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Examining Mathematics Achievement: An Analysis of Fourth and Eighth Grade TIMSS U.S. Data by Ethnicity, Gender, and Sociocultural Variables

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Abstract: Previous research studies about mathematics performance have continuously reported race/ethnic or gender gaps. Learners have different educational experiences depending on not only their ethnicity or gender, but also grade and sociocultural factors. However, only a few studies have considered all these factors integrally. Hence, the need of examining academic performance across ethnicity, gender, grade, and sociocultural variables led this study. The purpose of this study was to examine mathematics academic achievement of 4th and 8th grade African, Latinx, and Asian American students related to students' gender, grade, and sociocultural variables such as student bullying, parental involvement, and engaging teaching. The guiding research question was: To what extent do students' gender, bullying, parental involvement, and engaging teaching explain fourth and eighth grade African, Latinx, and Asian American students' mathematics achievement? The participants were total 9,605 fourth (n=4,785) and eighth grade (n=4,820) African, Latinx, and Asian American students in TIMSS 2015 U.S. national public-use data set. According to the results of multiple linear regression analyses, parental involvement positively affects mathematics scores for all students across grade and ethnicity. In addition, engaging teaching from mathematics teachers significantly increases 4th and 8th grade Latinx American students' mathematics achievement. This study reveals that gender, student bullying, parental involvement, and engaging teaching have different level of impacts on mathematics achievement of each group of students.
Keywords: Mathematics achievement, African Americans, Latinx Americans, Asian Americans, sociocultural factors

Previous research studies about mathematics achievement have continuously examined race/ethnic or gender gaps (Larke et al., 2014; Valencia, 2015; Wang et al., 2015). Among African American, Latinx American, and Asian American groups that have been growing rapidly in the U.S. (Moon & Larke, 2020), Asian American students tend to have high achievement, and African and Latinx American students are likely to have lower scores than their counterparts (Larke et al., 2014; Moon & Larke, 2020; U.S. Department of Education, 2020). Unlike race/ethnicity achievement gap, gender differences in mathematics are unclear (Bergin & Bergin, 2018). For instance, some studies reported boys were likely to have a higher achievement than girls did on standardized mathematics tests (Cimpian et al., 2016; Wang et al., 2015); however, other studies (Evans, 2015; Reardon et al., 2019) insisted that there was no gender gap in mathematic achievement among U.S. schools.

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For academic achievement including mathematics, middle childhood and adolescence are important periods (Bergin & Bergin, 2018). Children in middle childhood (i.e., six to 12 years old) learn stable attitudes toward study and school, and develop their self-esteem and self-efficacy through interactions with others (Bergin & Bergin, 2018). The results of several studies indicated that by third grade, a child's academic rank tended to be stable across later developmental stages (Bergin & Bergin, 2018; Ladd & Dinella, 2009). In the case of adolescence (i.e., 13 to 19 years old), the transitional period of development between childhood and adulthood, adolescents need to form their identity, learn social roles, and achieve emotional independence of parents or other adults. This increased independence or autonomy leads to more a frequent and deeper interactions with friends and communities (Sokol, 2009) with decreasing parental involvement (Zhao & Akiba, 2009). In this period, their academic achievement is crucial in terms of a future college entrance and a career success (Gremmen et al., 2017).

To understand academic achievement during middle childhood and adolescence, students' sociocultural environments need to be considered (Stewart, 2007). Bullying is one of sociocultural factors which negatively affect academic performance (Bergin & Bergin, 2018). It takes on a variety of forms, such as teasing, taunting, spreading rumors, hitting, kicking, etc. (Bergin & Bergin, 2018; Kokkinos et al., 2016). Students of color tend to be exposed to higher rates of peer bullying (Connell et al., 2015) and they report more academic difficulties than their counterparts (Stopbullying, 2021). Regarding the protective factors with respect to achievement, parental involvement is critical (Boonk et al., 2018). Parents that actively participate in their children's education are found to promote their children's academic growth regardless of students' age, gender, and ethnicity (Boonk et al., 2018; Chang et al., 2015; Crosby et al., 2015). Many studies acknowledged that both the home-based and the school-based parental involvement played a crucial role in children's higher academic achievement (Crosby et al., 2015; Dotterer & Wehrspann, 2016). Similarly, teachers' teaching strategies for engaging students are important to enhancing students' academic performance (Marks, 2000; Syed et al., 2011). Marks (2000) has underlined that teachers' teaching strategies and support have an impact on narrowing the effect of prior achievement, socioeconomic status, and gender gap by encouraging student engagement in class.

Given this, this study, inspired by the bioecological perspective that emphasizes sociocultural environments, examined the dynamic interplay among personal (gender and grade), peer (student bullying), family (parental involvement), and teacher (engaging teaching) determinants of mathematics achievement. Depending on gender (Evans-Winters & Esposito, 2010), ethnicity (Larke et al., 2014; Moon & Larke, 2020), or developmental stage (Bergin & Bergin, 2018), each student's academic experience should vary. Moreover, the impacts of sociocultural factors such as student bullying, parental involvement, and engaging teaching are different regarding the mathematics achievement of those diverse students. While previous research studies have been conducted on the gender achievement gap and the achievement gap among different ethnicities of students in the U.S., but only a few studies have examined their mathematics achievement within the multidimensional lens (Larke et al., 2014). The need for more research concerning each group of students' mathematics achievement related to gender, grade, bullying, parental involvement, and engaging teaching prompted the investigation launched in this study. Thus, the guiding research question for this inquire was: To what extent do students' gender, bullying, parental involvement, and engaging teaching explain fourth and eighth grade African, Latinx, and Asian American students' mathematics achievement?

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Literature Review

Academic Achievement Gap

The achievement gap has been discussed consistently in the U.S. The definition of academic achievement gap is a continuous, pervasive, significant and persistent disparity in educational achievement among groups of students (Larke et al., 2014; Moon & Larke, 2020). Academic achievement is typically measured by standardized tests. The previous research studies emphasized there has been a consistent disparity producing negative outcomes depending on ethnicities, gender, and classes (Larke et al., 2014). Such gaps in academic achievement affect future income level, matriculation to college, graduation rate, and the next generation's education (Valencia, 2015).

In the case of racial/ethnic achievement gap studies, previous studies have continuously reported that African American students tended to have lower scores than their counterparts (Bohrnstedt et al., 2015; Larke et al., 2014; Paschall et al., 2018). In the case of Latinx students, they have grown the fastest and become the largest group of students of color in the U.S. (Gándara, 2010; Hemphill & Vanneman, 2010). In Texas and California, the school-age population of Latinx already reached one-half of all students (Gándara, 2017). The existing research studies (Gándara, 2017; Hemphill & Vanneman, 2010) pointed out that Latinx students were likely to have a relatively low achievement on average, and the gap existed from the first days of schooling (Gándara, 2010, 2017). On the other hand, an Asian American group has higher grades and standardized test scores and tend to attend college more than other ethnic groups (Hsin & Xie, 2014). Asian Americans constituted only 6% of the U.S. population in 2015, but they comprised more than 20% of the entering classes in America's top universities (Lee & Zhou, 2017).

Gender is also one of the factors affecting academic achievement. Before the 1970s, research communities became interested in gender differences in academic achievement and found that girls outperformed boys in reading during the elementary and the adolescent years (Pomerantz et al., 2002; Reardon et al., 2019). By the 1970s, their attention shifted to mathematics and science in regards to the gender achievement gap (Pomerantz et al., 2002). Numerous studies detailed the gender differences in mathematics, but the pattern was not clear in the conflicting reports (Bergin & Bergin, 2018; Lee et al., 2011). For instance, some studies noticed that boys outperformed girls on a standardized test of math (Cimpian et al., 2016; Robinson & Lubienski, 2011); however, other studies (Lee et al., 2011; Reardon et al., 2019) reported that no gender gap in math among U.S. schools existed. The gender gaps in mathematics seemed to have age-related trend (Lee et al., 2011). Fahle's (2016) study illustrated how the gender achievement gap changed as student progressed through elementary and middle school. In mathematics, the average gender gap in favor of males was growing in elementary school, but this gap was shrinking in middle school. Another study (Leahey & Guo, 2001) revealed that there was no statistically significant gender gap in early ages, but a narrow gender gap in math grew larger until the 12th grade and slight gaps favoring boys were observed.

The gender gaps in the previous research studies mostly have been explored for a whole sample without considering students' ethnicities (Lee et al., 2011). There are possible interrelated effects among participants' ethnicity and grade. Therefore, gender, ethnicity, and grade are important factors when analyzing mathematics achievement.

Sociocultural Factors on Academic Achievement

Urie Bronfenbrenner, a developmental psychologist focusing on human development and sociocultural environments, insisted that humans were active participants in continuing adaptation to environment that was mutual and reciprocal (Shelton, 2018). He explained individuals interacted with the environment which consisted of five nested systems such as family, friends, neighborhood, school, social policy, etc. and those layered multi-systems affected individual growth and development (Elliot et al., 2016). Carol Lee (2012) shared a similar view with Bronfenbrenner. She argued that some disciplinary traditions explored participants within a singular setting and assumed that individual learning was on a singular pathway. She insisted that individual traits, characteristics of the groups, and time piece interacted with one another. Therefore, the academic performance can be a result of interactions among individuals and sociocultural environments factors such as peers, parents, and teachers (Stewart, 2007), and these interactions bring about an individual's development (Bergin & Bergin, 2018). In this regard, student bullying, parental involvement, and engaging teaching will be reviewed as sociocultural variables which have impacts on academic achievements.

Student Bullying

The influence of peers on individuals' development is well known, as the previous studies described (Gremmen et al., 2017; Lynch et al., 2013). It supports individuals' attitudes, behaviors, social development contributing positively or negatively to school success (Gremmen et al., 2017). Bullying is a typical form of violence among peer relationships. Student bullying refers to unwanted and repeated violent behaviors by another peer or group of peers (Center for Disease Control and Prevention, 2021; Glew et al., 2008). Student bullying can result in physical, social, emotional, and/or educational harm and distress (Center for Disease Control and Prevention, 2021). Individuals who bully others tend to dislike school and show high levels of conduct and academic problems. On the other hand, students who are bullied tend to demonstrate a high level of social emotional problems, such as, anxiety, depression, low self-esteem, loneliness, sleep difficulties, and insecurity (Center for Disease Control and Prevention, 2021; Nansel et al., 2001). Both bullies and bullied are likely to suffer from mental health and behavioral problems (Center for Disease Control and Prevention, 2021).

Studies have demonstrated that racial/ethnic minorities tended to be exposed to higher rates of peer bullying and victimization (Connell et al., 2015; Esbensen & Carson, 2009). In a study by Nansel and colleagues (2001), the first large-scale study of bullying in the U.S., Latinx youth were involved in moderate or frequent bullying. In another study (Glew et al., 2005), African American and Native American students were associated also with greater odds of being a bully. Moreover, gender differences in terms of frequency and forms of bullying were observed. Males both bullied others more and were bullied more than female students, and males reported more corporal harassment such as hitting, kicking, slapped, or pushed. On the other hand, females reported that name-calling, rumors, teasing, sexual comments, and electronic bullying were common forms of being bullied (Bergin & Bergin, 2018; Center for Disease Control and Prevention, 2021; Nansel et al., 2001). Therefore, the results of the aforementioned studies are indicative of the different frequency and forms of bullying depending on gender and ethnic groups.

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Parental Involvement

Parents are considered to be the primary supporters for their children's development and academic success (Boonk et al., 2018). Parental involvement means "parents' behaviors in home and school setting meant to support their children's education process" (El Nokali et al., 2010, p. 989). Positive relationships between the children's academic performance and parental involvement across children's age have been reported (Crosby et al., 2015; Dotterer & Wehrspann, 2016). Many studies acknowledged that both the home-based and the school-based involvement played a crucial role in children's higher academic achievement (Chang et al., 2015; Crosby et al., 2015). Crosby and colleagues (2015) delved into the effectiveness of a parental involvement program by guiding a group of parents as to how to provide their early childhood aged children a reading lesson at home. The results revealed the children who received the parental literacy lessons at home were likely to gain a higher literacy achievement than other children with few lessons or no lessons at home from their parents. After monitoring the effectiveness of parental school involvement on their elementary school-aged children's academic achievement, Schulting and colleagues (2005) concluded that the school-based involvement had a positive impact on children's mathematics and reading achievement.

Some studies considered children and parents' ethnic backgrounds (Chang et al., 2015; Syed et al., 2011). Cooper and colleagues (2009) looked into the association between parental involvement and kindergarten achievement by ethnicities. The results indicated that parents with organized activities had children with higher mathematics achievement scores in Asian, and Latinx American groups, and enrollment in organized activities also predicted higher reading scores for Asian American students. Furthermore, the home-learning activities with parents were positively linked to the Latinx students' academic performance, and the school-based involvement had positive impacts on African American children. Chang et al. (2015) probed different types of school involvement of parents from ethnically and linguistically diverse families and the influence of parental school involvement on children's mathematics performance. The study noted that a parent-teacher conference had significantly positive effects for almost all linguistic and ethnic groups (Chang et al., 2015). A series of meta-analysis studies for students of color and students in urban schools, as conducted by Jeynes (2003, 2005, 2007) confirmed that all of the measured ingredients of parental involvement had a significant positive impact on their child's academic achievement, regardless of ethnicity (Jeynes, 2003) and gender (Jeynes, 2005, 2007).

Engaging Teaching

One of the greatest challenges confronting educators today is that of engaging a diverse group of students. Student engagement has a strong positive relationship with learning and achievement among various age and ability groups (Harbour et al., 2015). Engaging teaching refers to teacher's teaching strategies which encourage students' involvement in class (Finn, 1989, 1993). Several previous studies, inspecting the effect of engagement on academic achievement, consistently reported that engagement was key to improving the achievement (Kimbark et al., 2017; Wang et al., 2018), and a high level of engagement had positive relationships with students' learning, cognitive development, persistence, increased graduation, retention, and pursuit of higher education (Sinatra et al., 2015).

According to existing research, girls are more engaged than boys across all levels in elementary, middle, and high school (Lietaert et al., 2015; Rimm-Kaufman et al., 2015). In terms of students' ethnicities, inconsistent results were observed. For instance, Johnson and her colleagues (2001) indicated that African American students were inclined to be engaged by going to class, paying attention, and doing homework more than Hispanic and European

American students in grades 7 through 12. However, in the Mark's (2000) study, no different engagement level was observed among African Americans, Hispanics, and European Americans across elementary, middle, and high school.

Previous studies have underlined that teacher's engaging teaching strategies, skills, and support are critical for improving students' engagement. When teachers assigned students a cognitively challenging work in mathematics or social studies class and connected those works to the real world beyond the classroom, students' engagement across elementary, middle, and high school tended to be higher (Klem & Connell, 2004; Marks, 2000). Moreover, these teaching strategies reduced the effect of prior achievement and SES in terms of student engagement (Marks, 2000). Quin's (2017) recent meta-analysis study confirmed that teachers had impacts on students' academic grades, classroom behavior, participation, and alienation. As noted, through the high quality of engaging teaching, student engagement can be improved. Through the engaging teaching, students engage more with class, and they gain more opportunities to understand diverse concepts deeply and to expand their knowledge widely (Harbour et al., 2015).

In summary, this section explored relevant literature surrounding the topic of the academic achievement gap and the sociocultural variables which influence students' academic achievement were presented. As noted in this literature review, students' educational experience should vary depending on their ethnicity, developmental stage, and sociocultural factors such as bullying, parental involvement and engaging teaching.

Methodology

In this study, a quantitative research design was implemented. This type of design allowed researchers to analyze TIMSS 2015 U.S. national public-use data including large enough populations and to understand each ethnic group of students' academic performance in mathematics related to sociocultural variables. The data, participants, instruments, and data analysis will be presented in the following sections.

Data

This study used TIMSS 2015 U.S. national public-use data which was the latest released U.S. data set as of Summer 2021. The basic sample design for TIMSS 2015 is a stratified two-stage cluster sample design, where schools were selected first, and then intact classes from the target grade of the participating schools were chosen (Mullis et al., 2016). To consider the selection probabilities and sampling outcomes, the sampling weight in the TIMSS 2015 consisted of weighting components at school, class, and student levels. A list of different sampling weight variables was explained in the U.S. TIMSS 2015 and TIMSS Advanced 2015 Technical Report and User's Guide (Averett et al., 2018; Mullis et al., 2016) for the TIMSS 2015 U.S. national fourth and eighth grade data. In this study, the Total Student Weight Variables (TOTWGT) was used because this weighted variable sums to the national population size (Mullis et al., 2016). Gender was coded 0 for male and 1 for female. Ethnicity was coded 0 for African Americans, 1 for Latinx Americans, and 2 for Asian American students.

Participants

TIMSS is designed to describe entire fourth and eighth grade students' achievement, so their target population are comprehensive eligible students. However, there are some cases for which certain groups of schools and students should be excluded from the target population. For example, if schools have only four or fewer students in the target grade, schools offer

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radically different grade structure or curriculum from the mainstream education, or schools provide instruction solely to students with disabilities, those schools and students had to be excluded. Moreover, students who have physical disabilities and cannot perform in the TIMSS testing situation, students who are emotionally, mentally, and intellectually unable to follow the instructions of the test, or students who are unable to read or speak the language of the test were excluded from the target population. For the non-native language speakers, a student receiving less than one year of instruction in the language of the test had to be excluded (Joncas & Foy, 2016). Through this process, total of 9,605 fourth (n=4,785) and eighth grade (n=4,820) African American, Latinx, and Asian students were analytic participants from the TIMSS 2015 U.S. national public-use data. Of the participants, 50.61% (4,862) students were girls, and 49.38% (4,743) students were boys. When identifying the participants' racial/ethnic group, 27.53% (2,644) students were African American, 61.97% (5,952) students were Latinx, 10.50% (1,009) students reported as Asians. Students' information on their ethnicity was obtained from the students' self-responses to TIMSS 2015 fourth grade and eighth grade Student Questionnaire. The summary of the participants is placed in the Table 1 below.

Table 1
Participants of TIMSS 2015 Fourth and Eighth Grade Tests

	4th grade (N=4,785)		8th grade (N=4,820)	
	Boy (N=2,320)	Girl (N=2,465)	Boy (2,423)	Girl (N=2,397)
African Americans	649	672	664	659
Latinx Americans	1,389	1,527	1,555	1,481
Asians Americans	282	266	204	257

Instruments

The TIMSS questionnaires include a lot of variables that might be related to an outcome variable (Mills & Holloway, 2013). In this study, student bullying scale, parental involvement scale, and engaging teaching scale were chosen among the TIMSS 2015 Context Questionnaires.

Student bullying scale. A total nine items were used to measure student bullying in this study. Student bullying scale asked how often students experienced bullying behaviors by using 4-point Likert-type scale: At least once a week, Once or twice a month, A few times a year, Never, which ranged from 1=At least once a week to 4=Never. A high score indicated a low level of experience of bullying. The Cronbach alpha reliability estimate of student bullying scale for fourth graders was .860 and that for eighth graders was .865.

Parental involvement scale. There were four items which related to parental involvement among context questions in the TIMSS 2015 U.S. national public-use datasets. These items captured how much parents are involved their child's learning by using a 5-point Likert-type scale: Very low, Low, Medium, High, Very High, which ranged from 1=Very low to 5=Very high. A high score indicated a high level of experience of parental involvement. The Cronbach alpha reliability estimate of parental involvement scale for fourth graders was .943 and that for eighth graders was also .943.

Engaging teaching scale. Engaging teaching scale asked how students agree with the ten statements related to their teacher's engaging teaching in mathematics lessons by using 4-point Likert-type scale: Never, A few times a year, Once or twice a month, At least once a week, which ranged from 1=Never to 4=At least once a week. A high score indicated a high level of experience of engaging teaching. The Cronbach alpha reliability estimate of engaging teaching scale for fourth graders was .886 and that for eighth graders was .937.

Data Analyses

TIMSS 2015 U.S. national public-use data were analyzed. The SPSS was mainly used for analysis and International Database (IDB) Analyzer assisted SPSS by generating SPSS syntax. The IDB analyzer easily merges the various data file types of the TIMSS 2015 International Database and considers the sampling information and the multiple imputed achievement scores. Therefore, the IEA IDB analyzer provided accurate statistical results (Foy, 2017). The step-by-step data analysis were conducted. The researchers downloaded the data, and the data were merged, cleaned, and weighted to adjust the error variances because of the complex sampling procedures. And then we calculated reliability coefficients, descriptive statistics, correlation coefficients, and Tolerance/VIF values. Lastly, multiple linear regression models were conducted to identify the strength of the effects of gender, student bullying, parental involvement, and engaging teaching on fourth and eighth grade African American, Latinx, and Asian American students' mathematics achievement, respectively. Before running the regression models with the data, we checked correlation among variables to be assured that there were no multicollinearity issues. As a result, correlation r ranged from -.17 to .36, indicating there were no highly correlated predictors, and these variables were appropriate for multivariate analysis. For the multiple linear regression models, 4th and 8th grade overall mathematics scores of each ethnic group were selected as dependent variables, and students' gender, student bullying, parental involvement, and engaging teaching were used as independent variables. The correlations among variables are shown in Table 2.

Table 2
Correlations

	Constructs		Correlation Matrix				
			1	2	3	4	5
4th grade	African Americans	1. Gender	-				
		2. Student Bullying	.01**	-			
		3.Parental Involvement	-.03**	.12**	-		
		4.Engaging Teaching	-.02**	.15**	.02**	-	
		5.Math Achievement	-.06**	.14**	.20**	.05**	-
	Latinx Americans	1. Gender	-				
		2. Student Bullying	.03**	-			
		3.Parental Involvement	.01**	.06**	-		
		4.Engaging Teaching	.06**	.22**	.06**	-	

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		5.Math Achievement	-.03**	.14**	.20**	.10**	-
	Asian Americans	1. Gender	-				
		2. Student Bullying	.06**	-			
		3.Parental Involvement	-.04**	0.1**	-		
		4.Engaging Teaching	.16**	.22**	.01**	-	
		5.Math Achievement	-.17**	.13**	.36**	.02**	-
8th grade	African Americans	1. Gender	-				
		2. Student Bullying	-.01	-			
		3.Parental Involvement	.05	.01	-		
		4.Engaging Teaching	.01	.03	.04	-	
		5.Math Achievement	.02	.09*	.19**	.01	-
	Latinx Americans	1. Gender	-				
		2. Student Bullying	-.05*	-			
		3.Parental Involvement	-.01	.04	-		
		4.Engaging Teaching	-.03	.13**	-.01	-	
		5.Math Achievement	-.04*	.07**	.22**	.13**	-
	Asian Americans	1. Gender	-				
		2. Student Bullying	.09	-			
		3.Parental Involvement	-.06	.07	-		
		4.Engaging Teaching	-.03	.16**	.03	-	
		5.Math Achievement	-.10	.08	.33**	.01	-

Note. *p<.05, **p<.001

Results

Fourth Grade African American Students

Fourth grade African American boys have a small advantage over girls, but this difference is not statistically significant (β=-6.31, [n.s.]). In this model, student bullying (β=9.72, p<.001) and parental involvement (β=13.70, p<.001) significantly affect their achievement. However, engaging teaching does not significantly increase fourth grade African American students' mathematics achievement (β=3.72, [n.s.]).

Fourth Grade Latinx American Students

When mathematics achievement of fourth grade Latinx Americans is explained, it is found that gender is not a significant variable (β=-6.38, [n.s.]). However, student bullying (β=11.78, p<.001), parental involvement (β=16.53, p<.001), and engaging teaching (β=8.38, p<.05) significantly have impacts on mathematics achievement of the fourth grade Latinx American students.

Fourth Grade Asian American Students

In this model, gender is a statistically significant variable (β=-24.60, p<.001) to explain the mathematics achievement of fourth grade Asian American students. Moreover, student bullying (β=17.19, p<.001) and parental involvement (β=28.99, p<.001) significantly affect fourth grade Asian American students' mathematics achievement. However, engaging teaching does not significantly enhance their mathematics achievement (β=.43, [n.s.]). Table 3 displays fourth grade regression models.

Table 3
Fourth Grade Regression Models

Grade 4	African Americans R^2=.05	Latinx Americans R^2=.06	Asian Americans R^2=.18
(Constant)	421.88** (24.30)	401.23** (18.02)	452.74** (47.88)
1. Gender	-6.31 (4.43)	-6.38 (3.68)	-24.60** (7.16)
2. Student Bullying	9.72** (3.78)	11.78** (2.87)	17.19** (6.14)
3. Parental Involvement	13.70** (3.92)	16.53** (2.89)	28.99** (8.17)
4. Engaging Teaching	3.72 (5.23)	8.38* (4.01)	.43 (9.99)

Note. *p<.05, **p<.001

Eighth Grade African American Students

For the eighth grade African Americans, girls have a small advantage over boys, but this difference is not statistically significant (β=1.13, [n.s.]). Student bullying (β=11.04, p<.05) and parental involvement (β=18.25, p<.001) significantly affect their mathematics achievement on this regression model. However, engaging teaching does not significantly increase eighth grade African American students' mathematics achievement (β=3.49, [n.s.]).

Eighth Grade Latinx American Students

Gender (β=-6.11, [n.s.]) and student bullying (β=6.23, [n.s.]) are not statistically significant variables when eighth grade Latinx American students' mathematics achievement is explained. However, parental involvement (β=13.70, p<.001) and engaging teaching (β=13.70, p<.001) positively affect mathematics achievement of eighth grade Latinx American students.

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Eighth Grade Asian American Students

Gender (β=-5.90, [n.s.]), student bullying (β=11.09, [n.s.]), and engaging teaching (β=-1.63, [n.s.]) are not statistically significant variables when eighth grade Asian American students' mathematics achievement was explained. Only parental involvement (β=26.49, p<.001) positively improves mathematics achievement of eighth grade Asian American students. Table 4 shows eighth grade regression models.

Table 4
Eighth Grade Regression Models

Grade 8	African Americans R^2=.05	Latinx Americans R^2=.07	Asian Americans R^2=.12
(Constant)	368.89**(24.47)	385.90** (23.89)	451.19** (40.96)
1. Gender	1.13 (6.32)	-6.11 (3.43)	-5.90 (7.63)
2. Student Bullying	11.04* (4.94)	6.23 (4.05)	11.09 (10.10)
3. Parental Involvement	18.25** (5.19)	17.66** (4.72)	26.49** (7.01)
4. Engaging Teaching	3.49 (4.16)	12.55** (3.01)	-1.63 (8.13)

*p<.05, **p<.001

Discussion

The need for more research concerning each group of students' mathematics achievement related to peer, parent, teacher variables prompted the investigation launched in this study. Given this, the purpose of this study is to explore mathematics academic achievement of fourth and eighth grade African, Latinx, and Asian American students by gender, student bullying, parental involvement, and engaging teaching. In this study, multiple linear regressions were performed to determine the strength of the effects of gender, student bullying, parental involvement, and engaging teaching on fourth and eighth grade African, Latinx, and Asian American students' mathematics achievement.

According to the results in this study, statistically significant variables that have impacts on the mathematics achievement are different across grade and ethnicity. On the fourth and eighth grade African American students' regression model, student bullying and parental involvement significantly affect their mathematics achievement. For fourth grade Latinx Americans, student bullying, parental involvement, and engaging teaching have statistically impacted on their mathematics grade, while only parental involvement and engaging teaching significantly affect eighth grade Latinx American students' achievement. In the case of fourth grade Asian American students, gender, student bullying, and parental involvement are statistically significant variables which affect their mathematics achievement. However, on the eighth-grade Asian American students' regression model, only parental involvement has a significantly impact on their mathematics performance. More importantly, overall, parental involvement significantly increases the mathematics achievement across all grade and ethnic groups, and engaging teaching enhances only achievement of Latinx American students on both fourth and eighth grade.

The findings identify that parental involvement is a crucial factor to mathematics achievement across all grades and ethnic groups. It supports previous research which revealed that parents were the primary supporters for students' academic success (Boonk et al., 2018) across ethnicity (Chang et al., 2015). Interestingly, engaging teaching is significant only for

Latinx American students' achievement on both fourth and eighth grade. The previous study conducted by Wentzel et al. (2016) aligned with this result. In that study, the teacher and parent variables were significant, while peer variables were not significant factors of the academic functioning of Latinx American students (Wentzel et al., 2016). Engaging teaching is well known regarding its impact on students' academic achievement (Kimbark et al., 2017; Wang et al., 2018). However, in this study, engaging teaching does not have impacts on both fourth and eighth grade African and Asian American students' achievement. To deeper understand the effects of engaging teaching on diverse students' mathematics achievement, future research studies need to delve into this topic considering students' ethnicity and grade.

The findings of this study provide a foundation for future research studies to build upon the intersection of ethnicity, gender, and sociocultural variables when it comes to mathematics academic achievement of fourth and eighth graders. Moreover, the results of this study suggest a thorough analysis of TIMSS mathematics data to improve mathematics achievement in classrooms which will be of interest to parents, teachers, school leaders, and policy makers. The findings also can assist in the decision-making related to mathematics instruction and teaching strategies.

Despite important findings from this study, there are several limitations. First, only the TIMSS U.S. national public-use data and TIMSS U.S. national restricted-used data include the information of diverse ethnicities of students. As a result, the results in this study of African, Latinx, and Asian American students in the U.S. cannot be compared to other countries in TIMSS. Moreover, according to Bronfenbrenner's theory, there are many other sociocultural variables which have impacts on students' mathematics achievement. However, due to the limited variables of the data set and effectiveness of the models, only student bullying, parental involvement, and engaging teaching were considered as sociocultural variables in this study.

Based on the results of this study, several recommendations are suggested:

1. This study indicates that the parental involvement is significant to explain all groups of students' mathematics achievement. The impact of parental involvement on the mathematics achievement may vary depending on the types of the involvement, parents' gender, family structure, or content domains under the overall mathematics assessments. Therefore, the disaggregation of the parental involvement should be considered in future research studies.
2. In this study, engaging teaching affects only Latinx American students' mathematics achievement. Other large-scaled data such as Programme for International Student Assessment (PISA), the National Assessment of Educational Progress (NAEP) or State of Texas Assessments of Academic Readiness (STAAR) also include information of students' gender and ethnicity. Comparing the results from different assessments will help to understand not only Latinx American students, but also trends of each group of students' mathematics achievement.
3. TIMSS assessment is useful to capture progress across grade because a fourth-grade cohort would be the eighth-grade cohort in the next cycle of the TIMSS assessment. In other words, the cohort of fourth graders of 2015 became the cohort of eighth graders in 2019. Once the data are released, similar research needs to be conducted. The analyses from these participants can reveal how mathematics achievement, and the effect of other factors, may change over time.
4. This study explores student bullying, parental involvement, and engaging teaching as sociocultural variables. According to Bronfenbrenner's model (1994), many other sociocultural variables such as school system, policy, teachers' backgrounds, etc. (Bergin & Bergin, 2018) influence mathematics achievement of students of color. Hence, future research studies need to be conducted considering different sociocultural factors.

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Conclusion

Mathematics provides an essential skill for students to make wise decisions in a productive personal life as well as to participate in civic affairs (Mullis et al., 2016). Research studies have continuously reported gender and ethnic mathematics achievement gaps in the U.S. education system (Larke et al., 2014; Valencia, 2015; Wang et al., 2015). Students have different academic experiences depending on not only their ethnicity or gender, but also their developmental stage and sociocultural variables (Bergin & Bergin, 2018; Larke et al., 2014). However, there are limited numbers of studies which examine the mathematics achievement by gender, ethnicity, and sociocultural variables integrally. According to Bronfenbrenner's model (1994), individual students negotiate the social influence based on gender, ethnicity, and other sociocultural variables on their educational experience. To have more equitable educational system, research should to critically examine and deeply understand academic performance of diverse students.

The results of this study indicate several implications for research and practice. It is important that all students should experience academic success in education (Ladson-Billings, 1995; Larke et al., 2014; Moon et al., 2020). Latinx American students have become the fastest growing group of students of color in the U.S.; however, their mathematics achievement is lower than other ethnic groups of students (Gándara, 2017). The results in this study point out that engaging teaching is effective for both fourth and eighth grade Latinx American students' mathematics performance. Therefore, the current findings in this study suggest that teachers need to conduct effective engaging teaching methods in mathematics education to enhance Latinx American students' mathematic achievement. In addition, educators need to find more ways to involve parents of diverse students in their child's mathematics achievement by providing appropriate coaching skills at home (Boonk et al., 2018; Chang et al., 2015). As previous studies indicated, this study supports that parental involvement has a significant impact on students' mathematics achievement across grade and ethnicity. Therefore, parental involvement should be an integral component in the policies and practices of all schools across the U.S.

This study has attempted to explain fourth and eighth grade African, Latinx, and Asian American students' mathematics achievement with intersectionality lens. We hope that this study will contribute to understanding of mathematics achievement of each group of students and to provide educational supports for these groups.

References

Averett, C., Ferraro, D., Tang, J., Erberber, E., & Stearns, P. (2018). *U.S. TIMSS 2015 and TIMSS advanced 2015 technical report and user's guide. NCES 2018-020.* National Center for Education Statistics. https://eric.ed.gov/?id=ED589557

Bergin, C. C., & Bergin, D. A. (2018). *Child and adolescent development in your classroom*. Cengage Learning.

Bohrnstedt, G., Kitmitto, S., Ogut, B., Sherman, D., & Chan, D. (2015). *School composition and the Black-White achievement gap. NCES 2015-018.* National Center for Education Statistics. https://eric.ed.gov/?id=ED560723

Boonk, L., Gijselaers, H. J. M., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review*, *24*, 10–30. https://doi.org/https://doi.org/10.1016/j.edurev.2018.02.001

Bronfenbrenner, U. (1994). Ecological models of human development. *Readings on the Development of Children*, *2*(1), 37–43.

Center for Disease Control and Prevention. (2021). *Preventing bullying*. https://www.cdc.gov/violenceprevention/youthviolence/bullyingresearch/fastfact.html

Chang, M., Choi, N., & Kim, S. (2015). School involvement of parents of linguistic and racial minorities and their children's mathematics performance. *Educational Research and Evaluation, 21*(3), 209–231. https://doi.org/10.1080/13803611.2015.1034283

Cimpian, J. R., Lubienski, S. T., Timmer, J. D., Makowski, M. B., & Miller, E. K. (2016). Have gender gaps in math closed? Achievement, teacher perceptions, and learning behaviors across two ECLS-K cohorts. *AERA Open, 2*(4), 233285841667361. https://doi.org/10.1177/2332858416673617

Connell, N. M., El Sayed, S., Reingle Gonzalez, J. M., & Schell-Busey, N. M. (2015). The intersection of perceptions and experiences of bullying by race and ethnicity among middle school students in the United States. *Deviant Behavior, 36*(10), 807–822. https://doi.org/10.1080/01639625.2014.977159

Cooper, C. E., Crosnoe, R., Suizzo, M.-A., & Pituch, K. A. (2009). Poverty, race, and parental involvement during the transition to elementary school. *Journal of Family Issues, 31*(7), 859–883. https://doi.org/10.1177/0192513X09351515

Crosby, S. A., Rasinski, T., Padak, N., & Yildirim, K. (2015). A 3-Year study of a school-based parental involvement program in early literacy. *The Journal of Educational Research, 108*(2), 165–172. https://doi.org/10.1080/00220671.2013.867472

Dotterer, A. M., & Wehrspann, E. (2016). Parent involvement and academic outcomes among urban adolescents: examining the role of school engagement. *Educational Psychology, 36*(4), 812–830. https://doi.org/10.1080/01443410.2015.1099617

El Nokali, N. E., Bachman, H. J., & Votruba-Drzal, E. (2010). Parent involvement and children's academic and social development in elementary school. *Child Development, 81*(3), 988–1005.

Elliot, D. L., Reid, K., & Baumfield, V. (2016). Beyond the amusement, puzzlement and challenges: an enquiry into international students' academic acculturation. *Studies in Higher Education, 41*(12), 2198–2217. https://doi.org/10.1080/03075079.2015.1029903

Esbensen, F. A., & Carson, D. C. (2009). Consequences of being bullied: Results from a longitudinal assessment of bullying victimization in a multisite sample of American students. *Youth and Society, 41*(2), 209–233. https://doi.org/10.1177/0044118X09351067

Evans, J. A. (2015). *Gender, self-efficacy, and mathematics achievement: An analysis of fourth grade and eighth grade TIMSS data from the United States* (Issue August). Lesley University.

Evans-Winters, V. E., & Esposito, J. (2010). Other people's daughters: Critical race feminism and black girls' education. *Educational Foundations, 24*(1–2), 11–25. https://eric.ed.gov/?id=EJ885912

Fahle, E. (2016, March 2–5). *Patterns of change in US gender achievement gaps during elementary and middle school* [Paper presentation]. The Annual Conference of the Society for Research on Educational Effectiveness, Washington, DC, US.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*(2), 117–142.

Finn, J D. (1993). *School engagement and students at risk. NCES-93-470.* National Center for Education Statistics. https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=93470

Foy, P. (2017). *TIMSS 2015 user guide for the international database*. TIMSS & PIRLS International Study Center.

Gándara, P. (2010). The Latino education crisis. *Educational Leadership, 67*(5), 24–30.

Gándara, P. (2017). The potential and promise of Latino students. *American Educator, 41*(1), 4–11.

Copyright 2022
ISSN: 2149-1291

Glew, G. M., Fan, M. Y., Katon, W., & Rivara, F. P. (2008). Bullying and school safety. *Journal of Pediatrics*, *152*(1), 123-128.

Glew, G. M., Fan, M. Y., Katon, W., Rivara, F. P., & Kernic, M. A. (2005). Bullying, psychosocial adjustment, and academic performance in elementary school. *JAMA Pediatrics*, *159*(11), 1026–1031.

Gremmen, M. C., Dijkstra, J. K., Steglich, C., & Veenstra, R. (2017). First selection, then influence: Developmental differences in friendship dynamics regarding academic achievement. In *Developmental Psychology* (Vol. 53, Issue 7, pp. 1356–1370). American Psychological Association. https://doi.org/10.1037/dev0000314

Harbour, K. E., Evanovich, L. L., Sweigart, C. A., & Hughes, L. E. (2015). A brief review of effective teaching practices that maximize student engagement. *Preventing School Failure*, *59*(1), 5–13. https://doi.org/10.1080/1045988X.2014.919136

Hemphill, F. C., & Vanneman, A. (2010). Achievement gaps : How Hispanic and White students in public schools perform in mathematics and reading on the National Assessment of Educational Progress. *Assessment*, *NCES 2011-459*, iii–66. http://eric.ed.gov/ERICWebPortal/recordDetail?accno=ED505903

Hsin, A., & Xie, Y. (2014). Explaining Asian Americans' academic advantage over whites. *Proceedings of the National Academy of Sciences*, *111*(23), 8416 LP – 8421. https://doi.org/10.1073/pnas.1406402111

Jeynes, W. H. (2003). A meta-analysis: The effects of parental involvement on minority children's academic achievement. *Education and Urban Society*, *35*(2), 202–218.

Jeynes, W. H. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education*, *40*(3), 237–269.

Jeynes, W. H. (2007). The relationship between parental involvement and urban secondary school student academic achievement: A meta-analysis. *Urban Education*, *42*(1), 82–110.

Johnson, M. K., Crosnoe, R., & Elder, G. H. (2001). Students' attachment and academic engagement: The role of race and ethnicity. *Sociology of Education*, *74*(4), 318–340. https://doi.org/10.2307/2673138

Joncas, M., & Foy, P. (2016). Sample design in TIMSS and PIRLS. In I. V. Martin, S. Mullis, & M. Hoope (Eds.), *Methods and procedures in TIMSS and PIRLS* (pp. 1–21). International Association for the Evaluation of Educational Achievement (IEA).

Kimbark, K., Peters, M. L., & Richardson, T. (2017). Effectiveness of the student success course on persistence, retention, academic achievement, and student engagement. *Community College Journal of Research and Practice*, *41*(2), 124–138. https://doi.org/10.1080/10668926.2016.1166352

Klem, A. M., & Connell, J. P. (2004). Relationships matter: Linking teacher support to student engagement and achievement. *Journal of School Health*, *74*(7), 262–273. https://doi.org/10.1111/j.1746-1561.2004.tb08283.x

Kokkinos, C. M., Baltzidis, E., & Xynogala, D. (2016). Prevalence and personality correlates of Facebook bullying among university undergraduates. *Computers in Human Behavior*, *55*, 840–850. https://doi.org/https://doi.org/10.1016/j.chb.2015.10.017

Ladd, G. W., & Dinella, L. M. (2009). Continuity and change in early school engagement: Predictive of children's achievement trajectories from first to eighth grade? *Journal of Educational Psychology*, *101*(1), 190–206. https://doi.org/10.1037/a0013153

Ladson-Billings, G. (1995). Toward a theory of culturally relevant pedagogy. *American Educational Research Journal*, *32*(3), 465–491. https://doi.org/10.3102/00028312032003465

Larke, P. J., Webb-Hasan, G., Jimarez, T., & Li, Y. (2014). Analysis of Texas achievement data for elementary African American and Latino females. *Journal of Case Studies in*

Education, *6*, 16. https://search.proquest.com/docview/1697485686?accountid=12528

Leahey, E., & Guo, G. (2001). Gender differences in mathematical trajectories. *Social Forces*, *80*(2), 713–732. https://doi.org/10.1353/sof.2001.0102

Lee, C. (2012). Conceptual and methodological challenges to a cultural and ecological framwork for studying human learning and development. In W. F. Tate (Ed.), *Research on schools, neighborhoods and communities: Toward civic responsibility*. Lanham, Md: Rowman & Littlefield Publishers.

Lee, J., Moon, S., & Hegar, R. L. (2011). Mathematics skills in early childhood: Exploring gender and ethnic patterns. *Child Indicators Research*, *4*(3), 353–368.

Lee, J., & Zhou, M. (2017). Why class matters less for Asian-American academic achievement. *Journal of Ethnic and Migration Studies*, *43*(14), 2316–2330. https://doi.org/10.1080/1369183X.2017.1315851

Lietaert, S., Roorda, D., Laevers, F., Verschueren, K., & De Fraine, B. (2015). The gender gap in student engagement: The role of teachers' autonomy support, structure, and involvement. *British Journal of Educational Psychology*, *85*(4), 498–518.

Lynch, A. D., Lerner, R. M., & Leventhal, T. (2013). Adolescent academic achievement and school engagement: An examination of the role of school-wide peer culture. *Journal of Youth and Adolescence*, *42*(1), 6–19.

Marks, H. M. (2000). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal*, *37*(1), 153–184.

Mills, J. D., & Holloway, C. E. (2013). The development of statistical literacy skills in the eighth grade: exploring the TIMSS data to evaluate student achievement and teacher characteristics in the United States. *Educational Research and Evaluation*, *19*(4), 323–345. https://doi.org/10.1080/13803611.2013.771110

Moon, C. Y., & Larke, P. (2020). Meta-Analysis of Asian students' acculturative stress in U.S. higher education. *Journal of Multicultural Affairs*, *5*(1), 3.

Moon, C., Zhang, S., Larke, P., & James, M. (2020). We are not all the same: A qualitative analysis of the nuanced differences between Chinese and South Korean international graduate students' experiences in the United States. *Journal of International Students*, *10*(1), 28–49. https://doi.org/10.32674/jis.v0i0

Mullis, I. V. S., Martin, M. O., Foy, P., & Arora, A. (2016). *TIMSS 2015 international results in mathematics*. International Association for the Evaluation of Educational Achievement (IEA).

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *Jama*, *285*(16), 2094–2100.

Paschall, K. W., Gershoff, E. T., & Kuhfeld, M. (2018). A two decade examination of historical race/ethnicity disparities in academic achievement by poverty status. *Journal of Youth and Adolescence*, *47*(6), 1164–1177.

Pomerantz, E. M., Altermatt, E. R., & Saxon, J. L. (2002). Making the grade but feeling distressed: Gender differences in academic performance and internal distress. *Journal of Educational Psychology*, *94*(2), 396–404. https://doi.org/10.1037/0022-0663.94.2.396

Quin, D. (2017). Longitudinal and contextual associations between teacher–student relationships and student engagement: A systematic review. *Review of Educational Research*, *87*(2), 345–387.

Reardon, S. F., Fahle, E. M., Kalogrides, D., Podolsky, A., & Zárate, R. C. (2019). Gender achievement gaps in U.S. school districts. *American Educational Research Journal*, *56*(6), 2474–2508. https://doi.org/10.3102/0002831219843824

Copyright 2022
ISSN: 2149-1291

Rimm-Kaufman, S. E., Baroody, A. E., Larsen, R. A. A., Curby, T. W., & Abry, T. (2015). To what extent do teacher–student interaction quality and student gender contribute to fifth graders' engagement in mathematics learning? *Journal of Educational Psychology*, *107*(1), 170–185. https://doi.org/10.1037/a0037252

Robinson, J. P., & Lubienski, S. T. (2011). The development of gender achievement gaps in mathematics and reading during elementary and middle school: Examining direct cognitive assessments and teacher ratings. *American Educational Research Journal*, *48*(2), 268–302. https://doi.org/10.3102/0002831210372249

Schulting, A. B., Malone, P. S., & Dodge, K. A. (2005). The effect of school-based kindergarten transition policies and practices on child academic outcomes. In *Developmental Psychology* (Vol. 41, Issue 6, pp. 860–871). American Psychological Association. https://doi.org/10.1037/0012-1649.41.6.860

Shelton, L. (2018). *The Bronfenbrenner primer: A guide to develecology*. Routledge.

Sinatra, G. M., Heddy, B. C., & Lombardi, D. (2015). The challenges of defining and measuring student engagement in science. *Educational Psychologist*, *50*(1), 1–13. https://doi.org/10.1080/00461520.2014.1002924

Sokol, J. T. (2009). Identity development throughout the lifetime: An examination of Eriksonian theory. *Graduate Journal of Counseling Psychology*, *1*(2), 1-9.

Stewart, E. B. (2007). Individual and school structural effects on African American high school students' academic achievement. *The High School Journal*, *91*(2), 16–34. https://doi.org/10.1353/hsj.2008.0002

Stopbullying. (2021). *Bullying*. U.S. Department of Health and Human Services. https://www.stopbullying.gov/bullying/groups

Syed, M., Azmitia, M., & Cooper, C. R. (2011). Identity and academic success among underrepresented ethnic minorities: An interdisciplinary review and integration. *Journal of Social Issues*, *67*(3), 442–468.

U.S. Department of Education (2020). 2019 mathematics and reading assessments, National Assessment of Educational Progress (NAEP). https://www.nationsreportcard.gov/ndecore/xplore/NDE

Valencia, R. R. (2015). *Students of color and the achievement gap: Systemic challenges, systemic transformations*. Routledge.

Wang, M.-T., Degol, J., & Ye, F. (2015). Math achievement is important, but task values are critical, too: examining the intellectual and motivational factors leading to gender disparities in STEM careers. *Frontiers in Psychology*, *6* (36), 1-9.

Wang, M.-T., Kiuru, N., Degol, J. L., & Salmela-Aro, K. (2018). Friends, academic achievement, and school engagement during adolescence: A social network approach to peer influence and selection effects. *Learning and Instruction*, *58*, 148–160. https://doi.org/https://doi.org/10.1016/j.learninstruc.2018.06.003

Wentzel, K. R., Russell, S., & Baker, S. (2016). Emotional support and expectations from parents, teachers, and peers predict adolescent competence at school. *Journal of Educational Psychology*, *108*(2), 242–255. https://doi.org/10.1037/edu0000049

Zhao, H., & Akiba, M. (2009). School expectations for parental involvement and student mathematics achievement: a comparative study of middle schools in the US and South Korea. *Compare: A Journal of Comparative and International Education*, *39*(3), 411–428. https://doi.org/10.1080/03057920701603347

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