Disciplinary Methods and Student Achievement: A Statewide Study of Middle School Students*

Matthew Kralevich
John R. Slate
Carmen Tejeda-Delgado
Cheryl Kelsey

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1 Introduction

Student discipline is an issue that has been and continues to remain an issue in school settings. Managing classroom discipline is an obstacle that impedes the academic performance of some students. Because all students, even those students who are disruptive in the classroom, are required to be assessed on grade level, it is imperative that they are educated just as the remainder of the student population.

Teachers have the difficult task of educating students. Educating students encompasses many factors in addition to the delivery of content. Other responsibilities of a teacher include such tasks maintaining accurate records, ensuring that modifications are applied to students with special needs, sustaining contact with parents, and employing instructional and management strategies consistent with campus and district

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initiatives (Wolford, McGee, & Ritchey, 1996). In conjunction with all of these expectations, managing student discipline is yet another requirement of teachers. In the event of student misbehavior, an appropriate consequence is assigned to combat the inappropriate conduct. As the degree or frequency of the undesired conduct increases, the severity of the behavior intervention escalates. Historically, combating student misconduct has resulted in punitive measures that remove the student from the regular education setting.

A variety of strategies have been employed to exclude a student from the regular education setting. One of the most common methods is to suspend a student from school (Christle, Nelson, & Jolivette, 2004). Other exclusionary measures, in addition to out-of-school suspension, include in-school suspension, disciplinary alternative education placements, and expulsion from school (Andrews, Taylor, Martin, & Slate, 1998). Davis and Jordan (1994), Andrews et al. (1998), and most recently, Arcia (2006) have all demonstrated that the concept of student exclusion is detrimental to the educational process because student achievement is adversely affected by this phenomenon. Moreover, numerous researchers have documented the presence of a relationship between repeated disciplinary sanctions and students dropping out of school (e.g., Neild, Balfanz, & Herzog, 2007; Viadero, 2006).

In the event that a student is removed from the regular education setting for punitive purposes, the situation becomes the campus administration's responsibility. Numerous options become available for the campus administrator as to the potential consequences that can be rendered. Some of the more severe consequences include in-school suspension, out-of-school suspension, disciplinary alternative education program, or expulsion. Removing a disruptive student from the regular education setting will create a classroom environment that has fewer distractions, which will afford the teacher an opportunity to deliver a more effective lesson. However, an additional problem is created when the disruptive student does not receive the classroom instruction due to the removal. This missed instruction can result in academic problems for excluded students (Andrews et al., 1998). According to the Applied Research Center (2002), the exclusion of students from the classroom has too often supplanted quality pedagogy and classroom management as a quick-fix for difficult student behavior (Arcia, 2006). Very recently, Welch and Payne (2010) documented that school personnel had become harsher in their responses toward student misbehavior. In an era of school accountability and legislation that mandates that no child will be left behind, public school administrators and teachers must ensure that all students, even those students who disrupt the learning environment, receive a quality education.

Ensuring students receive a quality education is paramount. Simultaneously, understanding the challenges facing public education is important to combat obstacles that exist in the public school system. Included within this idea is managing student misconduct where effective intervention strategies are employed for disruptive students so they can also receive the quality education necessary to experience success on state assessments and education in general. Though no panacea intervention strategy exists for student discipline, understanding the unique characteristics of the student population will assist teachers and school administrators in managing the school environment. An awareness of the effectiveness of exclusionary disciplinary practices and additional factors that can influence student disciplinary actions and sanctions could assist in developing intervention strategies that promote student learning and achievement.

A problem is present in education when students who misbehave are removed from the regular education setting because their academic needs fail to be met. Additional problems such as teacher attrition and premature removal of students are created when student behavior interventions are no longer effective. According to Reimer (2002), the middle school age level is especially difficult. Students must contend with a multitude of factors that exacerbate the adjustment to the middle school level. Beane and Lipka (2006) explained the top five characteristics children ages 9 to 13 concern themselves with were grades, looks or appearance, problems at home, being liked and fitting in at school, and being out of shape or overweight. Reimer mentioned the stressors that the middle school population must cope with are associated with the developmental transitions of the early adolescent experience. Thus, equipping middle schools with appropriate personnel is critical in assisting students in navigating through this difficult transition in their lives (Bafumo, 2006).

Another difficulty accompanying the middle school population is the puberty phenomenon. Reimer (2002) mentioned that school districts rarely included how puberty was experienced in their health education

curriculum despite the fact that puberty is a major focus of attention, anxiety, pride, and sometimes shame for adolescents. Bafumo (2006) compared this turning point in teenagers' lives as a physical and emotional minefield. Reimer believed that the timing (early or later in comparison with peers) of puberty affected the behavioral, self-esteem, and mental health of youths. In coping with pubescent issues, troubled adolescents would benefit from consulting with counselors (Orr & Ingersoll, 1995) to receive accurate information in a clear and concise manner. Additionally, a school social worker can assist students struggling with puberty, sexuality, and self-esteem by using a myriad of strategies and resources (Reimer, 2002).

Though middle school may seem like an institution that houses a couple of grade levels, it encompasses far more factors that make it a complex period in an adolescent's life. This phase of a child's maturation process marks numerous changes that school officials should be prepared to encounter and provide the necessary support to assist these students through this difficult time. Understanding the challenges that characterize this chapter of a student's academic and emotional development can increase the likelihood of a pupil successfully traversing through adolescence.

2 Statement of the Problem

Student misbehavior continues to occur in classrooms. In response to student misconduct, an array of consequences has been employed. Researchers have denounced the use of corporal punishment in lieu of more positive methods of managing behavior (Slate, Perez, Waldrop, & Justen III, 1991). Some of the more common punitive measures for serious violations of the code of conduct include in-school suspension, out-of-school suspension, disciplinary alternative education programs (DAEPs), and expulsion. While these students are receiving disciplinary consequences for their behavior, they are suffering academically due to a removal from the regular education setting (Arcia, 2006; Andrews et al., 1998; Davis & Jordan, 1994; Gregory, Skiba, & Noguera, 2010).

3 Purpose of the Study

The purpose of this study was to examine the extent to which differences were present in the reading and math achievement of sixth, seventh, and eighth grade students as a function of being assigned a disciplinary placement. The levels of disciplinary action included in this study were in-school suspension, out-of-school suspension, disciplinary alternative education placements, and expulsion. Our interest was in determining whether students who received disciplinary placements had lower reading and math scores than students who did not receive such consequences. A secondary interest was in determining whether gender differences were present for students who experienced a disciplinary consequence.

4 Research Questions

1. What is the difference in reading achievement among sixth grade students as a function of disciplinary placement?
2. What is the difference in math achievement among sixth grade students as a function of disciplinary placement?
3. What is the difference in reading achievement among seventh grade students as a function of disciplinary placement?
4. What is the difference in math achievement among seventh grade students as a function of disciplinary placement?
5. What is the difference in reading achievement among eighth grade students as a function of disciplinary placement?
6. What is the difference in math achievement among eighth grade students as a function of disciplinary placement?
7. Analyzed separately by grade level, what is the difference in reading achievement between boys and girls as a function of disciplinary placement?

8. Analyzed separately by grade level, what is the difference in math achievement between boys and girls as a function of disciplinary placement?

5 Method

5.1 Participants

All students in the State of Texas public school system enrolled in middle schools (grades 6, 7, and 8) during the 2005-2006 school year represent the sample for this study. According to the Texas Education Agency (2006) there were 998,207 students in the aforementioned grades. During the 2005-2006 school year, the frequency counts for each of the variables in this study are listed in Table 1. The student samples in this study were grade six students (n = 232,666), grade seven students (n = 316,814), grade eight students (n = 333,504), boys (n = 435,322), girls (n = 447,302), students receiving in-school suspension (n = 222,267), students receiving out-of-school suspension (n = 105,972), students receiving disciplinary alternative education placements (n = 33,154), and students expelled from school (n = 254).

5.2 Instrumentation

The Public Education Information Management System (PEIMS, Texas Education Agency, 2007) and the Academic Excellence Indicator System (AEIS, Texas Education Agency, 2002) databases served as the primary sources of instrumentation for this study. These two databases encompass all data requested and received by TEA about public education, including student demographic and academic performance, personnel, financial, and organizational information (Texas Education Agency, 2006). Although the data in the PEIMS and AEIS database are available to the public via Texas Education Agency, it is the individual school districts that report most of this data to TEA (Texas Education Agency, 2006). School districts report data to PEIMS on four occasions each year (Texas Education Agency, 2006). Within each collection of data, specific information must be included. School districts have the responsibility of electronically entering PEIMS data into a software program, which is transmitted to the Texas Education Agency (Texas Education Agency, 2006).

For the purposes of this study, specific variables were used in determining the relationship between type of disciplinary action, gender, and academic achievement. Disciplinary action, an independent, grouping variable consisted of: in-school suspension; out-of-school suspension; disciplinary alternative education programs; and, expulsion. These disciplinary actions were selected because they are the primary forms of exclusionary disciplinary actions used in the State of Texas. Gender was a second independent, grouping variable. Academic achievement represented the dependent variable of analysis in this study. Scores on the Texas Assessment of Knowledge and Skills (TAKS, Texas Education Agency, 2006) Reading and Math assessments comprised these data.

5.3 Procedures

Once the data requested by these researchers were received by the senior researcher from the Texas Education Agency on a compact disc, the SAS file (i.e., the format in which the data were provided by TEA) was opened directly into SPSS. Although it was the intent of these researchers to analyze these data with a Multivariate Analysis of Variance procedure (MANOVA), this procedure was not viable because when the different disciplinary procedures were merged to create a composite disciplinary variable, the number of cases decreased substantially. This decrease was due to students experiencing more than one of the disciplinary procedures. Therefore, to prevent a substantial loss of data, separate Analysis of Variance (ANOVA) procedures were conducted. Because multiple ANOVAs were conducted, the Bonferroni method was used to correct for inflated error. Accordingly, the traditional level of statistical significance of .05 was divided by 3 (i.e., analyses conducted for each research question) which yielded an adjusted level of statistical significance in this study of .017. Thus, for a finding to be considered statistically significant in this study, the level of statistical significance had to be .017 or less.

6 Results

6.1 In-School Suspension and Reading Achievement

To determine whether a statistically significant difference was present in reading achievement for students in grades 6, 7, and 8 as a function of in-school suspension, three ANOVAs were conducted, with in-school suspension being the independent variable and the scaled score on the TAKS Reading test being the dependent variable. Students placed into in-school suspension as a disciplinary placement had significantly lower average scores in the sixth grade, $F(1, 232664) = 10137.92$, $p < .001$, in the seventh grade, $F(1, 313207) = 9625.88$, $p < .001$, and in the eighth grade, $F(1, 314073) = 10579.22$, $p < .001$, than did their counterparts who had not been placed into in-school suspension. Small effect sizes, (η^2) .04, .03, and .03, were yielded respectively for these three statistically significant differences (Cohen, 1988). Readers are referred to Table 1 for the descriptive statistics for students' TAKS Reading test scores by grade levels. With sixth grade students being the exception, students who received an in-school suspension had lower average TAKS Reading scores than did students who did not receive such a disciplinary placement.

Descriptive Statistics for In-School Suspension and TAKS Reading and Math Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Students Receiving In-School Suspension			
All Students	213,050	2189.96	327.23
Sixth Grade	57,582	2415.24	262.98
Seventh Grade	75,181	2079.98	282.68
Eighth Grade	80,287	2131.37	329.48
Students Not Receiving In-School Suspension			
All Students	646,900	2239.48	307.20
Sixth Grade	175,084	2265.33	323.87
Seventh Grade	238,028	2193.08	273.25
Eighth Grade	233,788	2267.37	321.07
TAKS Math			
Students Receiving In-School Suspension			
All Students	213,053	2138.21	284.12
Sixth Grade	57,582	2360.63	284.79
Seventh Grade	75,184	2071.04	207.32
Eighth Grade	80,287	2041.58	258.36
Students Not Receiving In-School Suspension			
All Students	646,902	2196.61	257.96
Sixth Grade	175,084	2235.69	301.32
Seventh Grade	238,032	2186.99	213.41
Eighth Grade	233,786	2177.13	261.04

Table 1

6.2 In-School Suspension and Math Achievement

To determine whether a statistically significant difference was present in math achievement for students in grades 6, 7, and 8 as a function of in-school suspension, three ANOVAs were conducted, with in-school suspension being the independent variable and the scaled score on the TAKS Math exam being the dependent variable. Students placed into in-school suspension as a disciplinary placement had significantly lower average scores in the sixth grade, $F(1, 232664) = 7651.27$, $p < .001$, in the seventh grade, $F(1, 313214) = 17096.77$, $p < .001$, and in the eighth grade, $F(1, 314071) = 16198.19$, $p < .001$, than did their counterparts who had not been placed into in-school suspension. Small effect sizes, (η^2), .03, .05, and .05, were yielded respectively for these three statistically significant differences (Cohen, 1988). Readers are referred to Table 1 for the descriptive statistics for students' TAKS Math test scores by grade levels. With sixth grade students being the exception again, students who received an in-school suspension had lower average TAKS Math scores than did students who did not receive such a disciplinary placement.

6.3 Out-of-School Suspension and Reading Achievement

To answer the research questions concerning whether a difference was present in students' reading achievement in grades 6, 7, and 8 as a function of whether or not they had been placed in an out-of-school disciplinary placement, three ANOVAs were conducted, with out-of-school suspension as the independent variable and the scaled score on the TAKS Reading test as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 3638.51$, $p < .001$, $\eta^2 = .02$, for the seventh grade, $F(1, 313207) = 7766.08$, $p < .001$, $\eta^2 = .02$, and for the eighth grade, $F(1, 314073) = 9421.03$, $p < .001$, $\eta^2 = .03$. These differences resulted in small effect sizes (Cohen, 1988). On the TAKS Reading measure, the seventh and eighth grade students who received an out-of-school suspension had lower reading scores than their counterparts who did not receive such a consequence. Similar to the previous findings, the sixth grade students who received an out-of-school suspension had higher TAKS Reading scores than their counterparts. Table 2 reflects the descriptive statistics for this research question.

Descriptive Statistics for Out-of-School Suspension and TAKS Reading and Math Scores by

Grade Level

Variables	n	M	SD
TAKS Reading			
Students Receiving Out-of-School Suspension			
All Students	100,079	2153.89	340.50
Sixth Grade	25,441	2414.55	264.81
Seventh Grade	35,525	2044.28	287.53
Eighth Grade	39,113	2083.90	340.52
Students Not Receiving Out-of-School Suspension			
All Students	759,871	2236.87	307.91
Sixth Grade	207,225	2288.67	319.68
Seventh Grade	277,684	2181.50	274.88
Eighth Grade	274,962	2253.76	321.38
TAKS Math			
Students Receiving Out-of-School Suspension			
All Students	100,079	2107.51	290.26
Sixth Grade	25,441	2362.98	281.89
Seventh Grade	35,527	2040.86	205.55
Eighth Grade	39,111	2001.87	260.51
Students Not Receiving Out-of-School Suspension			
All Students	759,876	2191.97	260.92
Sixth Grade	207,225	2254.78	302.46
Seventh Grade	277,689	2174.29	214.52
Eighth Grade	274,962	2162.48	261.84

Table 2

6.4 Out-of-School Suspension and Math Achievement

To answer the research questions concerning whether a difference was present in students' math achievement in grades 6, 7, and 8 as a function of whether or not they had been placed in an out-of-school disciplinary placement, three ANOVAs were conducted, with out-of-school suspension as the independent variable and the scaled score on the TAKS Math exam as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 2942.02$, $p < .001$, $\eta^2 = .01$, for the seventh grade, $F(1, 313214) = 12300.33$, $p < .001$, $\eta^2 = .04$, and for the eighth grade, $F(1, 314071) = 12898.46$, $p < .001$, $\eta^2 = .04$. These differences resulted in small effect sizes (Cohen, 1988). On the TAKS Math exam, the seventh and eighth grade students who received an out-of-school suspension had lower math scores than their counterparts who did not receive such a consequence. Similar to the previous findings, the sixth grade students who received an out-of-school suspension had higher TAKS Math scores than their counterparts. Table 2 reflects the descriptive statistics for this research question.

6.5 Disciplinary Alternative Education Placement (DAEP) and Reading Achievement

To answer the research questions concerning whether a difference was present in students' reading achievement in grades 6, 7, and 8 as a function of whether or not they had been placed in a disciplinary alternative education placement, three ANOVAs were conducted, with disciplinary alternative education placement as the independent variable and the scaled score on the TAKS Reading test as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 891.75$, $p < .001$, $\eta^2 = .04$, for the seventh grade, $F(1, 313207) = 3660.82$, $p < .001$, $\eta^2 = .01$, and for the eighth grade, $F(1, 314073) = 4503.19$, $p < .001$, $\eta^2 = .01$. These differences resulted in small effect sizes (Cohen, 1988). Again, sixth grade students who received this disciplinary consequence outperformed their sixth grade counterparts whereas those seventh and eighth grade students who received this disciplinary consequence had lower average TAKS Reading scores than their counterparts. Table 3 depicts these descriptive statistics.

Descriptive Statistics for Disciplinary Alternative Education Placement and TAKS Reading and Math Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Students Receiving a DAEP Placement			
All Students	30,763	2110.51	352.11
Sixth Grade	6,328	2419.43	254.49
Seventh Grade	10,779	2006.66	296.46
Eighth Grade	13,656	2049.34	351.33
Students Not Receiving a DAEP Placement			
All Students	829,187	2231.54	310.63
Sixth Grade	226,338	2299.16	317.54
Seventh Grade	302,430	2171.61	277.45
Eighth Grade	300,419	2240.93	325.13
TAKS Math			
Students Receiving a DAEP Placement			
All Students	30,763	2061.29	299.63
Sixth Grade	6,328	2369.59	271.53
Seventh Grade	10,781	2003.50	215.60
Eighth Grade	13,654	1964.04	274.33
Students Not Receiving a DAEP Placement			
All Students	829,192	2186.62	263.48
Sixth Grade	226,338	2263.73	302.48
Seventh Grade	302,435	2164.70	215.68
Eighth Grade	300,419	2150.59	263.80

Table 3

6.6 Disciplinary Alternative Education Placement (DAEP) and Math Achievement

To answer the research questions concerning whether a difference was present in students' math achievement in grades 6, 7, and 8 as a function of whether or not they had been placed in a disciplinary alternative education placement, three ANOVAs were conducted, with disciplinary alternative education placement as the independent variable and the scaled score on the TAKS Math exam as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 757.98$, $p < .001$, $\eta^2 = .003$, for the seventh grade, $F(1, 313214) = 5815.25$, $p < .001$, $\eta^2 = .02$, and for the eighth grade, $F(1, 314071) = 6508.36$, $p < .001$, $\eta^2 = .02$. These differences resulted in small effect sizes (Cohen, 1988). Again, sixth grade students who received this disciplinary consequence outperformed their sixth grade counterparts whereas those seventh and eighth grade students who received this disciplinary consequence had lower average TAKS Math scores than their counterparts. Table 3 depicts these descriptive statistics.

6.7 Expulsion and Reading Achievement

To answer the research questions concerning whether a difference was present in students' reading achievement in grades 6, 7, and 8 as a function of whether or not they had been expelled from school, three ANOVAs were conducted, with expulsion as the independent variable and the scaled score on the TAKS Reading test as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 7.96$, $p = .005$, $\eta^2 = .0001$, for the seventh grade, $F(1, 313207) = 73.24$, $p < .001$, $\eta^2 = .0001$, and for the eighth grade, $F(1, 314073) = 145.86$, $p < .001$, $\eta^2 = .0001$. These differences yielded trivial effect sizes (Cohen, 1988). Again, sixth grade students who were expelled outperformed their sixth grade counterparts whereas those seventh and eighth grade students who were expelled had lower average TAKS Reading scores than their counterparts. Table 4 depicts these descriptive statistics.

Table 4

Descriptive Statistics for Expulsion and TAKS Reading and Math Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Students Receiving an Expulsion			
All Students	162	1940.62	481.85
Sixth Grade	35	2453.46	282.21
Seventh Grade	47	1816.79	388.81
Eighth Grade	80	1789.80	449.60
Students Not Receiving an Expulsion			
All Students	859,788	2227.27	312.95
Sixth Grade	232,631	2302.41	316.59
Seventh Grade	313,162	2165.99	279.69
Eighth Grade	313,995	2232.72	328.53
TAKS Math			
Students Receiving an Expulsion			
All Students	158	1918.28	432.13
Sixth Grade	35	2398.26	313.72
Seventh Grade	46	1875.04	301.39
Eighth Grade	77	1725.94	382.08
Students Not Receiving an Expulsion			
All Students	859,797	2182.19	265.82
Sixth Grade	232,631	2266.59	302.16
Seventh Grade	313,170	2159.20	217.63
Eighth Grade	313,996	2142.58	266.88

Table 4

6.8 Expulsion and Math Achievement

To answer the research questions concerning whether a difference was present in students' math achievement in grades 6, 7, and 8 as a function of whether or not they had been expelled from school, three ANOVAs were conducted, with expulsion as the independent variable and the scaled score on the TAKS Math exam as the dependent variable. Statistically significant differences were yielded for the sixth grade, $F(1, 232664) = 6.64$, $p = .01$, $\eta^2 = .0001$, for the seventh grade, $F(1, 313214) = 78.39$, $p < .001$, $\eta^2 = .0001$, and for the eighth grade, $F(1, 314071) = 187.58$, $p < .001$, $\eta^2 = .001$. These differences yielded trivial effect sizes (Cohen, 1988). Again, sixth grade students who were expelled outperformed their sixth grade counterparts whereas those seventh and eighth grade students who were expelled had lower average TAKS Math scores than their counterparts. Table 4 depicts these descriptive statistics.

6.9 In-School Suspension, Gender, and Reading Achievement

To determine whether a difference was present in reading achievement between boys and girls in grades 6, 7, and 8 who had received an in-school suspension, three ANOVAs were conducted with gender as the independent variable and the scaled score on the TAKS Reading test as the dependent variable. Readers should note that these analyses include only those students who received an in-school suspension. Statistically significant differences between boys and girls in their reading scores were yielded for the sixth grade, $F(1, 57525) = 190.88$, $p < .001$, $\eta^2 = .003$, for the seventh grade, $F(1, 75162) = 411.66$, $p < .001$, $\eta^2 = .005$, and for the eighth grade, $F(1, 80248) = 264.60$, $p < .001$, $\eta^2 = .003$. Effect sizes were trivial (Cohen, 1988). At all three grade levels, girls who received an in-school suspension had higher TAKS reading scores than did boys who received an in-school suspension. Readers are referred to Table 5 for their means and standard deviations on the TAKS Reading measure.

Descriptive Statistics for Gender and In-School Suspension and TAKS Reading Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Boys Receiving an In-School Suspension			
All Boys	124,496	2158.40	339.54
Sixth Grade	27,217	2399.56	278.01
Seventh Grade	47,636	2064.16	296.33
Eighth Grade	49,643	2116.60	346.89
Boys Not Receiving an In-School Suspension			
All Boys	296,111	2218.69	320.16
Sixth Grade	78,123	2244.50	341.40
Seventh Grade	109,906	2172.08	285.13
Eighth Grade	108,082	2247.44	332.24
Girls Receiving an In-School Suspension			
All Girls	88,445	2234.55	303.42
Sixth Grade	30,310	2429.83	247.39
Seventh Grade	27,528	2107.46	254.83
Eighth Grade	30,607	2155.48	297.46
Girls Not Receiving an In-School Suspension			
All Girls	350,558	2257.26	294.38
Sixth Grade	96,933	2282.27	307.77
Seventh Grade	128,045	2211.32	260.98
Eighth Grade	125,580	2284.81	309.76

Table 5

6.10 In-School Suspension, Gender, and Math Achievement

Concerning whether a similar difference was present in math achievement between boys and girls in grades 6, 7, and 8 who had received an in-school suspension, three ANOVAs were conducted with gender as the independent variable and the scaled score on the TAKS Math exam as the dependent variable. Readers should note that these analyses include only those students who received an in-school suspension. Statistically significant differences between boys and girls in their math scores were present for the sixth grade, $F(1, 57525) = 47.41$, $p < .001$, $\eta^2 = .001$, and for the seventh grade, $F(1, 75165) = 52.58$, $p < .001$, $\eta^2 = .001$, but not for the eighth grade, $F(1, 80248) = 1.97$, $p = .16$. Effect sizes for the sixth and seventh grades were very small (Cohen, 1988). At the sixth and seventh grade levels, boys had statistically higher math scores than did girls. Readers are referred to Table 6 for their means and standard deviations on the TAKS Math exam.

Descriptive Statistics for Gender and In-School Suspension and TAKS Math Scores by Grade Level

Variables	n	M	SD
TAKS Math			
Boys Receiving an In-School Suspension			
All Boys	124,493	2126.58	288.65
Sixth Grade	27,217	2369.56	291.97
Seventh Grade	47,635	2075.24	217.26
Eighth Grade	49,641	2042.62	273.81
Boys Not Receiving an In-School Suspension			
All Boys	296,115	2200.10	269.78
Sixth Grade	78,123	2240.64	314.33
Seventh Grade	109,910	2191.11	222.07
Eighth Grade	108,082	2179.94	275.98
Girls Receiving an In-School Suspension			
All Girls	88,451	2154.75	276.72
Sixth Grade	30,310	2353.20	277.58
Seventh Grade	27,532	2063.86	188.60
Eighth Grade	30,609	2039.99	231.06
Girls Not Receiving an In-School Suspension			
All Girls	350,556	2193.79	247.42
Sixth Grade	96,933	2231.80	290.28
Seventh Grade	128,045	2183.54	205.56
Eighth Grade	125,578	2174.90	247.35

Table 6

6.11 Out-of-School Suspension, Gender, and Reading Achievement

Separate ANOVAs by grade level were performed to determine whether boys and girls who had received an out-of-school suspension differed in their TAKS reading performance. Statistically significant differences between boys and girls in their reading scores were yielded for the sixth grade, $F(1, 25427) = 84.52$, $p < .001$, $\eta^2 = .003$, for the seventh grade, $F(1, 35518) = 291.32$, $p < .001$, $\eta^2 = .008$, and for the eighth grade, $F(1, 39083) = 224.03$, $p < .001$, $\eta^2 = .006$. Effect sizes were very small (Cohen, 1988). Similar to the in-school suspension findings, girls at all three grade levels who had experienced an out-of-school suspension had higher TAKS Reading scores than did boys who had experienced an out-of-school suspension. Table 7 contains the descriptive statistics for this research question.

Descriptive Statistics for Gender and Out-of-School Suspension and TAKS Reading Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Boys Receiving Out-of-School Suspension			
All Boys	59,660	2116.76	352.26
Sixth Grade	12,034	2398.61	279.45
Seventh Grade	22,858	2025.05	300.87
Eighth Grade	24,768	2064.45	358.21
Boys Not Receiving Out-of-School Suspension			
All Boys	360,947	2214.74	320.72
Sixth Grade	93,306	2269.85	336.71
Seventh Grade	134,684	2158.87	286.89
Eighth Grade	132,957	2232.68	332.71
Girls Receiving Out-of-School Suspension			
All Girls	40,373	2208.98	314.23
Sixth Grade	13,395	2429.12	249.84
Seventh Grade	12,662	2079.18	257.86
Eighth Grade	14,316	2117.80	304.46
Girls Not Receiving Out-of-School Suspension			
All Girls	398,630	2257.12	294.13
Sixth Grade	113,848	2304.28	303.93
Seventh Grade	142,911	2203.02	260.97
Eighth Grade	141,871	2273.76	308.78

Table 7

6.12 Out-of-School Suspension, Gender, and Math Achievement

Separate ANOVAs by grade level were performed to determine whether boys and girls who had received an out-of-school suspension differed in their TAKS math exam scores. Statistically significant differences

between boys and girls in their math scores were revealed for the sixth grade, $F(1, 25427) = 8.84$, $p = .003$, $\eta^2 = .0001$, and for the eighth grade, $F(1, 39080) = 25.44$, $p < .001$, $\eta^2 = .001$, but not for the seventh grade, $F(1, 35520) = .09$, $p = .76$. The two differences resulted in very small effect sizes (Cohen, 1988). Sixth grade boys who had received an out-of-school suspension had higher math scores than did the sixth grade girls who had received an out-of-school suspension. This difference was reversed at the eighth grade level, with no difference present at the seventh grade. Table 8 contains the means and standard deviations for this statistical analysis.

Descriptive Statistics for Gender and Out-of-School Suspension and TAKS Math Scores by Grade Level

Variables	n	M	SD
TAKS Math			
Boys Receiving Out-of-School Suspension			
All Boys	59,658	2088.86	294.28
Sixth Grade	12,034	2368.74	289.59
Seventh Grade	22,857	2041.13	216.13
Eighth Grade	24,767	1996.91	275.92
Boys Not Receiving Out-of-School Suspension			
All Boys	360,950	2193.13	271.85
Sixth Grade	93,306	2261.73	314.74
Seventh Grade	134,688	2175.58	222.94
Eighth Grade	132,956	2162.76	276.10
Girls Receiving Out-of-School Suspension			
All Girls	40,375	2135.32	281.84
Sixth Grade	13,395	2358.22	274.34
Seventh Grade	12,665	2040.44	184.89
Eighth Grade	14,315	2010.70	231.08
Girls Not Receiving Out-of-School Suspension			
All Girls	398,632	2191.05	250.52
Sixth Grade	113,848	2249.24	291.79
Seventh Grade	142,912	2173.17	206.20
Eighth Grade	141,872	2162.36	247.66

Table 8

6.13 Disciplinary Alternative Education Placement, Gender, and Reading Achievement

Separate ANOVAs by grade level were performed to determine whether boys and girls who had received a DAEP differed in their TAKS reading performance. Statistically significant differences between boys and girls in their reading scores were yielded for the sixth grade, $F(1, 6321) = 15.81$, $p < .001$, $\eta^2 = .002$, for the seventh grade, $F(1, 10776) = 93.54$, $p < .001$, $\eta^2 = .009$, and for the eighth grade, $F(1, 13631) = 117.07$, p

$< .001$, $\eta^2 = .009$. Effect sizes were very small (Cohen, 1988). Similar to the in-school suspension findings, girls at all three grade levels who had experienced a DAEP had higher TAKS Reading scores than did boys who had experienced an out-of-school suspension. Table 9 contains the descriptive statistics for this research question.

Descriptive Statistics for Disciplinary Alternative Education Placement and Gender and TAKS Reading Scores by Grade Level

Variables	n	M	SD
TAKS Reading			
Boys Receiving a DAEP			
All Boys	19,689	2070.92	358.85
Sixth Grade	3,041	2406.35	272.78
Seventh Grade	7,454	1988.38	302.01
Eighth Grade	9,194	2026.90	364.06
Boys Not Receiving a DAEP			
All Boys	400,918	2207.23	324.20
Sixth Grade	102,299	2280.94	334.15
Seventh Grade	150,088	2146.95	290.28
Eighth Grade	148,531	2217.36	337.85
Girls Receiving a DAEP			
All Girls	11,045	2181.34	328.07
Sixth Grade	3,282	2431.79	235.79
Seventh Grade	3,324	2047.91	278.99
Eighth Grade	4,439	2096.09	318.53
Girls Not Receiving a DAEP			
All Girls	427,958	2254.53	295.27
Sixth Grade	123,961	2314.39	302.09
Seventh Grade	152,249	2196.11	261.65
Eighth Grade	151,748	2264.25	310.15

Table 9

6.14 Disciplinary Alternative Education Placement, Gender, and Math Achievement

Separate ANOVAs by grade level were performed to determine whether boys and girls who had received a DAEP differed in their TAKS math exam scores. Statistically significant differences between boys and girls in their math scores were revealed for the sixth grade, $F(1, 6321) = 6.07$, $p = .014$, $\eta^2 = .001$, and for the eighth grade, $F(1, 13629) = 25.46$, $p < .001$, $\eta^2 = .002$, but not for the seventh grade, $F(1, 10778) = 1.20$, $p = .27$. The two differences resulted in very small effect sizes (Cohen, 1988). Sixth grade boys who had received a DAEP had higher math scores than did the sixth grade girls who had received a DAEP. This difference was reversed at the eighth grade level, with no difference present at the seventh grade. Table 10 contains the means and standard deviations for this statistical analysis.

Descriptive Statistics for Disciplinary Alternative Education Placement and Gender and TAKS Math Scores by Grade Level

Variables	n	M	SD
TAKS Math			
Boys Receiving a DAEP			
All Boys	19,685	2038.66	300.14
Sixth Grade	3,041	2378.55	278.26
Seventh Grade	7,452	2002.04	221.01
Eighth Grade	9,192	1955.91	285.58
Boys Not Receiving a DAEP			
All Boys	400,923	2185.20	274.56
Sixth Grade	102,299	2270.84	314.19
Seventh Grade	150,093	2163.72	224.51
Eighth Grade	148,531	2147.91	278.57
Girls Receiving a DAEP			
All Girls	11,049	2101.98	294.29
Sixth Grade	3,282	2361.73	264.70
Seventh Grade	3,328	2006.96	202.96
Eighth Grade	4,439	1981.18	248.47
Girls Not Receiving a DAEP			
All Girls	427,958	2188.09	252.59
Sixth Grade	123,961	2258.04	292.14
Seventh Grade	152,249	2165.76	206.55
Eighth Grade	151,748	2153.36	248.39

Table 10

6.15 Expulsion, Gender, and Reading Achievement

To investigate whether a difference was present between boys and girls who had been expelled in their TAKS Reading scores among students in grades 6 through 8 in the State of Texas, an ANOVA was conducted with the independent variables being gender and expulsion and the dependent variable being students' scaled scores on the TAKS Reading measure. Because of very low sample sizes when each grade level was examined separately, in this analysis scores were collapsed across the three grade levels. No statistically significant difference was present between boys and girls who had been expelled in their TAKS reading scores, $F(1, 859606) = 1.40$, $p = .237$. Boys who were expelled from school had slightly, but not significantly, lower scores on the TAKS Reading test than did girls who were expelled. Table 11 reflects the descriptive statistics for this analysis.

Descriptive Statistics for Expulsion and Gender and TAKS Reading and Math Scores

Variables	n	M	SD
TAKS Reading Scores			
Boys Receiving an Expulsion	119	1919.91	455.19
Boys Not Receiving an Expulsion	420488	2200.93	327.10
Girls Receiving an Expulsion	41	2038.51	531.20
Girls Not Receiving an Expulsion	438962	2252.71	296.33
TAKS Math Scores			
Boys Receiving an Expulsion	115	1893.70	398.98
Boys Not Receiving an Expulsion	420,493	2178.42	277.46
Girls Receiving an Expulsion	41	2020.41	493.64
Girls Not Receiving an Expulsion	438,966	2185.94	254.04

Table 11

6.16 Expulsion and Gender and Math Achievement

To determine whether a difference was present between boys and girls who had been expelled in their TAKS Math test scores in grades 6 through 8, an ANOVA was conducted with gender and expulsion being the independent variables and the scaled score on the TAKS Math test being the dependent variable. This analysis yielded a statistically significant difference, $F(1, 859611) = 6.08$, $p = .014$, $\eta^2 = .0001$. Boys receiving an expulsion as a disciplinary consequence had significantly lower average scores on the TAKS Math test than girls who were also expelled. Table 11 depicts the descriptive statistics for this research question.

7 Discussion

Results of this study support claims made by authors that student achievement is affected by or related to disciplinary action (Arcia, 2006; Andrews et al., 1998; Christle et al., 2004; Costenbader & Markson, 1994; Davis & Jordan, 1994; Gregory et al., 2010; Luiselli, Putnam, Handler, & Feinberg, 2005; Walker, Cheney, Stage, & Blum, 2005). As such, these results are intended to alert professionals in education about the detrimental effects of exclusionary disciplinary practices. Furthermore, based on these results, advocating disciplinary interventions that promote positive, rehabilitative, and supportive behaviors among middle school students who engage in disruptive behaviors is a goal of these researchers.

As previously mentioned in this study, disciplinary action was clearly linked to student achievement. Additionally, as disciplinary consequences became more severe, the average scaled scores on TAKS Reading and Math tests decreased. Gender by disciplinary action and student achievement was also related in this investigation. The findings were commensurate with a very recent study (Jordan & Anil, 2009) and with the findings of Skiba, Michael, Nardo, and Peterson (2002), when it was noted that boys were referred to the office and received a range of disciplinary consequences at a significantly higher rate than girls. Interestingly, Wallace, Goodkind, Wallace, and Bachman (2008) recently documented an increase in disciplinary sanctions for Black females, a finding that may affect the results of future studies such as this one. Taylor and Lorimer (2003) documented that the academic achievement of boys scored lower in language arts on standardized tests and boys were underachieving at a higher rate than girls in reading and writing. Thus, the findings with this study are aligned with findings available in published literature.

The contributions of this study to educational research can provide further evidence of the detrimental effects of exclusionary discipline practices on student achievement for students in grades 6 through 8. Statistical power in this study was large with a sample size of nearly 900,000 cases, which strengthens the findings of this investigation. The data collected in this study supported the vast amount of literature that already exists, which identifies the harmful effects of exclusionary discipline practices on student achievement. Additionally, this research built on the current educational literature that promotes disciplinary strategies that does not exclude students from the regular education setting.

More investigation is needed regarding the management of student discipline. Researchers are encouraged to examine the extent to which differences in achievement are related to repeated disciplinary consequences. That is, as students experience school disciplinary methods repeatedly, what is the effect on their academic achievement? Moreover, is there a difference in student achievement and disciplinary consequence from grade level to grade level? As accountability standards continue to rise, and student achievement decreases with the administering of exclusionary discipline strategies, a heightened awareness from professionals within the field of education about this phenomenon could make these exclusionary strategies obsolete.

Qualitative research may yield a variety of perceptions from school district stakeholders regarding the reactions to an assortment of disciplinary sanctions. Developing focus groups of teachers, students and auxiliary staff members to discuss disciplinary issues may reveal thoughts, emotions, and attitudes that otherwise could not be obtained quantitatively. These emotions could provide powerful and unique explanations as to the effect of disciplinary sanctions.

Specific research topics could be as followed: (a) Analyze the rates of recidivism and effectiveness of disciplinary sanctions across the various levels of disciplinary consequences. A qualitative component could be added to this study where in-depth interviews are conducted with students to reveal student reactions regarding these consequences. (b) Through a mixed-method design, identify the effects of student discipline on teacher attrition. Quantitatively, data could be obtained by surveying teachers who have left the field of education. Qualitatively, teachers could share their experiences that directly impacted their decision to exit the field of education. (c) In another mixed-method design, examine the effect of student discipline on student drop out rate. Examining disciplinary data of students who have dropped out of school could yield information that may lead to intervention strategies for this at-risk population that prevent students from dropping out of school. Gaining the perspective of students who have dropped out of school, or are considering dropping out, regarding the effect of disciplinary sanctions could assist school officials in keeping this at risk population in school. (d) A deeper investigation into the types of disciplinary infractions could justify a need for curricular modifications as the need for instruction in social skills could be warranted. (d) It should be quite feasible to replicate our study in other states. Replication is essential to determine the extent to which the findings obtained in this study are generalizable across states, regions, and across time.

Specific cautions we would like to make regarding our findings are as follows: (a) These findings should not be interpreted as cause-and-effect in nature. Causal-comparative studies such as this one do not permit such interpretations. (b) The extent to which poor achievement occurs prior to the disciplinary consequence or the extent to which the disciplinary consequence occurs prior to low achievement was not addressed in this study. Clearly, a linkage is present between the two variables: low achievement and disciplinary placement. It is very likely that other variables of importance, ones not analyzed here, contribute to low achievement and disciplinary place. Future researchers are encouraged to conduct studies in which this linkage can be examined.

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