1997), and therefore teaching children how to interact effectively in two cultures is an important aspect of socialization in these families (Boykin & Toms, 1985; Peters, 1985; Parke & Buriel, 1998). Thus, in addition to the socialization practices that are common in all families, the socialization process among ethnic minority families must also consider their social position in contemporary U.S. society. A number of studies have shown that parents play a key role in shaping their children's racial knowledge by transmitting their values, attitudes, and behaviors (Hughes & Chen, 1999; Marshall, 1995; Peters, 1985). Racial socialization has been defined as parental practices that communicate messages about race or ethnicity to children (Hughes & Chen, 1999; Thorton, 1998). Hughes and Chen (1999) elaborate on this definition by highlighting the role that both parents and children play in this process. Parents contribute to this process by conveying their attitudes, beliefs, values, and ideas about race and race-relations. Children contribute to their own socialization by sharing their experiences and asking parents

questions that may prompt parents to share attitudes, values, and information regarding race and intergroup relations (Hughes & Chen, 1999).

The link between racial socialization and academic achievement has been examined in studies of African American adolescents. Bowman and Howard (1985) examined race-related socialization, motivation, and academic achievement among 377 African American youth between the ages of 14 and 24. Academic achievement was assessed in terms of school grades. These researchers found that when adolescents were socialized about racial barriers and interracial protocol, they earned higher grades than youth who were taught nothing about racial status. Sanders (1997) also examined the relation between awareness of racial barriers and academic achievement in a sample of urban African American eighth graders. High achieving students were defined as those students who earned a 3.0 grade point average or higher. Sanders (1997) found that students who had a greater awareness of racial barriers were more likely to be high achieving students as compared to those who had less awareness of racial barriers.

Ethnic identity is another cultural resource that has been posited to be beneficial to minority youth, and a growing body of research documents links between ethnic/racial identity and psychological and academic adjustment during adolescence (Chavous, et al., 2003; McMahon & Watts, 2002; Miller, 1999; Phinney, Cantu, & Kurtz, 1997; Sellers, Copeland-Linder, Martin, & Lewis, 2006; Witherspoon, Speight & Thomas, 1997; Wong et al, 2003). Chavous et al. (2003) examined links between dimensions of racial identity (centrality, public regard, private regard) and academic beliefs and academic performance. These researchers found positive associations between dimensions of racial identity and academic beliefs, including school attachment and school efficacy.

Previous research suggests that a positive identification with one's ethnic group may act as a psychological buffer youth from negative ramifications of experiences with discrimination. Indeed, theories of racial identity highlight that the primary function of an internalized racial identity is to protect individuals from the psychological harm that results from living in a racist society (Cross et al., 1998). Two recent studies examined the role of ethnic identity and racial socialization as protective factors of African American youths' academic adjustment. Studying a sample of seventh grade African American adolescents from a wide range or socioeconomic backgrounds, Wong et al. (2003) studied whether ethnic identity, operationalized as "positive connection to one's ethnic group", buffered the association between discrimination and adolescents' academic functioning. To index discrimination, adolescents reported on how frequently they were mistreated by their peers and teachers because of their race. Results revealed that as youth's connection to their ethnic group increased, greater perceived discrimination was related to smaller decreases in grade point average, but for adolescents with lower connection to their ethnic group, greater perceived discrimination was related to larger decreases in grade point average. In contrast, these researchers did not find that students' connections to their ethnic group buffered the relation between discrimination and achievement motivation (importance of school, utility value of school, self-competency beliefs).

Neblett et al. (2006) examined whether racial socialization buffered the association between discrimination and academic outcomes among African American adolescents in grades 7 through 10. Adolescents reported on their parents' racial socialization practices, including racial pride and racial barriers as well on their own academic adjustment, including academic curiosity, academic persistence, and self-reported grades. Youth also reported the frequency with which they experienced discrimination. Although the researchers did not find that racial

socialization moderated the links between discrimination and academic outcomes, however, they found that five of the six dimensions of racial socialization measured were significantly related to academic outcomes after accounting for discrimination.

In the present investigation we built on these two previous studies by examining ethnic affirmation/belonging and ethnic behaviors/practices using a previously validated measure of ethnic identity (Phinney, 1992). We also used parents' reports of their racial socialization practices in order to reduce mono-reporter bias. In addition, we expanded the measurement of academic outcomes to include aspects of school engagement that have not previously been examined (e.g. school self-esteem and school bonding). Finally, we examined the role of gender as a moderator the link between discrimination and school engagement, given minority males' more frequent experiences of racial discrimination (Fischer & Shaw, 1999; Stevenson, Cameron, Herrero-Taylor, & Davis, 2002) and the different school experiences of minority males as compared to females (Ferguson, 2000; Johnson & Englehard, 1991; Pollard, 1993).

As previously noted, researchers have been concerned with whether African American adolescents are less engaged in school than youth from other ethnic groups. Although we know that experiences with discrimination can put African American adolescents at risk for negative outcomes, the extent to which experiences with discrimination contribute to school engagement has not yet been examined. Thus, in the present study we first examined the relation between experiences with discrimination from teachers and peers and indices of school engagement, hypothesizing that experiences with discrimination would be negatively related to school engagement as measured by school self-esteem, school bonding, and grade point average. Next we studied the relation between experiences with discrimination and cultural resources (i.e., racial socialization and ethnic identity), hypothesizing that experiences with discrimination

would be positively related to parents' racial socialization practices and youth ethnic identity. Finally, as a test of risk and protection, we examined whether the cultural resources, racial socialization and ethnic identity, moderated the link between discrimination and school engagement. Specifically, we hypothesized that higher levels of racial socialization and stronger ethnic identity would buffer the negative association between discrimination and school engagement.

<div align="center">Methods</div>

Participants

The data were drawn from the first phase of a longitudinal study of youth socialization and development in two-parent African American families. Participants were recruited from two large eastern cities using two different recruitment strategies. First, we hired African Americans residing in the targeted communities to recruit families by posting flyers in local businesses, providing information on the study to local churches, and distributing flyers at youth activities. Interested families then contacted the recruiters who passed on their names to the project office. Approximately half the sample was recruited using this procedure. We also purchased a marketing firm list that included names and addresses of African American students in grades 4 through 7 who lived in the geographic region of interest. We sent letters to families that described the study and included an 800 number to call and a postcard to return to the project office if the family fit the study criteria and was interested in participating. Because the marketing firm could not determine family structure or either presence or age of siblings, however, many letters went to families that did not meet project criteria. Of 1,796 letters sent, 131 were returned by the post office as undeliverable. Of the 142 families that expressed interest, 93 were eligible and 49 ineligible. Of those eligible, 86 of the families recruited via the

marketing list were interviewed and 7 were not, either because the family could not be located

based on the information provided on their postcards or because the family was too busy to

schedule an interview during the time frame of the study (i.e., the school year).

Sample characteristics are presented in Table 1. All of the participating families self-

identified as African American or Black. In terms of social class, families ranged from working

to middle-class as reflected in parents' occupations, education and family income. The present

analyses focus on 148 adolescents (47% girls 53% boys) in grades 6 through 12. On average,

adolescents were 13.87 (*SD =* 1.66). The majority of adolescents attended public or charter

schools (74%), and the remainder attended private or parochial schools.

Procedures

Separate home interviews were conducted with mothers, fathers, and youth. The

interviews began with a brief description of the study and informed consent/assesnt was

obtained. Then family members were interviewed about their personal qualities and family

relationships in 1 (youth) to 2 (parents) hour interviews. After completing the interview, the

family was paid a $200 honorarium

Measures

Experience with discrimination was assessed with subscales assessing adolescents'

perceptions of discrimination by peers and teachers against their racial group in general (i. e.,

general discrimination) as well as their experiences with prejudice and discrimination directed at

themselves by peers and teachers (i.e., personal discrimination) using a measure developed by

Johnston and Delgado (2004). Specifically, youth reported the extent to which they agreed that

their teachers and peers held discriminatory beliefs about African Americans as a group on a

scale from 1 (*strongly disagree*) to 4 (*strongly agree*). This scale is comprised of 8 items and

assessed general discrimination by *peers* (e.g. "You have heard kids at school making jokes or saying bad things about African Americans"; "Kids at school have negative beliefs about African Americans") and general discrimination by *teachers* (e.g. "Your teachers are prejudiced against African Americans"; "Your teachers think all African Americans are alike"). Cronbach's alpha reliability for this sample was .89.

Youth also reported the frequency with which they experienced personal discrimination using a scale that ranged from 1 (*never*) to 4 (*often*). This scale is comprised of 8 items and assessed personal discrimination by *peers* (e.g. "How often have kids at school excluded you from their activities because you are African American?") and personal discrimination by *teachers* (e.g. How often have you had to work harder in school than White kids to get the same praise or the same grades from your teachers because you are African American?). Cronbach's alpha reliability for this sample was .89.

Racial socialization was assessed using two subscales from a measure developed by Hughes and Chen (1997) that assessed cultural socialization (five items; e.g., "I've read or provided Black history books to my child") and preparation for bias (seven items; e.g., "I've talked to my children about racism"). For each item, mothers and fathers used a 6-point rating scale that ranged from *never* to *very often*. Cronbach's alphas for cultural socialization were .83. Cronbach's alphas for preparation for bias were .87.

Ethnic identity was assessed using the Multigroup Ethnic Identity Measure (Phinney, 1992). For each of ten items, youth used a 4-point scale (1 = *strongly disagree*, 4 = *strongly agree*) to rate how well the item described them over the past year (e.g., "I feel a special connection to other African Americans/Blacks;" "I am happy that I am African American/Black"). Although the ten items originally came from two subscales (Affirmation and

Belonging and Ethnic Behaviors and Practices), the scales were highly correlated, $r = .51$, $p < .01$ and therefore combined such that high scores reflect a stronger and more positive orientation to African Americans and their culture. Cronbach's alpha reliability for this sample was .80.

School self-esteem was measured with 10 items from the school subscale of the Hare Area-Specific Self-Esteem Scale (Hare, 1996). Items were rated using a 4-point Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Higher scores on this scale denote greater school self-esteem (e.g. "I usually have been proud of my report card"). Cronbach's alpha reliability for this sample was .80.

School bonding was assessed with five items adapted from prior research (Fine, 1991; Voelkl, 1997) that reflected students' sense of belonging (e.g., "I feel close to people at my school"). Responses were rated on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores signifying greater school bonding. Cronbach's alpha reliability for this sample was .78.

School grades were obtained from youth's report cards during the home interview. Grade point average was calculated from grades in math, science, social studies, and language arts. Letter grades were assigned numerical scores (A = 4, and so forth) such that high scores signified higher grades.

<div align="center">Results</div>

Preliminary Analyses

Descriptive statistics are provided in Table 2. On average, adolescents scored below the midpoint on the scale on reports of general school discrimination: 16% of adolescents reported that they "strongly disagreed" that their peers and teachers exhibited discriminatory beliefs about African Americans in general and 54% reported that they disagreed, whereas 26% of the

adolescents agreed that their peers and teachers exhibited discriminatory beliefs about African Americans in general and 3% strongly agreed. On average, adolescents also scored below the scale midpoint on the measure of personal experiences with discrimination from peers and teachers: 40% of adolescents reported that they never experienced discrimination from peers and teachers; 48% reported that it happened "a few times"; 10% reported that it happened "some times" and only 2% reported that it happened often. With respect to school engagement, adolescents reported moderate levels of school self-esteem and school bonding and, overall, adolescents earned slightly above B- average. We also examined gender differences in the variables under study. Only one significant gender difference emerged: Boys reported more personal experiences with discrimination ($M = 12.26$, $SD = 4.63$) than girls ($M = 10.31$, $SD = 4.56$), $t (146) = - 2.56$, $p < .01$.

Turning to the indices of protective factors, shown in Table 2, parents reported moderate levels of cultural socialization and preparation for bias although parents engaged in more preparation for bias than cultural socialization. Links between discrimination experiences, racial socialization, and ethnic identity were examined with partial correlations controlling for parental education and age. We controlled for parents' education because previous research has documented connections between educational background and racial socialization (Hughes & Chen, 1997 as well as parental education and children's/adolescent's achievement (Davis-Kean, 2005). We also controlled for adolescents' age because academic orientation tends to decline during adolescence (Eccles, Wigfield, & Schiefle, 1998). Cultural socialization was not significantly related to personal or general experiences with discrimination. In contrast, preparation for bias was significantly and positively related to personal experiences with discrimination, $r = .32$, $p < .01$, but was not significantly related to general discrimination.

Finally, ethnic identity was significantly and positively related to both general, $r = .27$, $p < .01$, and personal experiences with discrimination, $r = .19$, $p < .05$.

Is Discrimination Related to School Engagement?

We examined the links between general and personal experiences with discrimination and school self-esteem, school bonding and GPA with partial correlations controlling for parental education and age. Results showed that general experiences with discrimination were significantly and negatively related to school self-esteem $r = -.25$, $p < .01$ and to school bonding $r = -.22$, $p < .01$. Although general discrimination was also negatively related to GPA, this association was not statistically significant. Turning to personal experiences with discrimination, we also found that personal discrimination was negatively related to school self-esteem $r = -.27$, $p < .01$ and to school bonding $r = -.24$, $p < .01$, but did not reach statistical significance for GPA.

Does Racial Socialization or Ethnic Identity Moderate the Links between Discrimination and School Engagement?

We conducted a series of hierarchical regression models in order to examine whether racial socialization or ethnic identity moderated the links between experiences with discrimination and school engagement and we also examined gender differences in these associations. In these analyses we focused on personal experience with discrimination because it is more proximal than general experiences with discrimination. Separate analyses were conducted for the three outcome measures of school engagement: School self-esteem, school bonding, and GPA. In each of these analyses, background variables (i.e, youth age and parents' education) were controlled. In the first step, the background factors and all main effects were entered. In the second step, all two-way interactions were entered. In the third step, the three-way interaction was added. Variables were centered in order to reduce collinerity and ease in

interpretation. Interactions were created from the cross product of the centered main effect terms.

School self-esteem

First, cultural socialization was examined as a moderator of the link between experiences with discrimination and school self-esteem. Discrimination experience was a significant and negative predictor of school self-esteem (see Table 2): Adolescents who reported more experiences with discrimination had lower school self-esteem. The subsequent models that examined the interactions between cultural socialization, discrimination, and gender were not significant.

Next preparation for bias was examined as a moderator of the link between experiences with discrimination and school self-esteem. Again, experience with discrimination was a significant and negative predictor of school self-esteem (see Table 3). Preparation for bias was a significant and positive predictor of school self-esteem: Adolescents who received more preparation for bias from their parents reported greater school self esteem. The subsequent models that examined moderation effects were not significant.

Finally, ethnic identity was examined as a possible moderator. Experience with discrimination was a significant and negative predictor of school self esteem. In contrast, ethnic identity was a significant and positive predictor of school self esteem; adolescents with higher levels of ethnic identity reported greater school self esteem (see Table 4).

School bonding

First, cultural socialization was examined as a moderator of the link between experiences with discrimination and school bonding. Results showed that parental education was positively associated with school bonding; more parental education was related to greater school bonding

(see Table 5). Experience with discrimination was a significant predictor of school bonding and showed that more discrimination was associated with less school bonding. Cultural socialization was also a significant predictor of school bonding, however this association was qualified by a significant gender X cultural socialization interaction (see Table 5). This interaction was probed according to procedures outlined by Aiken and West (1991) and showed that cultural socialization was significantly related to school bonding boys, $B = .34$, $SE = .09$, $p < .01$, but not girls, $B = -.15$, $SE = .11$, $p > .05$. Cultural socialization did not moderate the association between discrimination and school bonding.

Next, preparation for bias was examined as a moderator of the link between experiences with discrimination and school bonding. As shown in Table 6, both discrimination and preparation for bias were significant predictors of school bonding. Adolescents', who reported more experiences with discrimination, reported less school bonding. In addition, greater preparation for bias from parents was associated with greater school bonding. Preparation for bias did not moderate the link between discrimination and school bonding.

Finally, ethnic identity was examined as a possible moderator. After accounting for background factors, both experiences with discrimination and ethnic identity were significant predictors of school bonding (see Table 7). Again, adolescents with more discrimination experiences reported less school bonding, while adolescents with higher ethnic identity also reported higher school bonding. These associations however were qualified by a significant discrimination X ethnic identity X gender interaction (Table 7, model 3). The interaction was probed according to procedures outlined by Aiken and West (1991) and revealed that when girls experienced more discrimination and had low ethnic identity, they had lower school bonding $B = .28$, $SE = 1.348$, $p > .05$ (see Figure 1). For boys, ethnic identity did not moderate the

association between discrimination and school bonding: Boys with stronger ethnic identity had higher school bonding, regardless of experiences with discrimination, $B = -.07$, $SE = 1.98$, $p >$ .05 (see Figure 2).

Grade Point Average

Cultural socialization, preparation for bias, and ethnic identity were examined as moderators of the link between discrimination and grade point average. Across these three sets of analyses, parental education was the only significant predictor of grade point average: Adolescents had higher GPA's when they came from families with higher education levels. Experience with discrimination was not a significant predictor of GPA; nor were racial socialization and ethnic identity.

Discussion

Although researchers have been concerned school engagement among African American youth, much of this work has focused on ethnic group comparisons or on at-risk youth and less is known about within group processes. Previous research suggests that experiences with discrimination are a risk factor for adolescent outcomes, including their school engagement. Racial socialization and ethnic identity in contrast, are two protective mechanisms that have been posited to buffer the effects of discrimination. The purposes of this study were to: (1) examine links between experiences with discrimination and school engagement and (2) to determine whether cultural resources buffer the potential effects of discrimination on school engagement.

Our findings on experiences with discrimination showed that, overall, adolescents did not report high levels of general or personal discrimination from peers or teachers; the frequency of reported experiences with discrimination in the school context is consistent with previous research (Wong et al., 2003). In this study we focused specifically on discrimination from

teachers and peers, given that school engagement was the focus of this paper. Experiences with discrimination may have occurred more frequently had we assessed discrimination from other adults (shopkeepers, police, etc.) or in contexts other than school (e.g. restaurants, malls) as other researchers have done (Sellers et al., 2006; Neblett et al, 2006). Many schools have zero tolerance policies on peer harassment such as discrimination as well as multicultural education programs, and equal educational opportunities for students from diverse racial, ethnic, social-class, and cultural groups, is a focus of many schools. Policies and practices like these may keep the rate of discrimination at school lower than it is elsewhere.

Despite the relatively low occurrence of discrimination, both general and personal experiences with discrimination were related to lower school self-esteem and school bonding, supporting the notion that experiences with discrimination are a potential risk for adolescent's cognitive and affective school engagement. This study adds to a growing literature on youth's experiences with discrimination and school-related outcomes by examining aspects of school engagement that have not been previously studied. Cognitive school engagement refers to students' *thoughts* about their academic abilities whereas affective engagement reflects students' *emotional attachment* or bond to school. Understanding how experiences with discrimination, impacts school engagement is an important area of research. Consistent with theories about the harmful effects of discrimination, we found that discrimination from teachers and peers was related to lower school-self-esteem and school bonding. Discrimination, however, was not related to behavioral school engagement as measured by GPA. These findings are consistent with previous research that showed discrimination was related to lower academic motivation, but was not related to school grades (Wong, et al., 2003). One reason why we did not find connections between discrimination and GPA in our study may be because of the relatively low

levels of discrimination at school. It may be that even infrequent discrimination at school is enough to impede students' school self-esteem and school bonding, but not school grades.

Our findings regarding connections between experiences with discrimination and cultural resources showed that both general and personal experiences with discrimination were positively related to ethnic identity. Some researchers have suggested that racial identity develops through racial awareness (Stevenson, 1995), and discrimination may be one type of race-related experience that prompts youth to consider the salience of race to their identity. Other researchers have suggested that how adolescents interpret discrimination depends in part on the degree to which race is a central aspect of their identity (Sellers, et al. 2003). For example, adolescents may be more likely to perceive discrimination when race is a salient part of their identity. In contrast, adolescents with low levels of racial centrality may be less sensitive to race-related issues and less likely to perceive discrimination. Given the correlational nature of the present study, we cannot determine whether adolescents with more advanced ethnic identity are more likely to perceive discrimination or whether experiences with discrimination actually foster the development of ethnic identity.

Regarding racial socialization, our results showed that discrimination experiences were related to preparation for bias, but not to cultural socialization. Hughes and Johnson (2001) reported similar findings in their study of children's experiences of discrimination and parents' racial socialization practices. Given that parents reported moderate levels of cultural socialization, it appears that parents engage in this practice regardless of their offspring's experiences with discrimination. Importantly, we found that personal experiences with discrimination were linked to preparation for bias, but that general discrimination was not linked to preparation for bias. This pattern of findings supports the notion of racial socialization as a

transactional process (Hughes & Johnson, 2001): When youth encounter personal experiences with discrimination, they may be more likely to discuss these experiences with their parents, which may prompt parents' preparation for bias messages. In contrast, adolescents may be less likely to share their perceptions of general discrimination with their parents.

In this study we also examined the potential role of racial socialization and ethnic identity as protective factors. Contrary to our predictions, racial socialization did not buffer the effects of discrimination on school engagement. Instead, we found that racial socialization was related to school engagement in an additive way, but did not moderate the relation between discrimination and school engagement. These findings are in line with those of Neblett et al. (2006), and support a compensatory model of resilience described by Garmezy et al. (1984) in which certain compensatory factors counteract or compensate for stressful life events. Although we did not find that two aspects of racial socialization, cultural socialization and preparation for bias, moderated the effects of discrimination on school engagement, it is possible that other aspects of racial socialization may buffer the effects of discrimination. For example, aspects of racial socialization that emphasize achievement such as the importance of getting a good education and working harder than others to get ahead may be more likely to buffer the effects of discrimination on school engagement.

Turning to ethnic identity, we found that ethnic identity served as a protective factor in the case of school bonding for girls but not boys. When girls had weaker ethnic identity and experienced more discrimination, school bonding was lower. For boys, ethnic identity was an additive effect on school bonding such that boys with higher ethnic identity had greater school bonding than boys with lower ethnic identity, regardless of their experiences with discrimination.

Given that boys report more discrimination, it would be useful to identity other protective factors that may be beneficial for boys.

Although our findings contribute to the literature on school engagement, our study is not without limitations. First, our study goals directed attention to a particular type of discrimination, that is general and personal discrimination at school. Had we studied other types of discrimination, such as institutional discrimination (e.g., discriminatory school practices in tracking) a different pattern of findings may have emerged. In addition, we did not obtain information on whether students were discriminated by others of the same or different race/ethnicity as themselves, thus we could not examine within-group race discrimination. Future work might examine how such different types of discrimination relate to youth's school engagement.

This study is also limited in its cross-sectional, correlational design. The existing literature led us to frame our research to study the implications of discrimination for youth school engagement, but our design does not allow for such causal inferences. Additional longitudinal research is also needed to examine the potential long-term effects of discrimination on school engagement.

Despite these limitations, this study provides an important contribution to the study of risk and protective factors related to school engagement among African American youth. Whereas much of the previous work has focused on economically disadvantaged youth, our study adds to a small, but important area of research on working and middle-class African American youth. Our study highlights the importance of cultural resources such as racial socialization and ethnic identity for discrimination and school engagement.

References

Aiken, L. S., & West, S. G., (1991). *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Aronson, J., Quinn, D., & Spencer, S. (1998) Stereotype threat and the academic underperformance of minorities and women. In J. K. Swim & C. Stangor (Eds.), *Prejudice: The target's perspective.* (pp.11-36). San Diego, CA: Academic Press.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments in nature and design*. Cambridge, MA: Harvard University Press.

Brown, C. S. & Bigler, R. S. (2005). Children's perceptions of discrimination: A developmental model. *Child Development, 76,* 533-553.

Bowman, P. J., & Howard, D. (1985). Race-related socialization, motivation, and academic achievement: A study of Black youth in three-generation families. *Journal of the American Academy of Child Psychiatry, 24*, 134-141.

Boykin, A.W., & Toms, F. D. (1985). Black child socialization: A conceptual framework. In H. P. McAdoo & J. L. McAdoo (Eds.), *Black children: Social, educational, and parental environments* (pp. 33-52). Newbury Park, CA: Sage.

Chavous, T. M., Bernat, D. H., Schmeelk-Cone, K., Caldwell, C. H., Kohn-Wood, L. P. & Zimmerman, M. A. (2003). Racial identity and academic attainment among African American adolescents. Child Development, 74, 1076-1090.

Connell, J., Spencer, M. B., Aber, J. L. (1994). Educational risk and resilience in African American youth: Context, self, action, and outcomes in School. *Child Development, 65*, 493-506.

Cross, W. E., Parham, T. A. & Helms, J. E. (1998). *Nigrescence revisited: Theory and research.* In R. L. Jones (Ed.), African American identity development: Theory, research, and intervention. Hampton, VA: Cobb & Henry.

Ferguson, A. A. (2000). Bad Boys: Public School in the Making of Black Masculinity. Ann Arbor, MI: The University of Michigan Press.

Finn, J. D. & Rock, D. A. (1997). Academic success among students at risk for school failure. *Journal of Applied Psychology, 8*, 221-234.

Fischer, A. R. & Shaw, C. M. (1999). African Americans' mental health and perceptions of racist discrimination: The moderating effects of racial socialization experiences and self esteem. *Journal of Counseling Psychology, 46*, 395-407.

Garmezy, N., Masten, A. S., & Tellegen, A. (1984). The study of stress and competence in children: A building block for developmental psychopathology. *Child Development, 55,* 97-111.

Hughes, D., & Chen, L. (1997). When and what parents tell children about race: An examination of race-related socialization among African American families. *Applied Developmental Science, 1,* 200-214.

Hughes, D., & Johnson, D. (2001). Correlates in children's experiences of parents' racial socialization behaviors. *Journal of Marriage and Family, 63,* 981-995.

Jimerson, S., Campos, E., & Greif, J. (2003). Toward an understanding of definitions and measures of school engagement and related terms. *The California School Psychologist, 8,* 7-27.

Johnston, K. E., & Delgado, M. Y. (2004, March). *Mexican American adolescents' experiences with ethnic discrimination.* Poster presented at the presentation at the biennial meeting of the Society for Research on Adolescence, Baltimore, MD.

Jordan, W. (1999). Black high school students' participation in school-sponsored sports activities: Effects on school engagement and achievement. *Journal of Negro Education, 68,* 54-71.

Manlove, J. (1998). The influence of high school dropout and school disengagement on the risk of school-age pregnancy. *Journal of Educational Pscyhology, 91,* 62-75.

Marshall, S. (1995). Ethnic socialization of African American children: Implications for parenting, identity development, and academic achievement. *Journal of Youth and Adolescence, 24*, 377-396.

McMahon, S., & Watts, R. (2002). Ethnic identity in urban African American youth: Exploring links with self-worth, aggression, and other psychosocial variables. *Journal of Community Psychology, 30*, 411-431.

Miller, D. B. (1999). Racial socialization and racial identity: Can they promote resiliency for African American adolescents. *Adolescence, 34,* 493-501.

Neblett, E. W., Philip, C. L., Cogburn, C. D., and Sellers, R. M. (2006). African American adolescents' discrimination experiences and academic achievement: Racial socialization as a cultural compensatory and protective factor. *Journal of Black Psychology, 32,* 199-218.

Parke, R., & Buriel, R. (1998). Socialization in the family: Ethnic and ecological perspectives. In W. Damon (Series Ed.) & N. Eisenberg (Ed.), *Handbook of child psychology, Vol. 4. Social, emotional, and personality development* (pp. 463-552). New York: John Wiley & Sons, Inc.

Peters, M. F. (1985). Ethnic socialization of young Black children. In H.P. McAdoo & J.L. McAdoo (Eds.), Black children: Social, educational, and parental environments (pp. 159-173). Newbury Park, CA: Sage.

Phinney, J. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with adolescents and young adults from diverse groups. *Journal of Adolescent Research, 7*, 156-176.

Phinney, J. S., Cantu, C. L., & Kurtz, D. A. (1997). Ethnic and American identity as predictors of self esteem among African American, Latino, and White adolescents. *Journal of Youth and Adolescence, 26,* 165-185.

Sanders, M. (1997). Overcoming obstacles: Academic achievement as a response to racism and discrimination. *Journal of Negro Education, 66,* 83-93.

Scott, L. D. (2003). The relation of racial identity and racial socialization to coping with discrimination among African American adolescents. *Journal of Black Studies, 33*, 520-538.

Scott, L. D. (2004). Correlates of coping with perceived discriminatory experiences among African American adolescents. *Journal of Adolescence, 27,* 123-137.

Sellers, R. M., Copeland,-Linder, N., Martin, P.P., & Lewis, R. L. (2006). Racial identity matters: The relationship between racial discrimination and psychological functioning in African American adolescents. *Journal of Research on Adolescence, 16*, 187-216.

Simmons, R. L., Murry, V., McLoyd, V., Lin, K., Cutrona, C., & Conger, R. D. (2002). Discrimination, crime, ethnic identity, and parenting as correlates of depressive symptoms among African American children: A multilevel analysis. *Development and Psychopathology, 14,* 371-393.

Sirin, S. R. & Sirin L. (2005). Components of school engagement among African American

    adolescents. *Applied Developmental Science, 9,* 5-13.

Sirin, S. R. & Sirin L. (2004). Exploring school engagement of middle-class African American

    adolescents. *Youth & Society, 35,* 322-340

Spencer, M.B., & Dornbusch, S. (1990). Challenges in studying minority youth. In S. Feldman,

    & G. Elliot (Eds.), At the threshold: The developing adolescent (pp. 123-146).

    Cambridge, MA.: Harvard University Press.

Steele, C. M. (1992). Race and the schooling of Black Americans. *The Atlantic Monthly, 269,*

    67-78.

Steinberg, L., Dornbusch, S. M., & Brown, B. B. (1992). Ethnic differences in adolescent

    achievement. *American Psychologist, 47(6),* 723-729.

Stevenson, H. C., McNeil, J. D., Herrero-Taylor, T., & Davis, G. Y. (2005). Influence of

    perceived neighborhood diversity and racism experience on the racial socialization of

    Black youth. *Journal of Black Psychology, 31,* 273-290.

Stevenson, H. C., Reed, J., Bodison, P., & Bishop, A. (1997). Racism stress management:

    Racial socialization beliefs and the experience of depression and anger for African

    American adolescents. *Youth and Society, 29,* 197-222.

Stone, S. & Han, M. (2005). Perceived school environments, perceived discrimination, and

    school performance among children of Mexican immigrants. *Children and Youth Services*

    Review, 27, 51-66.

Thomas, A. J., & Speight, S. L. (1999). Racial identity and racial socialization attitudes of

    African American parents. *Journal of Black Psychology, 25*, 152-170.

Thornton, M. C., Chatters, L. M., Taylor, J. R., & Allen, W. R. (1990). Sociodemographic and environmental correlates of racial socialization by Black parents. *Child Development 61*, 401-409.

Thornton, M. (1998). Indigenous resources and strategies of resistance: Informal caregiving and racial socialization in Black communities. In H. McCubbin, & E. Thompson (Eds.), *Resiliency in Families*: Vol. 3: *Resiliency in African American families.* Thousand Oaks, CA, USA: Sage.

Voelkl, K. E. (1997). Identification with school. *American Journal of Education, 105*, 294-318

Wilson, M., Cooke, D., & Arrington, E. (1997). African American adolescents and academic achievement: Family and peer influences. In R.D. Taylor & M.C. Wang (Eds.), *Social and Emotional Adjustment and Family Relations in Ethnic Minority Families* (pp.145-155), Mahwah, NJ: Earlbaum.

Witherspoon, K. M., Speight, S. L., & Thomas, A. J. (1997). Racial identity attitudes, school achievement, and academic self-efficacy among African American high school students. *Journal of Black Psychology, 23,* 344-357.

Wong, C. A., Eccles, J. S., & Sameroff, A. (2003). The influence of ethnic discrimination and ethnic identification on African American adolescents' school and socioemotional adjustment. *Journal of Personality, 71,* 1197-1232.

Table 1

Means and Standard Deviations for Independent and Dependent Variables (N = 148)

Variables	*M*	*SD*
General discrimination	14.37	5.18
Personal discrimination	11.38	4.69
Cultural socialization	19.60	4.86
Preparation for Bias	28.03	6.27
Ethnic identity	3.09	0.42
School self-esteem	30.71	4.41
School bonding	22.33	4.22
GPA	2.66	0.80

Table 2

Summary of Hierarchical Regression Analysis for Variables Predicting School Self-Esteem (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	$SE\ B$	β	B	$SE\ B$	β	B	$SE\ B$	β
Gender	-0.26	0.75	-.03	-0.20	0.75	-.06	-0.20	0.75	-.02
Age	-0.26	0.22	-.10	-0.21	0.23	-.08	-0.22	0.23	-.08
Education	0.15	0.21	.06	0.15	0.21	.06	0.15	0.21	.06
Discrimination	-1.68	0.60	-.23**	-0.77	0.92	-.11	-0.92	0.92	-.13
Cultural Socialization (CS)	0.01	0.08	.01	-0.04	0.12	-.04	-0.08	0.13	-.09
D*CS				-0.13	0.13	-.09	-0.35	0.20	-.25
CS*Gender				0.11	0.16	.10	0.14	0.16	.12
D*Genger				-1.52	1.26	-.16	-1.60	1.26	-.17
D*CS*Gender							0.35	0.25	.21
R^2		.07			.09			.10	
F for change in R^2		2.11+			1.76			1.80	

Note: Variables were centered at their means.

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

Table 3

Summary of Hierarchical Regression Analysis for Variables Predicting School Self-Esteem (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	$SE\ B$	β	B	$SE\ B$	β	B	$SE\ B$	β
Gender	-0.28	0.74	-.03	-0.33	0.74	-.04	-0.72	0.80	-.08
Age	-0.29	0.22	-.11	-0.28	0.22	-.11	-0.29	0.22	-.11
Education	0.08	0.21	.03	0.07	0.21	.03	0.10	0.21	.04
Discrimination (D)	-2.06	0.61	-.29**	-0.83	1.03	-.12	0.04	1.23	.01
Prep for Bias (PB)	0.13	0.06	.18*	0.11	0.10	.16	0.06	0.10	.08
D*PB				-0.05	0.10	-.04	-0.25	0.19	-.24
PB*Gender				0.03	0.12	.03	0.07	0.13	.08
D*Gender				-1.89	1.25	-.20	-2.99	1.51	-.31*
D*PB*Gender							0.29	0.22	.22
R^2		.10			.11			.12	
F for change in R^2		3.06*			2.22*			2.17*	

Note: Variables were centered at their means.

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

Table 4

Summary of Hierarchical Regression Analysis for Variables Predicting School Self-Esteem (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	$SE\ B$	β	B	$SE\ B$	β	B	$SE\ B$	β
Gender	-0.31	0.74	-.03	-0.19	0.75	-.02	-0.01	0.77	.00
Age	-0.23	0.22	-.08	-0.22	0.22	-.08	-0.18	0.22	-.07
Education	0.14	0.20	.06	0.13	0.20	.05	0.14	0.20	.05
Discrimination (D)	-1.89	0.60	-.26**	-1.51	1.00	-.21	-1.94	1.08	-.27+
Ethnic Identity (ID)	1.77	0.87	.17*	2.18	1.22	.20+	2.43	1.24	.23*
D*ID				1.98	1.55	.11	3.64	2.19	.21+
ID*Gender				-0.87	1.79	-.06	-1.00	1.79	-.06
D*Gender				-1.19	1.24	-.12	-0.61	1.35	-.06
D*ID*Gender							-3.42	3.15	-.13
R^2		.10			.12			.13	
F for change in R^2		3.00*			2.32*			2.19*	

Note: Variables were centered at their means.

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

Table 5

Summary of Hierarchical Regression Analysis for Variables Predicting School Bonding (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Gender	0.00	0.68	.00	0.13	0.67	.01	0.13	0.67	.01
Age	-0.41	0.20	-.16	-0.36	0.20	-.14+	-0.37	0.20	-.14+
Education	0.45	0.20	.19*	0.52	0.19	.22**	0.52	0.19	.22**
Discrimination (D)	-1.93	0.55	-.28**	-2.31	0.82	-.34**	-2.37	0.83	-.35**
Cultural Socialization (CS)	0.14	0.07	.16*	-0.12	0.11	-.14	-0.14	0.11	-.16
D*CS				-0.12	0.11	-.09	-0.22	0.18	-.17
CS*Gender				0.42	0.14	.37**	0.43	0.14	.38**
D*Gender				0.43	1.12	.05	0.39	1.13	.04
D*CS*Gender							0.16	0.22	.10
R^2		.16			.21			.21	
F for change in R^2		5.39**			4.63**			4.15**	

Note: Variables were centered at their means.

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

Table 6

Summary of Hierarchical Regression Analysis for Variables Predicting School Bonding (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Gender	-0.05	0.67	-.01	-0.12	0.67	-.01	-0.06	0.80	-.01
Age	-0.44	0.20	-.17*	-0.41	0.20	-.16*	-0.41	0.20	-.16*
Education	0.45	0.19	.19*	0.47	0.19	.20*	0.46	0.19	.19*
Discrimination (D)	-2.34	0.56	-.34**	-2.01	0.91	-.29*	-2.15	1.12	-.31*
Prep for Bias (PB)	0.17	0.05	.25**	0.08	0.09	.11	0.08	0.09	.13
D*PB				-0.11	0.09	-.11	-0.08	0.17	-.08
PB*Gender				0.15	0.11	.17	0.14	0.12	.16
D*Gender				0.08	1.13	.01	0.26	1.37	-.03
D*PB*Gender							-0.06	0.20	-.04
R^2		.19			.21			.21	
F for change in R^2		6.70**			4.53**			4.01**	

Note: Variables were centered at their means.

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

Table 7

Summary of Hierarchical Regression Analysis for Variables Predicting School Bonding (N = 148)

Variable	Model 1			Model 2			Model 3		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Gender	-0.09	0.68	-.01	0.09	0.67	.01	0.39	0.68	.05
Age	-0.37	0.20	-.14+	-0.42	0.19	-.16	-0.34	0.20	-.13
Education	0.53	0.19	.22**	0.52	0.18	.22**	0.52	0.18	.22**
Discrimination (D)	-2.08	0.55	-.30**	-2.69	0.90	-.39**	-3.42	0.95	-.50**
Ethnic Identity (ID)	2.11	0.79	.21*	0.40	1.09	.04	0.83	1.09	.08
D*ID				1.87	1.39	.11	4.71	1.93	.28*
ID*Gender				3.84	1.59	.25*	3.63	1.58	.24
D*Gender				0.59	1.11	.06	1.58	1.19	.17
D*ID*Gender							-5.81	2.78	-.23*
R^2		.18			.23			.26	
F for change in R^2		6.13**			5.24**			5.25**	

Note: Variables were centered at their means.

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

List of Figures
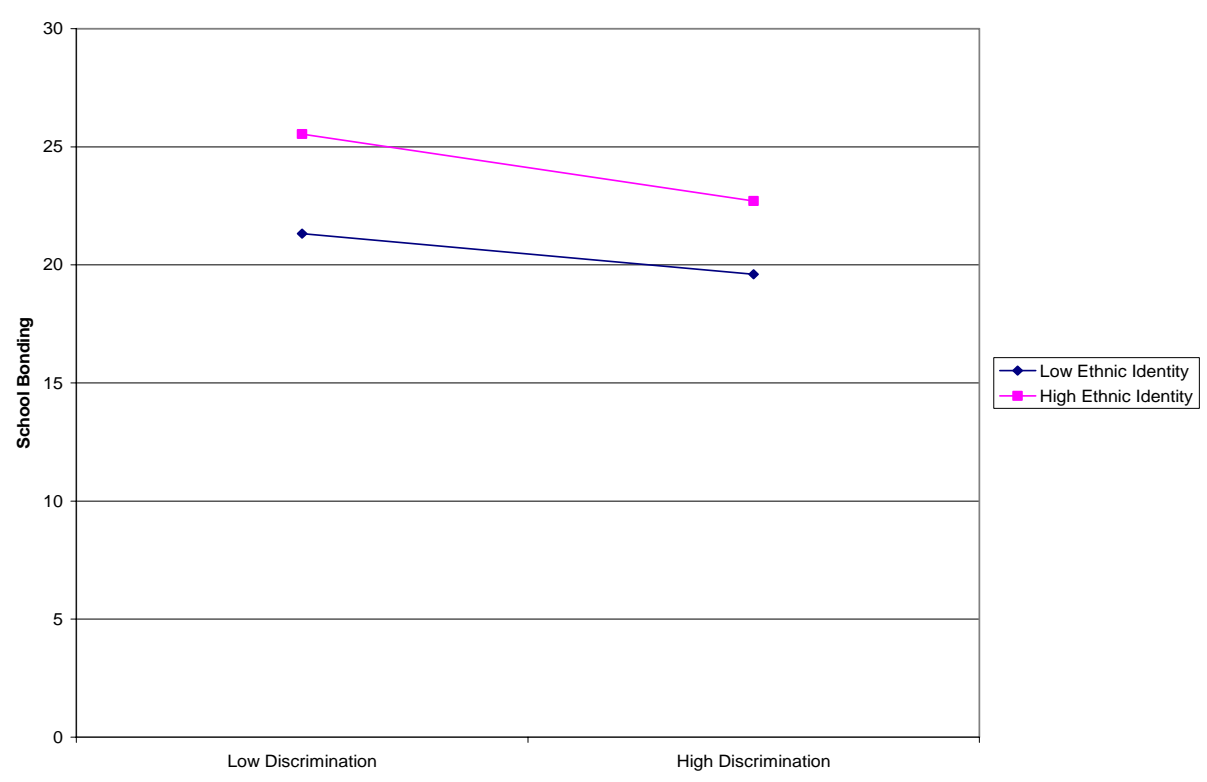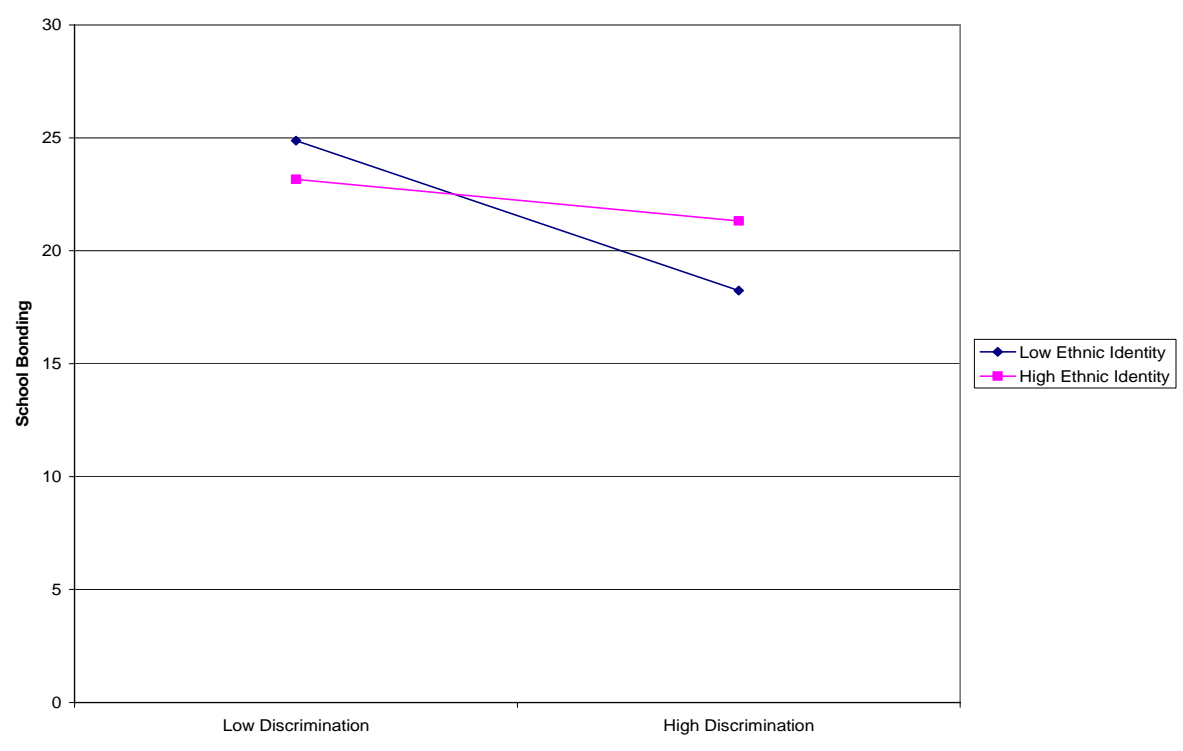
Chapter 4

Study 3: The Development and Correlates of Academic Interests from

Childhood through Adolescence

Abstract

Study goals were to assess: (1) the development of academic interests from middle childhood through late adolescence, (2) the correlates of changes in academic interests, including junior high and high school transitions, parents' educational expectations, interests, and education, and (3) the longitudinal links between youth's academic interests and school grades. Participants were mothers, fathers, and two siblings from 201, White, working and middle class families who were interviewed in their homes on 9 occasions. Multi-level model analyses revealed overall declines in youth's interests over time, with boys showing more rapid decline than girls. Mothers' educational expectations were positively related to youth's interests. Youth's interests declined less when fathers had more education. The transition to junior high, but not high school, was linked to decline in interests, but this was buffered by mothers' academic interests. Declines in academic interests were linked to declines in school grades.

Introduction

A recent report indicated that forty-seven percent of high school dropouts cited boredom and lack of interest in their classes as a major reason for dropping out of school (Bridgeland, DiJulio, & Morison, 2006). Statistics like these have directed the attention of researchers and practicioners to students' interest in academics as an important component of academic motivation that facilitates learning (Eccles, Wigfield, & Schiefle, 1998). Given previous research showing declines in academic interests over time (Eccles, Wigfield, & Schiefle, 1998) and links between interests and school drop out, understanding the correlates of academic interests is an important area of research. Prior work suggesting that school transitions contribute to declines in motivation and achievement-related outcomes (Seidman, Aber, & French, 2004) directed attention in the present study to school transitions as a predictor of declines in academic interests. In addition, previous studies have shown that parents play a key role in their offspring's achievement-related beliefs and academic outcomes (Eccles-Parsons, Adler, & Kaczala, 1982; Linver & Davis-Kean, 2005; Wentzel, 1998). We extended this work by examining whether parents' own academic interests, expectations for their offspring's educational attainment, and education levels buffered declines in adolescents' academic interests from middle childhood through adolescence. Finally, to illuminate the potential implications of declines in academic interests, we assessed whether *changes* in academic interests were related to *changes* in school grades.

Changes in Academic Motivation and Achievement

Researchers have documented substantial declines in academic motivation and achievement across the adolescent years (Barber & Olsen, 2004; Eccles, Midgley, & Adler,

1984; Epstein & McPartland, 1976). Although some of this work relies on cross-sectional data, comparing youth of different ages, or short-term longitudinal designs, only a few studies have examined growth trajectories in an effort to characterize within-individual changes over time. Fredricks and Eccles, (2002) for example, examined changes in youths' interest in math across grades one through twelve and found that math interests declined significantly over time. Crosnoe (2001) studied changes in adolescents' academic orientation during the high school years using a measure that tapped students' interests and values regarding school. Results indicated that, although students began high school with moderate levels of academic orientation, they experienced significant declines in academic orientation over time.

Jacobs, Lanza, Osgood, Eccles, and Wigfield (2002) examined gender differences in changes in youth's subjective task values for math and language arts from first grade through twelfth grade. Subjective task values refer to children's reports of how fun math and language arts are, how interested they are in math and language arts, the importance of math and language arts skills, and the utility of math and language arts. They found that females had higher task values in language arts, but there were no gender differences in math values. Further, boys' and girls' subjective task values declined significantly over time, but there were no gender differences in the rate of decline. In the present study, we focused on interests in academic subjects as a component of achievement motivation and examined changes in youths' interests from about age 6 to about age 18.

Although school transitions are normative for students in the United States, many students experience difficulty during the junior high and high school transitions. Early adolescence is a time when many students experience a middle school or junior high transition. This transition alters the adolescent's social ecology through changes in both the school setting

and the student role (Bronfenbrenner, 1979). For example, the school setting changes from the

task-oriented, more personalized elementary school to an achievement-oriented, impersonal, and

departmentalized junior high or middle school (Blyth, Simmons, & Carlton-Ford, 1983).

Regarding the student role, teacher expectations and grading practices change with junior high

school teachers using stricter and more social comparison-based standards than elementary

school teachers (Eccles & Midgley, 1990). Investigators have pointed to the nature of the new

school context in explaining declines in academic functioning: The stage-environment fit theory

(Eccles & Midgley, 1989) posits that junior high classrooms are not developmentally appropriate

educational environments for young adolescent students, and as a result of a poor "fit", youth

experience declines in academic functioning. In one study Eccles, Lord, and Buchanan (1996)

compared the self-esteem, preparedness, and attendance of eighth graders in K-8 school system

versus those in either K-6, 7-9 or K-5, 6-8 school systems. They found that the eighth graders in

the K-8 system scored higher than the eighth graders in the other two systems on self-esteem,

preparedness, and attendance.

Additional explanations of declines in academic functioning across the junior high

transition have focused on the developmental timing and occurrence of multiple events. For

example, some adolescents experience the junior high transition and pubertal development at

approximately the same time. Examining the impact of cumulative change in early adolescence,

Simmons et al. (1987) found that as the number of life changes increased (school transition,

pubertal development, early dating behavior, residential mobility, and family disruption), GPA

decreased.

Although there is less research regarding the transition to high school, the consensus is

that this transition is also marked by decreases in academic functioning (Seidman, Aber, &

French, 2004). High schools tend to be larger and even more bureaucratic than junior high schools (Eccles, Wigfield, & Sciefele, 1998). In many schools, there is little opportunity for students to form close relationships with teachers and little effort to make instruction relevant to the students. As such, students' academic motivation may be undermined (Eccles, Wigfield, & Sciefele, 1998). With some exceptions (Barber & Olsen, 2004), however, few studies have examined both junior high and high school transitions in the same group of students. Barber and Olsen (2004) found that adolescents had lower grades compared to the previous year following the transition to middle school when youth were in sixth grade, but that they did not have significantly lower grades compared to the previous year following the high school transition, when youth were in ninth grade.

In the present study, we expand in several ways upon previous research regarding the role of junior and senior high school transitions in youth's academic adjustment. First, most work on school transitions has focused on mean level differences between groups of youth who transitioned versus those that did not; in the present study, we examined both the junior high and high school transitions using a multilevel modeling framework in order to examine within-person changes. Further, previous research on school transitions has often been short-term, following students six months to one year post transition. The current study used 9 phases of assessments such that the long term impact of school transitions can be observed. Finally, although the previous research on school transitions highlights the negative effects on youth's academic functioning, this work has not examined potential resources or attributes that may buffer the negative effect of school transitions on academic functioning. Thus, we investigated how parents may protect youth from exhibiting the expected declines in academic functioning across the junior high and senior high transitions.

Parental Characteristics

A growing body of literature supports the idea that parental socialization plays an important role in students' academic motivation and achievement (Davis-Kean, 2005; Eccles, Adler, & Kaczala, 1982; Jacobs, et al. 2005; Jacobs & Eccles, 2000). For example, Jacobs and Bleeker (2004) examined parents' math-promotive behaviors and found that mothers who purchased more math and science toys and were more involved in their children's math and science activities had children who reported greater interest in math six years later. Parental expectations also are positively related to youth's academic motivation and achievement (Chen & Stevenson, 1995; Davis-Kean, 2005; Patrikakou, 1997). For example, Davis-Kean (2005) asked parents how much schooling they expected their offspring to complete. Results showed that children had higher reading and math achievement scores when their parents expected them to go farther in school.

From a social learning perspective (Bandura, 1986) parents also serve as role models and exhibit behaviors that their offspring may later imitate. In a recent study, Simkins, Davis-Kean, and Eccles (2005) examined connections between parents' academic activities and their children's participation in math, science and computer activities. They found that parents' reports of their own participation in math, science, and computer activities were positively associated with their children's participation in these same activities. Parents may also model achievement-related motivation or behaviors via their interest in academic subjects. In the present study we examined the extent to which mothers' and fathers' self-rated interest in academics predicted youth's interest in academics at about age 13 as well as changes in youth's academic interests from middle childhood through late adolescence.

Findings regarding gender differences in parental academic socialization are mixed and depend, in part, on how parental socialization is measured. For example, Jacobs and Bleeker (2004) found that mothers were more likely to purchase math and science toys for sons than for daughters. In contrast, mothers and fathers were more likely to be involved in daughters' math and science activities than sons' activities. Regarding parents' expectations for educational attainment, Davis-Kean (2005) found no evidence of gender differences. There is very little work on gender differences in parents' academic behaviors, and to our knowledge, previous work has not examined the relation between parents' interests in academics and those of their offspring. In the present study, we examined mothers' and fathers' educational expectations and interests in addition to sons' and daughters' academic interests. Our goal was to determine whether parent or child gender moderated the links between these parent socialization factors and youth's academic interests.

According to Eccles' and colleagues' (1983) proposed model of parental influences on youth's academic motivation and achievement, both parent's socialization practices and their education levels are important for youth's academic motivation and achievement. There is a substantial body of literature that links the educational status of parents and youth's academic motivation and achievement (Alexander & Entwisle, 1988; Chen & Stevenson, 1995; Davis-Kean, 2005; Linver & Davis-Kean, 2005; Kohn, 1969; Marjoribanks, 1979). Indeed, parental education has been found to predict more of the variance in student achievement than do other family background characteristics (Heyns, 1978). Most research documents positive associations between parental education and adolescents' achievement. For example, Byrnes (2003) found that parents' education was closely related to adolescents' math proficiency. Using a multi-ethnic sample, Chen and Stevenson (1995) showed that adolescents whose fathers had a

postgraduate degree scored ten points higher on a math achievement test than adolescents whose

fathers had junior high school educations or less. Davis-Kean (2005) also found that parents'

education was positively related to their offspring's reading and math achievement.

Accordingly, we also examined parents' education as a predictor of adolescent's interest in

academics.

Research Goals

The first goal of the present study was to chart the developmental changes in academic

interests (language arts, math, science, reading, and writing) from middle childhood (about age

6) through adolescence (about age 18). As previous research has documented declines in

achievement motivation during adolescence, we predicted that interest in academics would

decline over time. Our second goal was to explore the correlates of changes in academic

interests, specifically, the role of school transitions and parental characteristics. Toward this end,

we studied the extent to which transitions to junior high and high school predicted declines in

academic interests, and we also tested whether parents' expectations for achievement, parents'

own interest in academics, and parents' education levels predicted youth's initial levels of

academic interest as well as changes in their academic interests from middle childhood to late

adolescence. We hypothesized that school transitions would be related to declines in academic

interests and that parental socialization would be positively related to interest in academics. To

further understand the role of parent characteristics in youth academic adjustment, we also

examined whether parents' expectations, parents' academic interests or parents' education level

moderated the potential effect of school transitions on decline in academic interests. That is, we

were interested in whether the benefits of coming from a family with high expectations for

educational attainment, high interest in academics, or high levels of parental education could

protect youth from declines in academic interests. Finally, in order to explore the potential implications of declines in academic interests, we studied the links between changes in academic interests and changes in school grades. Based on theoretical writings and empirical research on the connections between achievement motivation and academic performance, we predicted that declines in academic interests would be related to declines in school grades.

<div align="center">Methods</div>

Participants

Data were drawn from a longitudinal study of dual-earner families with adolescent-age offspring recruited from school districts in the central region of a northeastern state. Participants were recruited via letters sent home from schools to families of fourth and fifth graders living in rural and small urban school districts of a northeastern state. These letters described the study and criteria for participation in the larger investigation; interested families returned a self-addressed postcard. Of those families who returned postcards and who met our criteria, over 90% agreed to participate. Reflecting the geographic area from which the sample was drawn, participants were European American.

Data collection began in 1995/1996, and follow-up data collection was conducted each year. The data for the current study includes nine phases measurement. Originally, 203 families were recruited; two families that dropped out of the study after the first phase were excluded from the analyses. The present analyses focused on 201 families who had complete data on the variables of interest under study in the first phase of the study. Participants were mothers, fathers, and first- and second-born offspring from working and middle class families residing in small cities, towns, and rural areas. Reflecting the demographic composition of the geographic area in which they resided, all families were European-American. In year 1, first-born

adolescents (51% female, 49% male) averaged 10.87 years of age ($SD = .54$), and second-born

adolescents (50% female, 50% male) averaged 8.26 years of age ($SD = .93$). In year 1, the

average mother and father had completed some college, $M = 14.57$, $SD = 2.15$; $M = 14.67$, $SD =$

2.43 years of education, for mothers and fathers, respectively (12= high school graduate;

14=some college; 16= college graduate), and all fathers and approximately 90% of mothers in

the sample were employed for pay.

Procedures

At each measurement occasion, mothers, fathers, and both offspring were interviewed

separately in the home about their personal qualities and family relationships. Informed consent

was obtained from each family member, and the family was compensated with $100 for their

participation in phases 1, 2, 3, 4, and 5 of the study and $200 in phases 6, 7, 8, and 9. The home

interviews were about two hours long.

Measures

School transitions were assessed at each phase via mother reports of whether youth

changed schools during the past year. The transition to junior high was coded as 0 for no change

and 1 for change. The transition to high school was coded as 0 for no change and 1 for change.

Parental education was obtained during the home interview. Both mothers and fathers

reported their highest level of education obtained (12 = high school degree, 16 = college degree).

Youths' grade point average (GPA) was operationalized as the average of grades in four

subject areas, English, math, science, and social studies, obtained from report cards during the

home interview. Letter grades were converted into numerical scores such that higher scores

signified higher grades (A = 4.0, B = 3.0, C = 2.0, D = 1.0, E = 0).

Parents' expectations for their children's educational attainment was assessed via mothers' and fathers' reports of how many years of education they would like their offspring to obtain.

Parents' interest in academics was assessed via mothers' and fathers' ratings of interest in each of 31 activities, including academic activities, reading, writing, language arts, math, and science using a measure adapted from Huston, McHale, and Crouter, (1985). Interests were rated using a 4-point Likert-type scale ranging from 1 (*not at all*) to 4 (*very interested*).

Youths' interest in academics was assessed using a measure that paralleled the parent report (McHale, Crouter, & Tucker, 1999), in which youth rated their interest in a variety of activities including academic activities, reading, writing, language arts, math, and science. Interests were rated using a 4-point Likert-type scale ranging from 1 (*not at all*) to 4 (*very interested*). Cronbach's alphas across the 9 phases of measurement ranged from .55 to .74.

<div align="center">Results</div>

Preliminary Analyses

We first examined means of and correlations between the parent predictors. As Table 1 shows, on average, both mothers and fathers expected their offspring to obtain some college. Mothers and fathers scored slightly above the midpoint on interests in academics, and mothers reported greater interest in academics than fathers. On average, mothers and fathers completed some college. Correlations between expectations, interests, and education were low to moderate for mothers and fathers (see Table 1).

Analysis Plan

To examine changes in adolescents' academic interests as a function of age, individual, and family level variables, we used a multi-level modeling (MLM) strategy. This approach was

chosen because of the nested nature of the data (time within individuals; individuals within families). MLM is also appropriate when data are unbalanced. That is, individuals need not be assessed at the same point in time, and measurement spacing does not have to be equal across participants. Thus, in the present study, we used age as the index of time rather than the more typically employed wave of data collection.

We estimated a series of 3-level models examining changes in youth's academic interests as a function of age, gender, school transitions, parents' interests, parents' expectations and parents' education. At level 1 (within-individuals over time), we included age polynomials (linear, quadratic, and cubic terms) to describe patterns of change in academic interests from middle childhood to adolescence. Two time-varying covariates, transition to junior high and transition to high school, were also included at level 1. In order to separate within and between person effects from the time varying covariates of school transitions, we included the time-varying effect for whether or not the junior or high school transition occurred each year and controlled for the level 2 between person effect, whether or not there was *ever* a transition to junior high or high school. At level 2 (between-siblings, within-families) we included individual-level time invariant characteristics: adolescent birth order and gender. The reference group for adolescent gender was male, and the reference group for birth order was second-born. Mothers' and fathers' expectations for educational attainment were also included at level 2 because expectations were unique to each child. At level 3 (between-families), we included family level variables: mothers' and fathers' education, and mothers' and fathers' interest in academics.

Examining Changes Overtime in Academic Interests

To address the first goal of this study, to chart changes in academic interests from middle childhood to adolescence, we evaluated both fixed and random age effects by estimating a series of unconditional growth models. A preliminary series of MLMs, followed by deviance tests, were conducted to examine the overall growth curve of academic interests to determine whether each coefficient should be treated as random or fixed and to assess whether the patterns of change in academic interests should include polynominal terms. Youth's age was centered at age 13 (the mean age across all youth, across all times of measurement). Based on a series of deviance tests, a model with a random quadratic term and a fixed cubic term was chosen as a final initial model for academic interests. The intercept (at age 13) was 2.57, the midpoint on the interest scale, which indicates that youth were "somewhat interested" in academics. Youths' academic interests declined over time as indicated by the significant linear term, $B = -.12$, $p < .001$. In addition, the significant quadratic term $B = .01$, $p < .001$ showed that the decline in academic interests decelerated in later adolescence. Adolescents also showed some "recovery" in academic interests as indicated by a significant cubic term, $B = .002$, $p < .001$: By age 18 academic interests began to increase. Although we were not substantively interested in the effects of birth order, we included this as a control because first- and second-borns represent two cohorts. A significant birth order effect indicated that first-borns had significantly greater interests in academic than second-borns. Thus, birth order was included as a control in all subsequent analyses.

Next we examined whether the pattern of change in academic interests was the same for boys and girls. A significant main effect for gender indicated that at age 13, girls had greater interest in academics than boys. There were also significant gender interactions with the linear and quadratic age terms indicating that boys' academic interests declined more than girls' did

and that the rate of decline was faster for boys than for girls. As shown in Figure 2, boys had greater interest in academics at age 6, but at age 13, girls had significantly greater interest in academics than boys. There was not a significant interaction between gender and the age cubic term, which indicated that the "recovery" pattern observed in the unconditional growth model was the same for boys and girls. At age 18, however, boys had significantly lower interest in academics than girls.

Predictors of Change in Academic Interests

The second goal of this paper was to identify the correlates of individual differences in changes in academic interests (see Table 3). We began by examining the extent to which the transitions to junior high school and high school were related to changes in academic interests. In these models, the level 1 (within-person) and level 2 (between-person) effects of junior high and high school transitions were entered into the model described above. After accounting for the age-related changes in academic interests and controlling for birth order and the level 2 between-person effects of the junior high and high school transitions, as expected, we found that the transition to junior high was associated with a significant decline in academic interests. Specifically, this transition was associated with a .13 unit decline in academic interests. No gender differences were evident in the relation between the junior high transition and changes in academic interests ($\gamma = .04$, $p > .05$). Further, the transition to high school was unrelated to changes in academic interests, and there were no gender differences in the relation between the high school transition and changes in academic interests ($\gamma = .11$, $p > .05$).

We also evaluated the effects of three parent predictors on changes in academic interests (see Table 3). Specifically we examined the effects of parents' expectations, parents' own interests in academics, and parents' educational levels on the level and slope of youth's academic

interests. We estimated three models: a model with mothers' predictors, a model with fathers' predictors and a model that included both parents. Because including both parents in the same model did not suppress effects for either parent, we present only the final model that included both parents.

Mothers' expectations were associated with level but not change in academic interests. Specifically, when mothers held high expectations for their offspring's educational attainment, their offspring had higher levels of academic interests. Contrary to our hypothesis, mothers' expectations did not predict change in academic interests, and fathers' expectations were not related to youths' academic interests at either the intercept or slope. Mothers' and fathers' own academic interests were not associated with level or change in adolescents' academic interests. When we examined whether these associations differed for boys and girls, we found no evidence of gender differences. Consistent with our hypothesis, fathers' education level was associated with changes in academic interests such that when fathers had higher levels of education, their offspring's academic interests declined less over time.

As a next step, we examined whether parental socialization factors moderated the effect of the junior high transition on academic interests. That is, we were interested in whether parents' expectations, parents' own interest in academics, or parents' education level buffered declines in academic interests during the junior high transition. A significant interaction emerged for mothers' interest in academics: Specifically, when mothers' own interests in academics were low, adolescents showed declines in academic interests across the junior high transition. However, when mothers' interests in academics were high adolescents did not exhibit declines in academic interests across the junior high transition (see Figure 2).

Are Changes in Academic Interests Related to Changes in Grades?

The final goal of this paper was to examine the implications of declines in academic interests for youth's school grades. We began by estimating an unconditional growth model for youth's grade point average and evaluated both fixed and random effects of time. Deviance tests were conducted to determine whether each coefficient should be treated as random or fixed and if the patterns of change in academic interests should include polynominal terms. The time variable (i.e., youth's age) was centered at age 13 (the mean age across all youth, across all times of measurement). Based on a series of deviance tests, a model with a random linear term and a fixed cubic term was chosen as a final model for grade point average. The intercept (at age 13) was 3.37, which indicates that youth earned about a B+ average in the 7th grade, and the significant linear term indicated that youth declined at a rate of .09 points per year from elementary school through the end of high school. Additionally, the significant quadratic term indicated that the decline in grades decelerated near the end of high school, and the significant cubic term indicated that grade point average was on the rise by the end of high school. Again, we examined whether there was a birth order effect given that first- and second-borns represent two cohorts. Because the birth order effect was non-significant, $B = -.05$, $p = .25$, we did not include it in subsequent models.

Next we examined whether the pattern of change in grade point average was the same for boys and girls. A main effect for gender was significant which indicated that at age 13 (the intercept) girls had higher grade point averages than boys, $B = .15$, $p < .01$. There were no gender interactions for the age polynomial terms (linear, quadratic, cubic), suggesting that the pattern of change did not differ for boys and girls.

To test whether declines in academic interests were related to declines in grade point averages, the time-varying predictor, academic interests, was included at level 1. At level 2, the

cross-time mean of academic interests, (e.g. the mean across time points) was included as a control so that we could separate within-person from between-person effects. As expected, we found that academic interest was a significant time-varying covariate at level 1: As academic interests decreased over time, so too did grade point average. The significant main effect for gender on grades became non-significant when academic interest was entered into the model. We also examined whether the link between changes in academic interests and changes in grade point average was the same for boys and girls. A significant gender X level 1 academic interests interaction emerged indicating that changes in academic interests were linked more strongly to changes in grade point average for girls as compared to boys.

Discussion

Recent research highlights the importance of interest in academics as key component of achievement motivation. In the present study, we charted changes in academic interest from middle childhood through adolescence. In addition, we examined school transitions and parent characteristics as predictors of changes in academic interests. Finally, we explored whether changes in interest in academics were related to changes in school grades over time.

The overall pattern of change in academic interests was one of decline, although there was some recovery in interests near the end of high school. The pattern of change also differed somewhat for boys and girls. For example, boys had higher levels of academic interest than girls at the beginning of the study, but by age 13, girls had significantly higher interest in academics than did boys. There were also differences in the rate of change for boys and girls such that boys showed greater decline in academic interests and their decline occurred at a faster rate than did girls. By age 18, both boys and girls showed some recovery in interest in academics, but girls still had significantly higher interest in academics than boys. It is also important to note that

these data were collected through grade 12 and did not include post high school grades and there were no high school drop outs. Thus the recovery pattern in academic interests cannot be attributed to students going to college or to uninterested students leaving school.

The pattern of decline in academic interests that we observed is similar to what others have found in the domains of math and language arts (Jacobs et al. 2002; Fredricks & Eccles, 2002); however, our results revealed gender differences in both the extent and rate of change. This is an important finding considering the current trends in college enrollment for males and females: In the 1970s, men made up 55% of first year college students; today men account for 45% of college enrollment (American Council on Education, 2006). Our results suggest that the origins of this gender gap may begin in the primary school when boys' interest in academics begins to decline. In the past researchers and teachers have been concerned with declines in girls' achievement motivation and participation in math and science (AAUW, 1992), but our results indicate that attention must also be paid to boys' general lack of interest in academics. Given that lack of interest in school is a common reason for dropping out, as well as our findings of links between declines in academic interests and declines in academic performance, an important direction for researchers and educators is to find ways to keep boys interested in school.

Turning to correlates of change in academic interests, we found that the transition to junior high was a significant predictor of decline in academic interests. This finding is consistent with previous research on the negative effects of the junior high transition and adds to this body of work by focusing on within-individual change. Contrary to our expectations, the transition to high school was not related to declines in academic interests. One reason why the high school transition did not have an effect on academic interests may be that the high school transition is

less disruptive than the junior high transition. The transition to high school is not as closely associated with the same biological, cognitive, and social changes that characterize early adolescence, when the transition to junior high typically occurs, which may make the transition to high school easier to cope with. In addition, having already experienced the junior high transition, students may be more prepared for the high school transition.

Our findings regarding parental socialization support Eccles' model of parental influences, which emphasizes both parental socialization and parental education in youth's academic motivation and achievement. We found that fathers' education level and mothers' expectations were important predictors of adolescents' interest in academics. Specifically, when adolescents had more educated fathers, they declined less in their academic interests. In addition, when mothers had higher expectations for their offspring's educational attainment, youth had higher levels of academic interests. We also found that mothers' interest in academics buffered the effect of the junior high transition on declines in academic interests. This is an important finding given that previous work regarding the junior high transition has documented its negative effects, but has not yet examined protective factors. Some researchers have called for school reform to alter the structural characteristics of junior high schools; however, our results show that another avenue is through parents. Many parents are aware of the difficulty that some youth encounter during the junior high transition, but they might not know ways that they can help their offspring through this period, including their own interest in academics.

Our final goal was to examine whether changes in academic interests were linked to changes in grade point averages. Previous theoretical and empirical work links achievement motivation to academic performance; however other studies have not examined whether *changes* in academic interests are related to *changes* in performance. Consistent with our hypothesis, we

found that declines in academic interests were related to declines in grade point averages. In addition, this link was stronger for girls than for boys suggesting that girls' academic performance may be more tied to academic interest than boys. Although theories of achievement motivation posit that motivation precedes performance, it is important to remember that our data are correlational, and that causality cannot be inferred. It is likely that interest in academics and school grades have a reciprocal relation such that performance also affects interest. Not only can interest in academics make one want to perform well in school, but school performance can also have some bearing on interest in academics, to the extent that poor performance is related to lower interest. A future direction is to examine cross-lagged effects in order to understand reciprocal associations between interest in academics and school grades. In addition, future research might utilize path analytic techniques to explore additional variables such as self-efficacy or personality that may explain the link between academic interests and school performance.

A limitation of this research was its focus on a relatively homogenous sample of European American youth and their families. We found that parents played an important role in changes in youth's academic interests; however this finding may vary across family types as parents may view their role in their offspring's education differently. In addition some researchers have suggested that normative school transitions in early adolescence are particularly problematic for poor urban youth. Thus there may be additional factors such as social support that can buffer the negative effects of school transitions for youth in these kinds of settings.

In conclusion, we found that interest in academics for youth in this study generally declined from middle childhood through late adolescence. Our findings show that school transitions and parent characteristics are important correlates of changes in academic interests.

In addition the combination of these factors are important for preventing declines in academic interests, which is necessary given its link to school grades and decisions to drop out of school.

References

Alexander, K.L., & Entwisle, D.R.. (1988). Achievement in the first two years of school: Patterns and processes. *Monographs f the Society for Research in Child Development, 53.*

American Association of University Women. (1992). *The AAUW Report: How Schools Shortchange Girls*. Wellesley College Center for Research on Women. Washington, D.C.: AAUW Education Foundation and National Education Association.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Barber, B. K., & Olsen, J.A. (2004). Assessing the transitions to middle and high school. *Journal of Adolescent Research, 19,* 3-30.

Blyth, D. A., Simmons, R. G. & Carlton-Ford, S. (1983). The adjustment of early adolescents to school transitions. *Journal of Early Adolescence, 3,* 105-120.

Bridgeland, J.M., DiJulio, J. J., & Morison, K. B. (2006). The silent epidemic: Perspcecitves of high school dropouts. Civic Enterprises.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments in nature and design*. Cambridge, MA: Harvard University Press.

Byrnes, J.P. (2003). Factors predictive of mathematics achievement in White, Black, and Hispanic 12th graders. *Journal of Educational Psychology, 95,* 316-326.

Chen, C. & Stevenson, H.W. (1995). Motivation and mathematics achievement: A comparative study of Asian-American, Caucasian-American, and East Asian high school students. *Child Development, 66*, 1215-1234.

Crosnoe, R. (2001). Academic orientation and parental involvement in education during high school. *Sociology of Education, 74*, 210-230.

Davis-Kean, P.E. (2005). The influence of parent education and family income on child achievement: The indirect role of parental beliefs and the home environment. *Journal of Family Psychology, 19*, 294-304.

Eccles (Parsons), J., Adler, T., & Kaczala, C. (1982). Socialization of achievement attitudes and beliefs: Parental influences. *Child Development, 53,* 310-321.

Eccles, J. S. , Lord, S. , & Buchanan, C. M. (1996). School transitions in early adolescence: What are we doing to our young people? In J. Graber, J. Brooks-Gunn & A. Petersen (Eds.), *Transitions Through Adolescence: Interpersonal Domains and Context*, Mahwah, N.J.: Lawrence Erlbaum.

Eccles, J. S. & Midgley, C. (1989). Stage/environment fit: Developmentally appropriate classrooms for early adolescents. In R. E. Ames & Ames (Eds.), *Research on motivation in education* (Vol. 3). New York: Academic Press.

Eccles, J. S., Midgley, C. & Adler, T. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J. G. Nicholls (Ed.), *The Development of Achievement Motivation*. Greenwhich , CT: JAI Press.

Eccles, J., Wigfield, A., & Schiefle, U. (1998). Motivation to succeed. In W. Damon (Series Ed). & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Social, emotional, and personality development* (Vol 3, 5th ed. pp. 1017-1095). New York: Wiley.

Epstein, J. L. & McPartland, J. M. (1976). The concept and measurement of the quality of

school life. *American Educational Research Journal, 13,* 15-30.

Fredricks, J. & Eccles, J. (2002). Children's competence and value beliefs from childhood

through adolescence: Growth trajectories in two male-sex typed domains.

Developmental Psychology, 38, 519-533.

Heyns (1978). *Summer learning and the effects of schooling.* New York: Academic Press.

Huston, T. L., McHale, S. M., & Crouter, A. C. (1985). Changes in the marital relationship

during the first year of marriage. In R. Gilmour & S. Duck (Eds.), *The emerging field of*

personal relationships (pp. 109-132). Hillsdale, NJ: Erlbaum.

Jacobs, J. & Bleeker, M. (2004). Girls' and boys' developing interests in math and

science: Do parents matter? In New Directions in Child and Adolescent Development.

Jacobs, J. & Eccles, J. S. (2000). Parents' task values, and real-life achievement-related

choices. In C. Sansone (Ed.), *Intrinsic and extrinsic motivation: The search for*

optimal motivation and performance (pp. 405-439). San Diego: Academic. Jacobs, J.,

Lanza, S., Osgood, W., Eccles, J., & Wigfield, A. (2002). Changes in children's self-

competence and values: Gender and domain differences across grades one though twelve.

Child Development, 73, 509-527.

King, J. (2006). Gender Equity in Higher Education: 2006. Washington DC: American

Council on Education.

Kohn, M. L. (1969). Class and conformity: A study of values. Homewood, IL: Dorsey.

Linver, M. & Davis-Kean, P. (2005). The slippery slope: What predicts math grades in middle and high school? In J. Jacobs, & S. Simpkins (Eds.), Leaks in the pipeline to math, science, and technology careers. (pp. 49-64). Wiley.

Marjoribanks, K. (1979). Families and their learning environments. London: Routledge & Kegan Paul.

McHale, S. M, Crouter, A. C., & Tucker, C. J. (1999). Family context and gender socialization in middle childhood: Comparing girls to boys and sisters to brothers. *Child Development, 70,* 990-1004.

Patrikakou, E. (1997). A model of parental attitudes and the academic achievement of adolescents. *Journal of Research and Development in Education, 31,* 7-24.

Seidman, E., Aber, J.L., Sabine, F. (2004). The organization of schooling and adolescent development. In K. Maton, C. Schellenbach, B. Leadbeater, and Solarz, A. (Eds.) Investing in child, youth, families, and communities: Strengths-based research and policy. (pp. 233-250). Washington, D.C., US: American Psychological Association.

Simkins, S., Davis-Kean, P. E. & Eccles, J. S. (2005). Parents' socializing behavior and children's participation in math, science, and computer out-of-school activities. *Applied Developmental Science, 9,* 14-30.

Simmons, R. G. & Blyth, D. A. (1987). *Moving into Adolescence: The Impact of Pubertal Change and School Context.* Hawthorn, NJ: Aldine.

Simmons, R. G., Burgeson, R., Carlton-Ford, S., and Blyth, D. A. (1987). The impact of cumulative change in early adolescence. *Child Development, 58*, 1220-1234.

Wentzel, K. (1998). Parents' aspirations for children's educational attainments: Relations to parental beliefs and social address variables. *Merrill-Palmer Quarterly, 44*, 20-37.

Table 1

Correlations among parental socialization predictors

Variables	1	2	3	4	5	6	7	8
1. Dad-FB[a] expectations	–							
2. Dad-SB[b] expectations	.61***	–						
3. Dad Interests	.27***	.28***	–					
4. Dad Education	.42***	.45***	.39***	–				
5. Mom-FB expectations	.55**	.30***	.20**	.32**	–			
6. Mom-SB expectations	.33***	.42**	.22**	.39**	.62***	–		
7. Mom Interests	.18**	.13	.22**	.24**	.09	.26***	–	
8. Mom Education	.26*	.39***	.28***	.55***	.30***	.42***	.31***	–
M	15.77	15.64	2.34	14.62	15.71	15.63	2.50	14.63
SD	1.22	1.32	0.60	2.39	1.29	1.25	0.51	2.12

[a] FB = first-born, [b] SB = second-born

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

Table 2. Unconditional Growth Model

Parameter	Interest in Academics		
	Estimate	SE	p-value
Fixed Effects:			
Intercept	2.57	0.03	< .001
Slope Linear	-0.12	0.01	< .001
Slope Quadratic	0.01	0.01	< .001
Slope Cubic	0.00	0.01	< .001
Variance Components:			
Residual Variance	0.20	0.01	< .001
Intercept Variance	28.28	3.94	< .001
Intercept-Linear Covariance	-0.28	1.54	0.86
Linear Variance	3.31	1.08	< .001
Intercept-Quadratic Covariance	-0.12	0.24	0.63
Linear-Quadratic Covariance	-0.50	0.17	< .01
Quadratic Variance	0.10	0.03	< .001

Model Fit:

REML Deviance	4409.30
AIC	4425.30
BIC	4451.70
Number of Parameters	10

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

Table 3

Coefficients, Standard Errors, and T-Ratios for Changes in Academic Interests

	B	*SE*	*t*-ratio
Fixed Effects			
Intercept	2.41***	0.07	36.11
Level 1			
Age (Linear)	-0.13***	0.01	-10.22
Age^2 (Quadratic)	0.01***	0.00	4.74
Age^3 (Cubic)	0.01***	0.00	3.93
Junior High	-0.13***	0.04	-3.45
High School	0.04	0.03	1.24
Age*Sex	0.04***	0.01	4.29
Age^2*Sex	-0.01**	0.00	-2.62
Age*Father's Expectations	0.00	0.00	-0.24
Age* Father's Interests	0.01	0.01	1.42
Age* Father's Education	0.01**	0.00	2.79
Age*Mother's Expectations	0.00	0.00	0.32
Age* Mother's Interests	0.00	0.00	-0.22
Age* Mother's Education	0.00	0.00	1.18
Level 2			
BP Junior High	0.15**	0.05	2.81
BP High School	0.04	0.05	0.83
Gender	0.29***	0.05	6.34

Father's Expectations	-0.01	0.03	-0.23
Gender* Father's Expectations	-0.04	0.04	-1.00
Mother's Expectations	0.06*	0.03	2.12
Gender* Mother's Expectations	0.03	0.04	0.78
Level 3			
Father's Interests	0.00	0.06	0.06
Gender* Father's Interests	0.05	0.08	0.69
Father's Education	0.05**	0.02	2.71
Gender* Father's Education	-0.04	0.04	-1.00
Mother's Interests	$0.10^{\dagger}$	0.07	1.60
Gender* Mother's Interest	-0.03	0.09	-0.31
Mother's Education	0.00	0.02	-0.10
Gender* Mother's Education	-0.01	0.03	-0.40

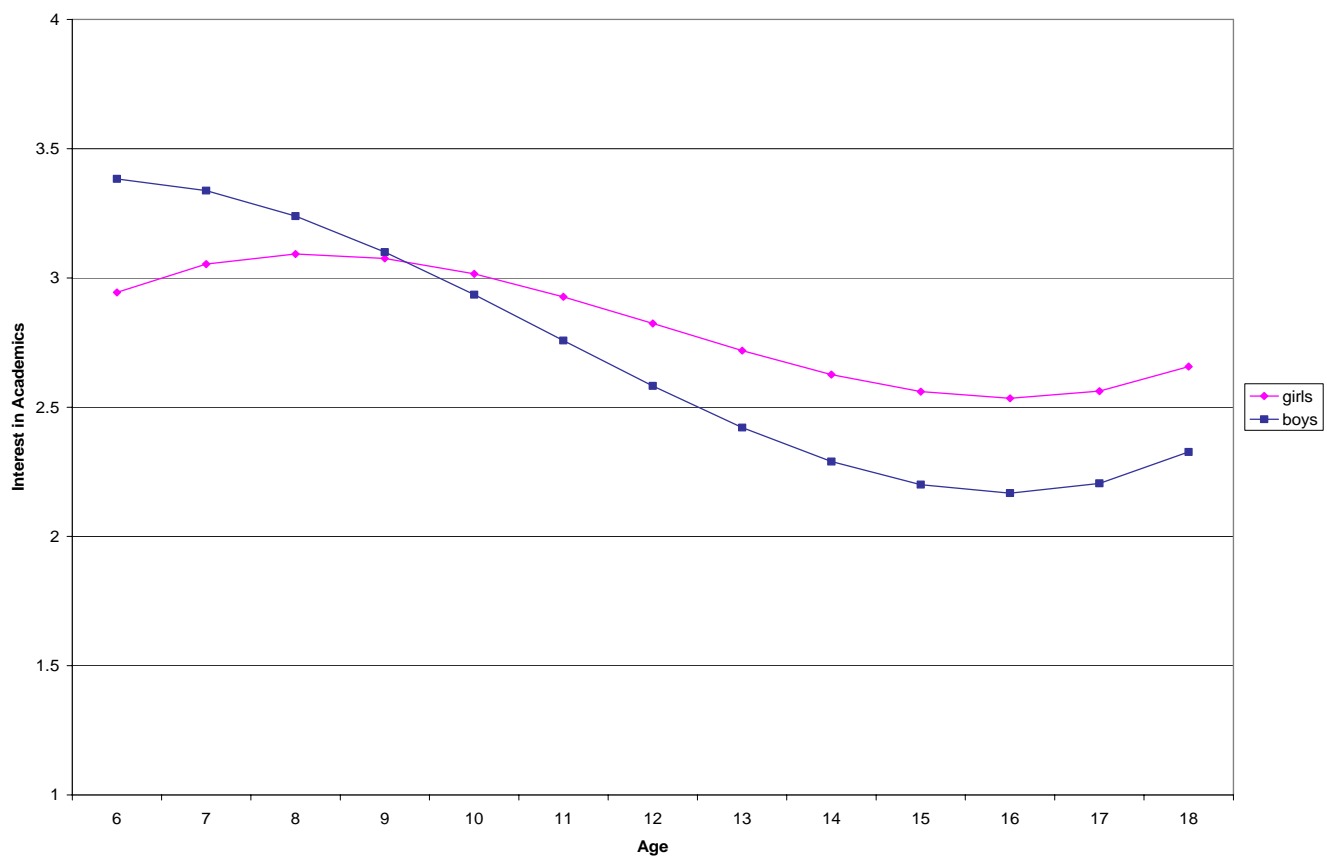|	Variance	*SD*	
Variance Components			
Residual	0.19***	0.01	
Intercept	0.07***	0.02	

[a] Between-Person junior high and high school transitions were included as covariates to capture within-person differences beyond between-person effects.
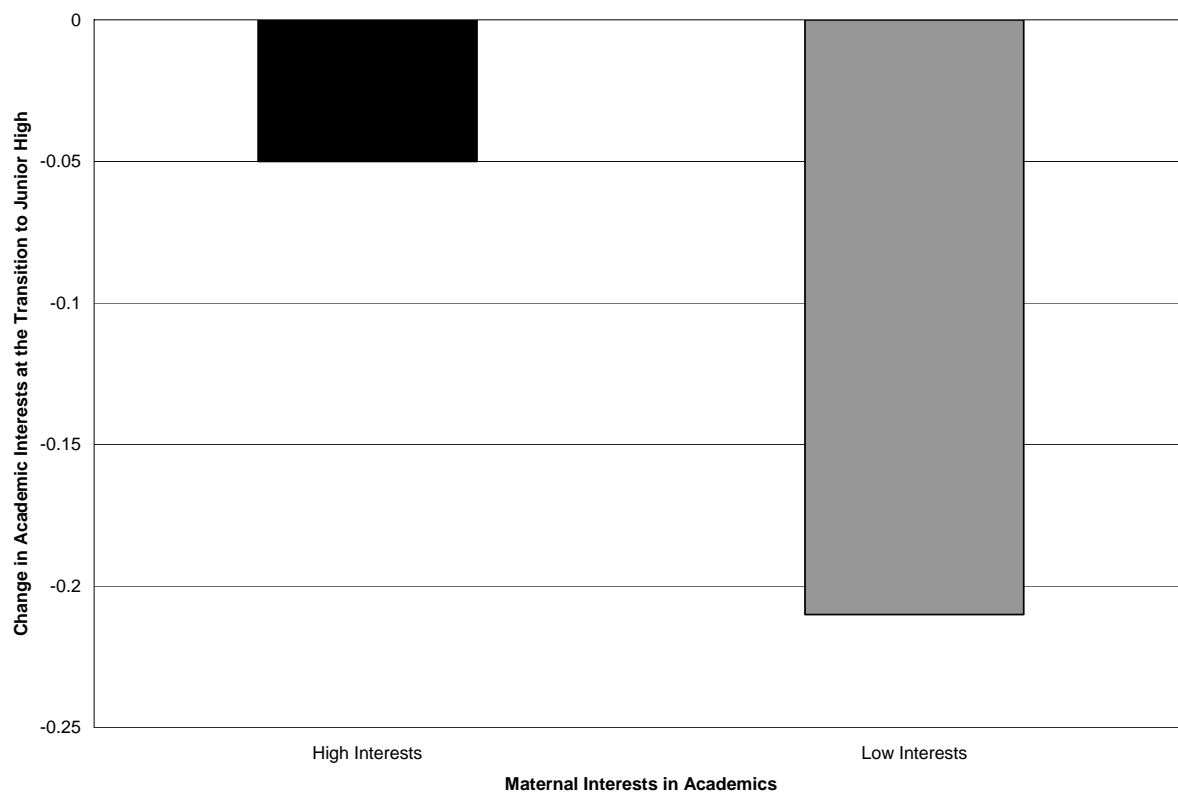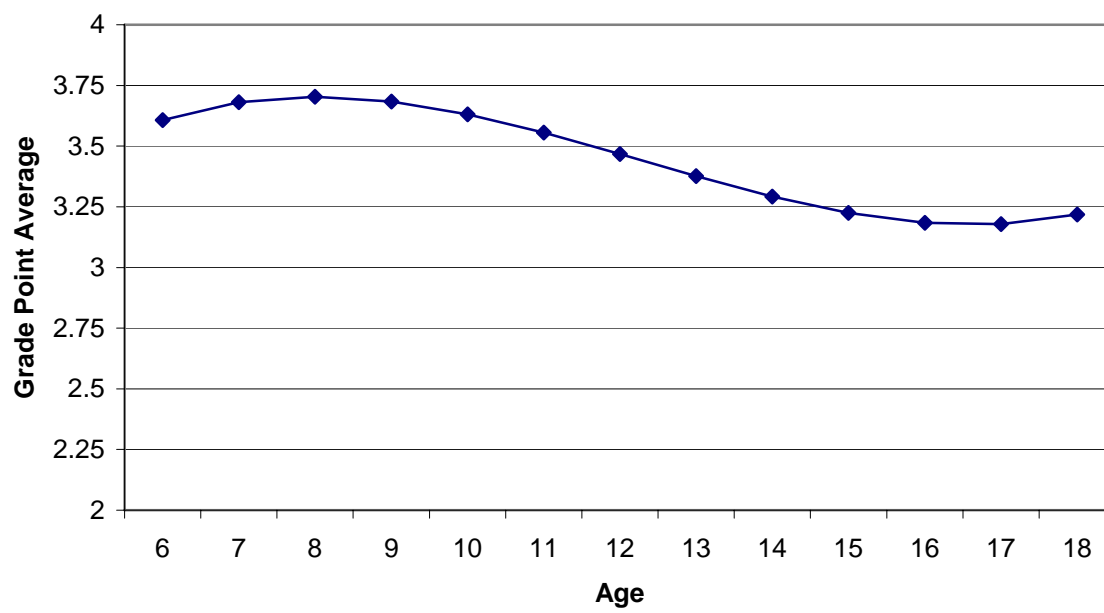
List of Figures

CURRICULUM VITAE

Aryn M. Dotterer

Education

2002–2006   Pennsylvania State University; Ph. D. in Human Development and Family Studies

2000–2002   Pennsylvania State University; M. S. in Human Development and Family Studies

1996–2000   Wayne State University; B. A. in Psychology, *Cum Laude*

Research Experience

2006 – present   Postdoctoral scholar, Frank Porter Graham Child Development Institute, University of North Carolina

2002 – 2006   Graduate Research Assistant, Penn State Family Relationships Project, Drs. Ann C. Crouter and Susan M. McHale

2000 – 2002   Graduate Research Assistant, Investigating Strategies for the Promotion of Resilience (INSPIRE), Dr. Dena P. Swanson

Publications

McHale, S., Crouter, A., Kim, J., Burton, L., Davis, K., **Dotterer, A**., & Swanson, D. (2006). Mothers' and fathers' racial socialization in African American families: Implications for youth. *Child Development, 77,* 1387-1402.

McHale, S., **Dotterer, A**., & Kim, J. (in press). An Ecological Approach to the study of youth and the media.

Honors, Awards and Scholarships

2006 – 2008   Institute for Education Sciences Postdoctoral Fellowship, Frank Porter Graham Child Development Institute, University of North Carolina

2005 – 2006   Fisher Fellowship dissertation award, Pennsylvania State University

2004 – 2005   Fellow in the Center for Work and Family Research, Pennsylvania State University

1998 – 2000   National Institute of Mental Health, undergraduate research fellowship, Wayne State University

1996 – 1998   Latino En Marcha Scholarship, Wayne State University