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Understanding Gender and Race Differences in High School Achievement in the United States

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Abstract The purpose of this study was to examine gender and racial/ethnic differences in high school achievement measured by students' high school GPAs and their standardized math and reading test scores. The Education Longitudinal Study of 2002 was used to investigate the following question: To what extent do school behaviors, attitudes toward school/teacher, students' educational expectations, and parental involvement and expectations impact gender and racial/ethnic differences in high school achievement? Results supported gender-role socialization theory given that female students than their male counterparts have higher educational expectations, parental support and expectations. Male students are more likely to have negative school behavior and are also more likely to spend less time on homework compared to female students. The results suggested that oppositional culture does not account for racial/ethnic differences but for gender differences in high school achievement given that gender differences in school resistance and educational expectations are consistent whereas race/ethnic differences are not.

Keywords: *gender, race, high school achievement, gender-role, oppositional culture*

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1. Introduction

Sociologists have long studied gender through the framework of social constructionism. As a social structure and identity, gender is commonly viewed as socially constructed [37]. According to gender role socialization theory, males and females have different sets of values, attitudes and behaviors throughout their life-long socialization. Both females and males learn how to behave in society within the cultural norms of masculinity and femininity. In this sense, everyone is constantly "doing gender" in society [55].

Those different values, attitudes and behaviors are also reflected in the educational system. Within this theoretical framework, we can argue that males act differently than females in educational settings. In other words, under the influence of male-dominant culture that is sometimes seen as "macho", males tend to have more anti-school attitudes and disruptive behaviors, which would in turn hinder males' educational achievement. Moreover, research finds that hardworking males at school are looked down upon and feel that they need to pretend not to care about school work [24,25,53,54].

Overall, masculinity is constructed and reinforced during the early years of education and will continue throughout students' respective educations. On the one hand, boys are more likely than girls to react to school in ways that are seen as oppositional [24,25,53,54] and this negatively affects their educational achievement [18,32]. On the other hand, females are being socialized to be obedient and less independent so they have closer relationships with both their parents and teachers. As a result, female students are expected to demonstrate a greater level of conformity to academic standards and to have good school behaviors, qualities that are highly prized and rewarded by school teachers [42]. In contrast, males are more likely to have disruptive behaviors in school, such as attending class unprepared, breaking school rules, and consequently, being punished by teachers [18,32]. This is seen as 'normal' behavior for boys, and therefore accepted. Teachers often reinforce unarticulated ideas about males that have a direct correlation to males' poor performance in educational settings. Overall, our socialization process expects females to behave well, to be obedient and to become better students; however, males are socialized to underachieve academically [42]. This gender role socialization does not occur only at home, but also in school as an important site where students learn how to practice those norms given the influences of masculinity and femininity [38,57].

Boys are not the only ones who are expected to develop anti-school behaviors that are seen as oppositional. Racial/ethnic minorities and especially African American students are also believed to have similar attitudes and behaviors toward education [43]. Cultural explanations mainly focus on family-related factors that deal with a racial/ethnic group's cultural orientations and values, including their life styles. As a well-known sociological explanation dealing with the effect of culture on students' educational achievement, "oppositional culture theory"

developed by an anthropologist John Ogbu in 1978 provides some explanations for racial/ethnic differences in school performance. The main argument of oppositional culture theory is that the historical relationship between a minority group and the dominant group shapes the perceptions and beliefs of group members about the role of schooling. More specifically, African Americans do poorly in school because they believe that the U.S. educational system does not provide benefits for them. They believe that there is a limited payoff to schooling for them and that the American educational system is centralized on white values and culture. African Americans have this perception given the fact that they have experienced slavery, racism, and discrimination throughout American history, and due to this past they have lost their confidence in the U.S. educational system. Overall, African Americans have created a survival strategy called "the oppositional culture" as a coping mechanism that resists substandard schooling [23].

2. Review of Literature

2.1. Gender Differences in High School Achievement

Researchers focusing on students' high school performance find that females generally outperform males during high school. This trend is also seen as a leading factor in explaining the college enrollment gap favoring females [5,15,42], and recent research finds that females' greater educational success in high school accounts for more than half of the variation in the gender gap in college enrollment over the past three decades [11]. Gender differences are observed at the pre-college stage that also explain the gender differences observed many years later after high school graduation [49]. During high school, females rather than males are found to be more successful because they have better in-classroom participation and attitudes, which teachers commonly value [15]. Males tend to have more anti-school attitudes and disruptive behaviors which would in turn hinder males' educational achievement. Some scholars find that hardworking males at school are looked down upon and feel that they need to pretend not to care about school work [24,25,53,54].

On the one hand, female students are deemed better classroom citizens because their behaviors are valued more highly by teachers [15,19]. On the other hand, male students are more likely to have disruptive behaviors in school, such as attending class unprepared, breaking school rules, and consequently, being punished by teachers [18,32]. Boys are not the only ones who are expected to develop anti-school behaviors which are seen as oppositional. Racial/ethnic minorities but especially African American students are also believed to have similar attitudes and behaviors toward education [43,58]. This would negatively affect their educational achievement. Females have started to receive equal parental encouragement and support at home to pursue higher levels of education [47], and indeed today parents are often less involved in their sons' education and are more involved in their daughters' educational issues [8]. Today, parental expectations for females have even surpassed the expectations for males. Almost 75 percent of parents expect their daughters to get a bachelor's or higher degree; only about 65 percent of parents have the same expectation for their sons (U.S. Department of Education, http://nces.ed.gov/nhes). Overall, research indicates that females receive more encouragement and support from their parents [5,17,47]. Given that parental expectations positively impact students' own educational expectations [13,47], this would motivate and help female students excel well in high school.

Students' own educational expectations are strongly shaped by parental expectations. In this sense, females in comparison to males have higher educational expectations during high school, and those expectations would explain their greater success in their education [20]. Females compared to males are more likely to have higher educational aspirations to go to college [3,20,30,56], which would also lead to their advantage in high school achievement.

2.2. The Achievement Gap by Race/Ethnicity

Historically, there has been a gap in high school achievement between whites and non-whites (except Asians). That is why the large white-black achievement gap has been long discussed and is still an important topic in the literature [7,27,31,33]. Racial/ethnic minorities have greater educational expectations than whites [34,46]. More specifically, African Americans have high educational aspirations reflecting their high pro-school values, but there is a discrepancy between their high educational aspirations and low academic performance due to the lack of material conditions [1,16]. As a result of this discrepancy, black students along with Hispanic students still lag behind in academic achievement compared to their white and Asian counterparts.

Parental factors play significant roles understanding race differences in students' academic achievement. Parents who have low socio-economic status as well as parents who have less education expect their children to complete less education compared to those who have a higher socioeconomic status (SES) and higher educational levels. Parents who are highly educated and who have a high SES tend to have more information regarding educational opportunities through their social capital, can pass necessary information to their children, and may have higher educational expectations for them [4,13,30]. Perna and Titus [45] indicate that relative to whites and Asians, black and Hispanic students have lower levels of family income and parental education, and they also attend schools with limited resources. All these factors negatively affect their academic achievement. Given that parents of black and Hispanic students do not have similar socio-economic conditions and resources as do parents of white and Asian students, they would experience more challenges to become actively involved in their children's education, which reduces the educational achievement of their children [51]. The effects of socioeconomic background on racial differences in achievement have been well documented and are seen as powerful predictors to explain racial and ethnic differences in educational achievement [2,14,45]. Research finds that socioeconomically disadvantaged high school students face challenges (such as living in economically segregated neighborhoods, attending poorly maintained high schools and having few

resources for further education) on the path to college [6,26,41], and have lower rates of college enrollment [48,52]. Massey et al. [40] find that students of color and low SES students are more likely to live in poor socioeconomic environments and go to low quality high schools. This trend also results in having low academic achievement for accessing higher education [40]. In this regard, high schools strongly influence students' overall college enrollment and mainly determine who goes to what type of institution. On the one hand, private high school enrollment significantly increases college enrollment probabilities [22] and high school students in private schools, whether Catholic or not, are significantly likely to enter college and to enroll in four-year institutions. On the other hand, the socioeconomic composition of high schools fuels social inequality in higher education [21], especially because minority students are more likely to go to high schools under conditions of segregation and are less prepared academically compared to students from majority-dominant high schools [39,40].

3. Data and Method

The present quantitative research analyzes the Education Longitudinal Study of 2002 (ELS:2002) that follows a nationally representative cohort of students from 2002, when they were high school sophomores, through their postsecondary education. The researchers collected information from the same students in 2004 when they were high school seniors and 2006 when the majority of the students were in college. The ELS includes 16,200 10th grade students in 750 schools, which represent 3.4 million students as of 2002 in the United States. ELS:2002 is the most recent longitudinal dataset spanning high school to postsecondary enrollment in the United States. ELS monitored the critical transitions made by cohort of 2002 high school sophomores through college into their adult careers, with a special emphasis on college access and choice. Also, it obtained information about factors that influence these transitions, student's educational motivations, experiences, and achievement, as well as school and family characteristics.

The analytic sample of this research includes students who remained in the study from 2002-2006 and who had complete transcript data for all 4 years in high school. Native Americans, American Indians, and more than one race groups are excluded from the analysis. This was about the 5% of the ELS sample. As a result, the analytic sample of this study includes 9,940 respondents.

ELS is a sample and the entire population was not surveyed. It uses a complex sampling design, not simple random sampling (SRS). Thus, not all schools and students had an equal probability of selection. Not all schools and students participated in ELS. Therefore, ELS weights its samples to make sure it maintains a plausible level of representativeness. In other words, each sample member has a design weight, which is the number of people in the target population represented by that sample member when selected for the study. To secure the generalizability of the research findings, the panel weight was used for sample member nonresponses to maintain representativeness of the analytic sample.

4. Analytic Strategy

The study first presents and discusses descriptive statistics about the mean differences in high school achievement variables. Then, it estimates a set of OLS regression models predicting cumulative high school grade point average and math and reading test scores of students. The study utilizes student behavior and attitudes in school as well as time spent on homework as measures of important non-cognitive skills (Jacob 2002) given that boys are more likely than girls to develop negative school behaviors and attitudes [24,25,53,54] and that this behavior negatively affects their educational achievement [18,32]. The study also takes into account other gendered and racialized factors such as parental support, parental expectations, and students' educational expectations.

It first models three sets of high school achievement outcomes that includes high school GPAs, standardized math and reading test scores using ordinary least squares (OLS) regression, which is appropriate for interval variables. Then it focuses on identifying the mechanism contributing to gender and race differences in high school achievement. In order to see which covariates explain gender and race differences, I add variables in the model sequentially in temporal order and examine how the effect of gender and race changes across models.

Using ELS:2002, a set of OLS regression models is estimated to predict students' high school GPA (controls include SES, high school type, high school urbanicity, number of sibling, and family structure):

Model I: $Y_{GPA} = \alpha + \beta_1 \text{gender}$

Model II: $Y_{GPA} = \alpha + \beta_1 \text{ race}$

Model III: $Y_{GPA} = \alpha + \beta_1 \text{gender} + \beta_2 \text{ race} + \beta_3 \text{ controls}$

Model IV: $Y_{GPA} = \alpha + \beta_1 \text{gender} + \beta_2 \text{ race} + \beta_3 \text{ controls} + \beta_4 \text{ parental support} + \beta_5 \text{ parental expectation}$

Model V: $Y_{GPA} = \alpha + \beta_1 \text{gender} + \beta_2 \text{ race} + \beta_3 \text{ controls} + \beta_4 \text{ school behavior} + \beta_5 \text{ attitude toward school/teacher}$

Model VI: $Y_{GPA} = \alpha + \beta_1 \text{gender} + \beta_2 \text{ race} + \beta_3 \text{ controls} + \beta_4 \text{ educational expectation}$

Model VII: $Y_{GPA} = \alpha + \beta_1 \text{gender} + \beta_2 \text{ race} + \beta_3 \text{ controls} + \beta_4 \text{ parental support} + \beta_5 \text{ parental expectation} + \beta_6 \text{ school behavior} + \beta_7 \text{ attitude toward school/teacher} + \beta_8 \text{ educational expectation}$

5. Dependent Variable

High School Achievement: High school academic achievement is measured by students' high school GPAs in all courses and their standardized math and reading test scores. High school GPA is on a scale of 0-4. Math scores have a range of 20-90, and reading scores have a range of 20-80. Both math and reading achievement are measured by ELS:2002 using standardized t-scores.

Primary Independent and Intervening Variables

Gender and Race: The primary independent variables of interest are gender and race. Gender includes males and females (having males as the reference group in regression analyses). Race includes non-Hispanic white, non-Hispanic black, Hispanic, and Asian (having non-Hispanic whites as the reference group in regression analyses).

Parental expectation: Parental expectation is measured as a dummy variable to indicate whether parents have any expectations from their children to earn a bachelor's degree or higher (BA degree=1, else=0).

Parental involvement: Parental involvement in students' education is measured as how often they check and help with homework. Multiple items are used to create a scale variable (Table 1). Since there are six items in the scale, a respondent can get a score from this scale ranged between 11 and 44. Higher scores from the scale indicate higher parental involvement. Cronbach's alpha reliability coefficients are used to test all scales.

Table 1. Correlation Matrix of Parental Involvement Items

How often…..		parents check homework	parents help with homework	students discussed school courses with parents	students discussed things studied in class with parents	students discussed their grades with their parents
parents check homework	r sig	1				
parents help with homework	r sig	0.9346 0.00	1			
students discussed school courses with parents	r sig	0.85 0.00	0.8408 0.00	1		
students discussed school activities with parents	r sig	0.8335 0.00	0.8277 0.00	0.9611 0.00	1	
students discussed things studied in class with parents	r sig	0.8393 0.00	0.8317 0.00	0.9637 0.00	0.962 0.00	1
students discussed their grades with their parents	r sig	0.8255 0.00	0.8214 0.00	0.947 0.00	0.9455 0.00	0.9529 0.00
students discussed transferring with parents	r sig	0.8173 0.00	0.8111 0.00	0.9395 0.00	0.9381 0.00	0.9457 0.00
students discussed prep for ACT / SAT with parents	r sig	0.8115 0.00	0.8055 0.00	0.9333 0.00	0.9306 0.00	0.9427 0.00
students discussed going to college with parents	r sig	0.8235 0.00	0.8146 0.00	0.9473 0.00	0.9417 0.00	0.952 0.00
students discussed current events with parents	r sig	0.8037 0.00	0.7993 0.00	0.9239 0.00	0.9232 0.00	0.9326 0.00
students discussed troubling things with their parents	r sig	0.8155 0.00	0.8102 0.00	0.9324 0.00	0.9302 0.00	0.9414 0.00

How often…..		students discussed transferring with parents	students discussed prep for ACT / SAT with parents	students discussed going to college with parents	students discussed current events with parents	
parents check homework	r sig					
parents help with homework	r sig					
students discussed school courses with parents	r sig					
students discussed school activities with parents	r sig					
students discussed things studied in class with parents	r sig					
students discussed their grades with their parents	r sig	1				
students discussed transferring with parents	r sig	0.9363 0.00	1			
students discussed prep for ACT / SAT with parents	r sig	0.9313 0.00	0.9309 0.00	1		
students discussed going to college with parents	r sig	0.9427 0.00	0.9426 0.00	0.9468 0.00	1	
students discussed current events with parents	r sig	0.9232 0.00	0.9233 0.00	0.93 0.00	0.9391 0.00	
students discussed troubling things with their parents	r sig	0.9269 0.00	0.9317 0.00	0.9274 0.00	0.9489 0.00	

Scale reliability coefficient 0.99

Students' Educational Expectations: Students' educational expectation is measured as a dummy variable to indicate whether students have any expectations to earn a bachelor's degree or higher (BA and/or higher=1, else=0).

Negative School behavior: School behavior is measured by a scale, which includes the seven items (Table 2). There are seven items in the scale, and a respondent can get a score from this scale ranged between 0 and 35. Lower scores refer to "better" school behavior. Table 2 provides a correlation matrix for the items in this scale and Cronbach's alpha level. The scale is highly reliable given a reliability coefficient of .95.

Table 2. Correlation Matrix of School Behavior Items

		how many times late for school	how many times cut/skipped classes	how many times absent from school	how many times got in trouble
how many times late for school	Pearson's r	1			
	sig				
how many times cut/skipped classes	Pearson's r	0.7603	1		
	sig	0.00			
how many times absent from school	Pearson's r	0.7127	0.695	1	
	sig	0.00	0.00		
how many times got in trouble	Pearson's r	0.7458	0.7289	0.6648	1
	sig	0.00	0.00	0.00	
how many times put on in-school suspension	Pearson's r	0.7935	0.7887	0.7314	0.793
	sig	0.00	0.00	0.00	0.00
how many times suspended/put on probation	Pearson's r	0.7554	0.7629	0.6994	0.7549
	sig	0.00	0.00	0.00	0.00
how many times transferred for disciplinary reasons	Pearson's r	0.816	0.8083	0.7548	0.8034
	sig	0.00	0.00	0.00	0.00

		how many times put on in-school suspension	how many times suspended/put on probation	how many times transferred for disciplinary reasons
how many times late for school	Pearson's r			
	sig			
how many times cut/skipped classes	Pearson's r			
	sig			
how many times absent from school	Pearson's r			
	sig			
how many times got in trouble	Pearson's r			
	sig			
how many times put on in-school suspension	Pearson's r	1		
	sig			
how many times suspended/put on probation	Pearson's r	0.8549	1	
	sig	0.00		
how many times transferred for disciplinary reasons	Pearson's r	0.915	0.8791	1
	sig	0.00	0.00	

Scale reliability coefficient: 0.9545

Time Spent on Homework: Time spent on homework is measured by the total number of hours spent on homework each week out of school.

Attitudes toward school and teacher: Students' attitudes toward school and teacher are measured by multiple items in a scale (Table 3). There are six items in the scale, and a respondent can get a score from this scale ranged between 6 and 24. Higher scores refer to "positive" attitudes toward school and teacher school behavior. Table 3 indicates a correlation matrix of attitudes toward school and teacher items, which includes Cronbach's alpha level as well. The scale is highly reliable given a reliability coefficient of .93.

Table 3. Correlation Matrix of Attitudes toward school and teacher items

		students get along well with teachers	there is real school spirit	teaching is good
students get along well with teachers	Pearson's r	1		
	sig			
there is real school spirit	Pearson's r	0.8102	1	
	sig	0.00		
teaching is good	Pearson's r	0.7609	0.7092	1
	sig	0.00	0.00	
teachers are interested in students	Pearson's r	0.6938	0.6379	0.6575
	sig	0.00	0.00	0.00
teachers praise effort	Pearson's r	0.7598	0.705	0.6999
	sig	0.00	0.00	0.00
in class often feels put down by teachers	Pearson's r	0.7816	0.719	0.679
	sig	0.00	0.00	0.00

		teachers are interested in students	teachers praise effort	in class often feels put down by teachers
students get along well with teachers	Pearson's r			
	sig			
there is real school spirit	Pearson's r			
	sig			
teaching is good	Pearson's r			
	sig			
teachers are interested in students	Pearson's r	1		
	sig			
teachers praise effort	Pearson's r	0.6678	1	
	sig	0.00		
in class often feels put down by teachers	Pearson's r	0.6349	0.6942	
	sig	0.00	0.00	1

Scale reliability coefficient: 0.9334

Control Variables

Family and high school controls: Socioeconomic status, family structure, and number of siblings are family background variables. High school controls include high school type and urbanicity. Socioeconomic status is measured as a composite in ELS data based on five equally weighted, standardized components: father's/guardian's education, mother's/guardian's education, family income, father's/guardian's occupation, and mother's/guardian's occupation. Family structure is measured as a dichotomous variable indicating students lived in families with two biological or adoptive parents during 2002 when they were eight graders. Number of siblings refers to the total number of brothers and sisters students have in home.

High school type: High school control is measured as dummy variables for public, Catholic and other private schools, with public schools as the reference group.

High school urbanicity: School urbanicity is measured as dummy variables for urban, suburban and rural, with urban as the reference category.

6. Descriptive Results

Characteristics of Students in ELS: 2002

Table 4 provides descriptive statistics for all variables used in the study. According to the table, there are more females than males (53% vs. 47%) in this research. For race/ethnicity, the majority of students are white (64%). The percentage of blacks, Latinos, and Asians are 12%, 14%, and 10% respectively. 33% of students are white men, and 31% of them are white women. Non-white students from both genders are equally distributed in the sample.

Table 4. Descriptive Statistics for Dependent and Independent Variables

Variable	Variable Description	Mean	SD	Min – Max
High school GPA	Standardized high school GPA for all courses (on a 4-point scale)	2.89	.68	0 – 4
Math achievement	Math standardized t-score	52.20	9.73	20 – 90
Reading achievement	Reading standardized t-score	51.98	9.77	20 – 80
Female	Gender (1= Female, 0= not)	0.53	0.50	0 – 1
White	Race/ethnicity (1=White, 0= not)	0.64	0.48	0 – 1
Black	Race/ethnicity (1=Black, 0= not)	0.12	0.33	0 – 1
Hispanic	Race/ethnicity (1=Hispanic, 0= not)	0.14	0.34	0 – 1
Asian	Race/ethnicity (1=Asian, 0= not)	0.10	0.30	0 – 1
Educational expectation	Higher education expectation of the student (1= if the student aspire to get a bachelor's degree or higher, 0= if not)	.90	.30	0 – 1
Time spent on Homework	The total number of hours/week spent on homework out of school	6.34	6.03	0 – 30
Negative school behavior	Scale score representing the negative school behavior	10.48	3.06	0 – 35
Negative attitudes	Scale score representing the negative attitudes toward school and teacher	13.35	2.88	0 – 24
Parental support	Scale score representing the parental involvement	23.42	5.01	0 – 35
Parental expectation	Expected educational level of parent for the student (1= if at least one parent expects the student to attain a bachelor's degree or higher, 0= if not)	.91	.29	0 – 1
SES	Socio-economic status composite of the student's family	.10	.74	-2.10– 1.80
Siblings	The total number of brothers and sisters students have in home	2.17	1.36	0 – 6
Twoparent	Family formation (1= the student is living with two parents, 0= living with single parent)	.79	.41	0 – 1
Urban	School urbanicity (1= if the school is located in urban area, 0= if not)	.32	.47	0 – 1
Suburban*	School urbanicity (1= if the school is located in suburban area, 0= if not)	.49	.50	0 – 1
Rural	School urbanicity (1= if the school is located in rural area, 0= if not)	.19	.39	0 – 1
Public*	School control (1= if the school is public, 0= if not)	.76	.43	0 – 1
Catholic	School control (1= if the school is catholic, 0= if not)	.15	.36	0 – 1
Non-Catholic Private	School control (1= if the school is public, 0= if not)	.09	.29	0 – 1

Note: * indicates a reference group. Source: ELS 2002.

Students have an average high school GPA of 2.89, and the most majority expected to get a bachelor's degree or higher in the future. Similarly, their parents also hold high expectations for them. 91% of parents expected their children to have at least a B.A. degree.

During high school, an average number of hours per week students spent on homework out of the school was 6.34 hours. About 11% of students had negative school behavior and 13% of them showed negative attitudes toward school and their teachers.

In terms of socio-economic background, an average student has a good socio-economic standing, and most students come from two-parent families (79%). While 49% of students are from suburban areas, 32% of them come from urban settings. Only 19% of students are from rural areas. The majority of students attended public high schools (76%).

As Table 5 indicates, females have higher GPAs compared to males. While Asian students have the highest GPA compared to all other racial/ethnic groups, black students have the lowest average high school GPA. However, females do not have higher test scores in math compared to their male counterparts. For math achievement, Asian students are the most successful group, followed by white students. When it comes to reading, females have slightly higher scores relative to males.

Asian students do not hold their advantage in reading achievement. They have higher scores than black and Hispanic students, but they lag behind white students in reading achievement.

Table 5. Mean High School Achievement Differences by Gender and Race

GPA	*N*	*Mean*	*St. Err.*	*Mean difference*	*t-test*
Men	4720	2.758	.010	-.237	-17.43***
Women	5220	2.995	.009		
White	6330	2.995	.008	.540	26.75***
Black	1210	2.454	.018		
White	6330	2.995	.008	.395	20.21***
Hispanic	1380	2.599	.019		
White	6330	2.995	.008	.081	-3.73***
Asian	1020	3.08	.020		
Math	*N*	*Mean*	*St. Err.*	*Mean difference*	*t-test*
Men	4720	53.04	.146	1.647	8.44***
Women	5220	51.39	.130		
White	6330	54.08	.111	8.799	31.94***
Black	1210	45.28	.243		
White	6330	54.08	.111	6.774	25.29***
Hispanic	1380	47.31	.260		
White	6330	54.08	.111	-.993	3.24**
Asian	1020	55.08	.326		
Reading	*N*	*Mean*	*St. Err.*	*Mean difference*	*t-test*
Men	4720	51.50	.146	-.857	-4.36***
Women	5220	52.35	.131		
White	6330	54.08	.115	7.756	27.18***
Black	1210	46.32	.247		
White	6330	54.08	.115	6.738	24.40***
Hispanic	1380	47.34	.260		
White	6330	54.08	.115	2.469	7.87***
Asian	1020	51.61	.310		

Note: Per NCES restricted-use data guidelines unweighted frequencies are rounded to the nearest 10.
Source: ELS 2002. *p<.05, **p<.01, ***p<.001.

White students outperform black and Hispanic students in all measurements of high school achievement. Asian students, however, outperform white students in high school GPA and math, but not in reading. Asians have lower reading scores relative to their white counterparts. The results make sense considering that most Asian students in ELS speak English as their second language.

The gap in high school achievement between whites and blacks is the largest compared to the achievement gap between whites and Hispanics, as well as between whites and Asians. That is why the large white-black achievement gap has been long discussed and is still an important topic in the literature [7,27,31,33].

Table 6. Mean Distribution of Selected Independent Variables Explaining High School Achievement by Gender and Race

	Men	Women	*diff*	White	Black	*diff*	White	Hispanic	*diff*	White	*Asian*	*diff*
Negative school behavior (index of scores 0 – 35)	10.64	10.35	*.29****	10.35	10.80	*-.45****	10.35	11.18	*-.83****	10.35	10.03	*.32**
Negative attitudes (index of scores 0 – 24)	13.41	13.28	*.13**	13.30	13.56	*-.26**	13.30	13.31	*.01*	13.30	13.40	*.10*
Time spent on homework (hours)	5.69	6.92	*-1.23****	6.24	5.24	*1.0****	6.24	5.82	*.42**	6.24	8.93	*2.69****
Parental expectation (1= B.A. degree and higher)	.88	.92	*-.04****	.89	.91	*.02**	.89	.89	*0.0*	.89	.95	*.06****
Parental support (index of scores 0 – 35)	22.98	23.82	*-.84****	23.64	23.64	*0.0*	23.64	22.93	*.71****	23.64	22.43	*1.21****
Educational expectation (1= B.A. degree and higher)	.87	.93	*-.06****	.90	.90	*0.0*	.90	.87	*.03***	.90	.95	*.05****

Source: ELS 2002. *p<.05, **p<.01, ***p<.001.

Table 6 presents mean distributions of selected independent variables that would be accounted for by gender and race differences in students' high school achievement. Men and women differ when it comes to the indicators of school citizenship. Females seem to be better school citizens because they spend more hours on homework, and they do not have negative school behavior and attitudes as much as their male counterparts have. Table 6 also indicates that parental support and parental expectations for students are gendered. Females are the ones who receive more support and educational expectations from their parents. More importantly, this seems to be reflected in their own educational expectations as well. In other words, female students have substantially higher educational expectations relative to their male peers from all racial/ethnic groups.

7. Multivariate Results

Table 7 includes a set of OLS regression models to estimate students' high school GPA. The table has seven

models, and the first model starts with the gross effect of the female variable on high school GPA. In this model, there is a gross female advantage in GPA over males. The gross effect of racial/ethnic groups indicates that both black and Hispanic students are disadvantaged in GPA compared to their white counterparts. However, Asian students are more likely than are whites to have higher GPAs. Both race and gender effects have not changed when background characteristics into account. These are students' socio-economic status, family structure, the number of siblings, high school type, and high school urbanity. There is still a female advantage and black/Hispanic disadvantage in high school GPA net of background variables. Results suggest that parental involvement and expectations are also important in students' GPA. Students whose parents expect them to get at least a B.A. degree have 0.343 points more GPA compared to those whose parents do not have similar expectations. Net of parental factors, females are still more likely to have higher GPAs than males. Also, white students maintain their advantages net of parental factors. High school citizenship as measured by negative school behavior, negative attitudes toward teacher/school, and time spent on homework does not explain the gender and race gaps in high school GPA. Students' educational expectations significantly increase their GPA, but do not alter gender and race differences in achievement. The final model explains 33% of the variance in high school GPA and the most important variable to predict students' high school GPA is their school behavior (-.239) followed by their socio-economic status (.172) according to standardized beta coefficients. Net of all the variables used in the study, females are still more likely to have a greater GPA compared to males. Also, white students have a strong advantage over black and Hispanic students. Only Asian students are slightly more likely to have a higher GPA relative to their white peers.

Table 7. OLS Models on Students' High School GPA

Variable	Model I			Model I			Model III			Model IV		
	β	sig	SE	β	sig	SE	β	sig	SE	β	sig	SE
Female	0.252	***	0.017				0.272	***	0.015	0.245	***	0.015
Blacks				-0.560	***	0.023	-0.410	***	0.024	-0.438	***	0.024
Hispanics				-0.406	***	0.023	-0.223	***	0.025	-0.245	***	0.025
Asians				0.097	***	0.026	0.146	***	0.025	0.128	***	0.025
Parental support										0.009	***	0.001
Parental expectations										0.343	***	0.024
Negative school behavior												
Negative attitudes												
Time spent on homework												
Educational expectation												
SES							0.241	***	0.011	0.194	***	0.011
Urban							-0.031		0.018	-0.040	*	0.018
Rural							0.021		0.020	0.023		0.019
Siblings							-0.017	**	0.006	-0.014	*	0.006
Single-parent							-0.099	***	0.020	-0.096	***	0.019
Catholic							0.057	**	0.021	0.036		0.020
Non-Catholic							0.166	***	0.026	0.163	***	0.026
Constant	2.701	***	0.012	2.827	***	0.013	2.826	***	0.019	2.322	***	0.043
R^2		0.032			0.135			0.199			0.228	
N		9940			9940			9940			9940	

Variable	Model V			Model VI			Model VII		
	β	sig	SE	β	sig	SE	β	sig	SE
Female	0.229	***	0.014	0.245	***	0.015	0.204	***	0.014
Blacks	-0.391	***	0.023	-0.427	***	0.024	-0.418	***	0.023
Hispanics	-0.202	***	0.023	-0.230	***	0.025	-0.220	***	0.023
Asians	0.075	***	0.023	0.124	***	0.025	0.055	*	0.023
Parental support							0.003		0.001
Parental expectations							0.225	***	0.024
Negative school behavior	-0.060	***	0.003				-0.056	***	0.002
Negative attitudes	-0.007	**	0.002				-0.006		0.002
Time spent on homework	0.017	***	0.001				0.014	***	0.001
Educational expectation				0.396	***	0.026	0.224	***	0.026
SES	0.209	***	0.011	0.209	***	0.011	0.168	***	0.011
Urban	-0.033	*	0.017	-0.043	*	0.018	-0.044		0.017
Rural	0.019		0.018	0.026		0.019	0.024		0.018
Siblings	-0.012	*	0.005	-0.017	**	0.006	-0.011	*	0.005
Single-parent	-0.070	***	0.018	-0.094	***	0.019	-0.068	***	0.018
Catholic	0.004		0.020	0.038		0.020	-0.014		0.020
Non-Catholic	0.122	***	0.025	0.156	***	0.025	0.119	***	0.024
Constant	3.470	***	0.044	2.494	***	0.029	2.989	***	0.062
R^2		0.300			0.223			0.326	
N		9940			9940			9940	

Notes: Male, white, suburban high school, two-parent families are the reference groups. Weighted data. β denotes for unstandardized coefficients.
Source: ELS 2002. *p<.05, **p<.01, ***p<.001.

Table 8 has seven OLS models to predict students' standardized math test scores. Females are disadvantaged when it comes to math achievement. They are less likely than are males to have higher math scores. There is also a race gap in math achievement. Compared to white students, both black and Hispanic students have lower math scores, but Asian students have higher math scores than whites. The socio-economic background of students has slightly diminished the effect of race, but black and Hispanic students are still disadvantaged in math relative to white students. The female disadvantage has not changed after controlling for socio-economic background variables. Parental expectations substantially increase students' math scores for all students, but they do not diminish the female and the black/Hispanic disadvantage in math achievement. Students who have more negative school behaviors are less likely to be successful compared to those who have less negative school behaviors. Students' educational expectations also matter in math achievement. Those who expect to get at least a B.A. degree increase their math test scores by 6 points. The most important predictor of students' math achievement is student's socio-economic backround (.262), followed by their educational expectations (.129) according to standardized beta coefficients (Model VII). The final model explains 34% of the variance in standardized math test score.

Table 8. OLS Models on Students' Standardized Math Test Score

Variable	Model I			Model I			Model III			Model IV		
	β	sig	SE	β	sig	SE	β	sig	SE	β	sig	SE
Female	-1.605	***	0.237				-1.249	***	0.205	-1.564	***	0.202
Blacks				-8.991	***	0.303	-6.613	***	0.318	-6.985	***	0.315
Hispanics				-7.312	***	0.328	-4.052	***	0.334	-4.426	***	0.325
Asians				1.247	**	0.410	2.128	***	0.388	1.644	***	0.386
Parental support										0.003		0.021
Parental expectations										6.033	***	0.337
Negative school behavior												
Negative attitudes												
Time spent on homework												
Educational expectation												
SES							4.504	***	0.157	3.881	***	0.157
Urban							-0.587	*	0.254	-0.717	**	0.247
Rural							-0.064		0.264	0.007		0.257
Siblings							-0.341	***	0.080	-0.301	***	0.077
Single-parent							-0.534	*	0.261	-0.555	*	0.256
Catholic							1.026	***	0.273	0.692	**	0.270
Non-Catholic							1.398	***	0.381	1.292	***	0.376
Constant	52.351	***	0.179	54.499	***	0.182	54.408	***	0.255	49.246	***	0.591
R^2		0.007			0.151			0.255			0.292	
N		9940			9940			9940			9940	

Variable	Model V			Model VI			Model VII		
	β	sig	SE	β	sig	SE	β	sig	SE
Female	-1.661	***	0.203	-1.690	***	0.199	-2.064	***	0.197
Blacks	-6.413	***	0.315	-6.881	***	0.309	-6.850	***	0.307
Hispanics	-4.025	***	0.329	-4.162	***	0.323	-4.382	***	0.314
Asians	1.312	***	0.377	1.772	***	0.377	0.783	*	0.368
Parental support							-0.061	**	0.020
Parental expectations							4.300	***	0.344
Negative school behavior	-0.313	***	0.035				-0.248	***	0.035
Negative attitudes	-0.026		0.037				-0.023		0.034
Time spent on homework	0.236	***	0.019				0.201	***	0.018
Educational expectation				6.432	***	0.331	4.508	***	0.352
SES	4.136	***	0.156	3.977	***	0.156	3.458	***	0.155
Urban	-0.684	**	0.250	-0.778	**	0.245	-0.890	***	0.240
Rural	-0.044		0.258	0.023		0.254	0.078		0.247
Siblings	-0.308	***	0.079	-0.336	***	0.077	-0.293	***	0.074
Single-parent	-0.393		0.257	-0.446		0.253	-0.406		0.247
Catholic	0.532	*	0.271	0.714	**	0.268	0.162		0.265
Non-Catholic	0.916	**	0.380	1.236	***	0.375	0.776	*	0.372
Constant	56.843	***	0.648	49.014	***	0.375	50.286	***	0.886
R^2		0.287			0.296			0.336	
N		9940			9940			9940	

Notes: Male, white, suburban high school, two-parent families are the reference groups. Weighted data. β denotes for unstandardized coefficients.
Source: ELS 2002. *p<.05, **p<.01, ***p<.001.

Table 9 includes a set of OLS regression models to estimate students' standardized reading test scores. Results indicate that there is a gross female advantage in reading achievement over males and that all racial/ethnic groups are disadvantaged in reading scores compared to their white counterparts. Both race and gender effects have not changed when background characteristics are taken into account. Students whose parents expect them to get at least a B.A. degree average 5.49 points more in reading scores compared to those whose parents do not have similar expectations. Net of parental factors, females are still more likely to have higher reading scores than

males. Also, white students maintain their advantages over non-whites net of parental factors. High school citizenship does not explain the gender and race gaps in reading achievement, but students' educational expectations matter in reading achievement. Those who expect to get at least a B.A. degree increase their reading test scores by 6 points. While students' educational expectations significantly increase their reading scores, they do not alter gender and race differences in reading achievement. Females are still more likely than are males, and whites are still more likely than are non-whites to have higher reading test scores. The most important variables for predicting reading achievement are students' SES (.265), educational expectations (.124) and their parental expectations (.123) respectively based on standardized beta coefficients. Importantly, results indicate that the gender gap in reading achievement is explained by all the other variables in the model since females are not different from males in the final model. The model explains 34% of the variance in reading achievement.

Table 9. OLS Models on Students' Standardized Reading Test Score

Variable	Model I			Model I			Model III			Model IV		
	β	sig	SE	β	sig	SE	β	sig	SE	β	sig	SE
Female	0.798	***	0.238				1.137	***	0.210	0.779	***	0.207
Blacks				-8.055	***	0.306	-5.758	***	0.324	-6.149	***	0.320
Hispanics				-7.280	***	0.325	-4.039	***	0.333	-4.382	***	0.325
Asians				-1.916	***	0.385	-1.095	**	0.355	-1.464	***	0.355
Parental support										0.074	***	0.021
Parental expectations										5.489	***	0.336
Negative school behavior												
Negative attitudes												
Time spent on homework												
Educational expectation												
SES							4.621	***	0.159	3.966	***	0.160
Urban							-0.204		0.259	-0.331		0.253
Rural							-0.077		0.270	-0.026		0.264
Siblings							-0.354	***	0.082	-0.306	***	0.080
Single-parent							-0.357		0.263	-0.343		0.257
Catholic							2.163	***	0.287	1.849	***	0.283
Non-Catholic							1.674	***	0.396	1.600	***	0.392
Constant	51.011	***	0.178	53.175	***	0.186	52.983	***	0.266	46.642	***	0.624
R^2		0.002			0.123			0.231			0.263	
N		9940			9940			9940			9940	

Variable	Model V			Model VI			Model VII		
	β	sig	SE	β	sig	SE	β	sig	SE
Female	0.765	***	0.208	0.731	***	0.206	0.339		0.204
Blacks	-5.579	***	0.320	-6.004	***	0.316	-6.039	***	0.312
Hispanics	-4.006	***	0.332	-4.141	***	0.326	-4.333	***	0.321
Asians	-1.825	***	0.352	-1.422	***	0.344	-2.212	***	0.345
Parental support							0.018		0.021
Parental expectations							3.937	***	0.350
Negative school behavior	-0.296	***	0.038				-0.228	***	0.038
Negative attitudes	-0.023		0.038				-0.009		0.036
Time spent on homework	0.209	***	0.019				0.171	***	0.018
Educational expectation				5.915	***	0.342	4.065	***	0.364
SES	4.292	***	0.160	4.137	***	0.161	3.595	***	0.161
Urban	-0.288		0.255	-0.379		0.253	-0.482	*	0.248
Rural	-0.062		0.266	0.003		0.262	0.033		0.258
Siblings	-0.324	***	0.081	-0.350	***	0.080	-0.299	***	0.078
Single-parent	-0.222		0.260	-0.276		0.257	-0.206		0.252
Catholic	1.729	***	0.286	1.878	***	0.283	1.405	***	0.280
Non-Catholic	1.259	**	0.399	1.526	***	0.391	1.182	**	0.391
Constant	55.327	***	0.665	48.021	***	0.398	47.470	***	0.942
R^2		0.257			0.265			0.297	
N		9940			9940			9940	

Notes: Male, white, suburban high school, two-parent families are the reference groups. Weighted data. β denotes for unstandardized coefficients.
Source: ELS 2002. *p<.05, **p<.01, ***p<.001.

8. Conclusion and Discussion

This study investigates racial/ethnic and gender differences in students' high school academic achievement. Their cumulative grades for all courses during high school and standardized math and reading scores are used to measure high school academic achievement. It is important to see racial/ethnic and gender differences during high school years given that those differences mostly account for the further differences in higher education at later years.

The study examines race/ethnic and gender differences in high school achievement with respect to the main components of gender socialization and oppositional culture theories: educational expectations and school resistance. The present study finds that female high school

students have better grades during high school compared to their male peers. Also, females are more likely to show better classroom citizenship. Relative to males, female students have less disruptive school behaviors and less negative attitudes towards schools and teachers. These findings are consistent with what gender socialization theory predicts in terms of gender differences in high school citizenship and high school achievement.

However, the female advantage in high school GPA is not solely attributable to the higher educational and parental expectations of females as well as their better classroom citizenship. It is a fact that higher educational and parental expectations as well as better school citizenship significantly increase all students' grades; but these popular explanations do not fully account for the gender differences in achievement. The females' advantage still exists net of these factors.

The study finds no support for the thesis that oppositional culture fully accounts for racial/ethnic differences in achievement. The study reveals that white men have great advantages over black and Hispanic men and women in all measurements of high school achievement. The disadvantaged position of black and Hispanic students can be mainly attributed to differences in socio-economic background given that they mostly live in economically segregated neighborhoods. Their disadvantaged position is relatively diminished net of socioeconomic background. These findings suggest that African American and Hispanic students may not develop school-related skills and habits due to isolated social conditions, not because of a devaluation of school. In other words, the academic achievements of black and Hispanic students are highly affected by ecological factors and this also explains why they have the lowest educational attainment among other racial/ethnic groups.

However, based on this research, oppositional culture could be applied to explain gender differences, rather than racial/ethnic differences. The study finds that negative school behavior and attitudes are more salient among males than females. Moreover, male students for each race/ethnicity have the lowest educational expectations. Overall, school resistance and educational expectations are gendered and they matter in high school achievement. They matter because gender differences in school resistance and educational expectations are consistent whereas race/ethnic differences are not. Male students have lower educational expectations and lower scores on behavior and attitude scales compared to female students, but racial/ethnic groups do not show such consistency. For race differences in achievement, socio-economic conditions seem to be the most important factor. Given black and Hispanic students' poor high school conditions and lack of facilities, they might be more likely to get involved in disruptive paths and to have negative school behaviors.

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