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RESEARCH ARTICLE

Gender differences in social studies skills: A Texas, multiyear study

Mary K. Dietrich [1] John R. Slate[1*] George W. Moore[1] Frederick C. Lunenburg[1]

Abstract: In this investigation, the degree to which boys and girls differed in their social studies skills in Texas was addressed. Data were obtained from the Texas Education Agency Public Education Information Management System for all Texas high school students for the 2004-2005 to the 2011-2012 school years. Inferential statistical analyses revealed the presence of statistically significant differences in social studies skills between boys and girls. Girls had statistically lower average raw scores in all five social studies skills objectives than boys. Implications for policy and for practice were made, along with recommendations for future research.

Keywords: gender, TAKS, social studies, social studies skills

1 Introduction

Debates about gender gaps in education have prompted educational leaders and researchers[1,2] to evaluate academic opportunities offered to both boys and girls. The National Student Clearinghouse (2015)[3] reported that bachelor degrees earned by women in science and engineering fields had decreased from 2004 to 2014. Further, researchers[4,5] have revealed that boys are more likely than girls to pass national high stakes examinations in mathematics and science. Boys were more likely than girls to achieve passing scores on ACT mathematics and ACT science exams[6].

To understand these findings, researchers[7,8] have suggested that gender stereotypes aligned with specific academic subjects encourage student course and career selections. Kurtz-Costes *et al.* (2014)[7] evaluated gender stereotypes of students in Grades 4, 6, and 8 and determined that children often adopted gender stereotypes promoted by their parents or teachers. As a result, boys are encouraged more to take courses in mathematics and science whereas girls are encouraged more to take courses in humanities and social sciences. Student performance is often influenced by various sociocultural factors that influence stereotypical expectations for future success and the value given to achieving that success[9,10]. Because girls have a low expectancy of achieving a profession in the field of mathematics, they do not perform as well on mathematics as they do in language arts. Such preconceived notions that boys are better in mathematics and science and girls are better at literature and social studies begin to develop as students experience success and failure with these subjects at early ages.

Similar attention has been placed on the decreasing achievement of boys in academic areas[1,4]. Although boys outperform girls in standardized science and mathematics tests, girls are excelling in other areas of academic course taking. Duckworth and Seligman (2006)[11] revealed that girls make higher grades in both primary and secondary schools, but boys score higher on aptitude tests. Furthermore, Duckworth and Seligman (2006)[11] contended that girls make better grades because they are more self-disciplined than boys. Voyer and Voyer (2014)[10] emphasized that girls tend to focus more on mastery to gain full understanding of concepts whereas boys focus more on task completion.

Ganzert (2012)[12] established the presence of similar findings in dual credit courses, reporting that females with dual credit experiences in high school had higher grade point averages in college than males. Additionally, Ganzert (2012)[12] determined that 33.1% of females who completed a dual credit course graduated from college compared to 25.5% of males who completed a dual credit course in high school. Similarly, Moller *et al.* (2013)[4] established that girls who attended high schools with more Advanced Placement opportunities were more likely than boys to attend colleges with more stringent enrollment requirements. Moore and Slate (2008)[13] documented that more girls had been enrolled in Advanced Placement courses than boys. According to Moller *et al.* (2013),[4] girls excel in high

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*Correspondence to: John R. Slate, Sam Houston State University, Huntsville, USA; Email: profslate@aol.com
[1] Sam Houston State University, Huntsville, USA

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schools in which more Advanced Placement courses are made available. Increased exposure to rigor benefits girls more than boys indicating that school context influences gender achievement[4].

Other researchers[9, 14], however, have argued that gender has no effect on social studies achievement. Dania (2014)[9] contended that the method of instruction determines academic achievement in social studies. When students are provided with the same strategies and motivation, academic achievement in social studies is the same for boys and for girls. In contrast, however, other researchers[15, 16] have demonstrated that differences in social studies achievement do exist when measured by standardized test scores. Boys scored statistically significantly higher on the Advanced Placement United States History examination than girls[5]. Boys also had statistically significantly higher test scores than girls on the Advanced Placement World History, European History, Government Politics U.S., and Psychology examinations in 2007 and 2011[5]. In addition, Heafner and Fitchett (2015)[17] analyzed the National Assessment of Educational Progress of United States History and established that Grade 12 boys had statistically significantly higher test scores than Grade 12 girls on standardized United States History exams. Lastly, researchers[15, 16] documented that boys had statistically significantly higher test scores on competency-based geography exams than girls.

Moller *et al*. (2013)[4] indicated that school context and curriculum were essential for postsecondary outcomes. School context is designed to provide opportunities for student success and postsecondary readiness. By the time girls and boys reach college, however, stereotypes about professions have already formed[18]. Girls were less likely to enroll in economic courses due to academic predisposition and unsupportive classroom environments[9, 19]. Curriculum is equally important in postsecondary outcomes. Evidence of male dominance and achievement in history is widespread in both state and national social studies curriculum[20, 21]. Engebretson (2014)[21] revealed that a gender imbalance of discussed historical figures was prevalent in middle and high school grades. Further, Engebretson (2014)[21] argued that women in social studies curriculum were included as supporting roles in history and, as such, were less valued than men. Because males were more likely to be involved in political or military history, an unequal gender balance has been maintained in social studies curricula[20–22]. Heafner and Fitchett (2018)[22] also argued that gender affects how students make meaning of concepts. Due to gender bias in social studies curriculum and textbooks, relationships between gender inequalities and social studies are evident[22].

Regarding social studies professions, numerous employment opportunities exist. The field of social studies and social science includes a wide range of professions such as anthropologists, geographers, historians, psychologists, social workers, economic advisors, and museum curators. Because of these numerous employment prospects provided by the areas of social studies and social sciences, it is necessary to ensure that women have equal opportunity to these professions. Although women remain underrepresented in science, technology, engineering, and mathematics fields, research is limited and inconsistent regarding a gender gap in social studies or social studies professions[18, 23].

1.1 Statement of the problem

In recent decades, national attention has been focused on the lack of women in science and mathematics professions, which has sparked a need for educational leaders to increase educational opportunities for girls in these subject areas in early elementary grades[2]. Therefore, a focus in recent school initiatives has been on providing a school context to decrease the gender gap in public education. According to the United States Department of Education (2006)[24], boys and girls in kindergarten perform similarly on reading and mathematics assessments. By the third grade, however, boys score higher on mathematics and science assessments, whereas girls score higher on reading assessments[24]. These disparities have prompted educational leaders to analyze school context as an effort to promote student achievement for all students. Although gender gaps are apparent in the areas of mathematics, reading, and science, few researchers have addressed the extent to which similar gender gaps might exist in social studies courses.

To measure academic performance, criterion-based standardized testing has been a common method of evaluation used in the state of Texas for over 30 years[25]. From 2003 to 2012, the criterion-based standardized exam used to measure academic performance of social studies was the Texas Assessment of Knowledge and Skills Social Studies exam which was administered in Grades 8, 10, and 11. In Grade 11, students took the Exit Level Texas Assessment of Knowledge and Skills Social Studies Exam as a requirement graduation.

By Grade 11, students were assessed on knowledge attained from World Geography, World History, and United States History. Each Texas Assessment of Knowledge and Skills Social Studies Exam measured student performance of five objectives: history, geography, economics and social influences, political influences, and social studies skills. The purpose of assess-

ing the Texas Assessment of Knowledge and Skills Social Studies Exam was to determine whether high school graduates had mastered the state curriculum and whether high school graduates had acquired the necessary skills needed for postsecondary education[26]. Although researchers[29,30] have examined similar gender differences in mathematics and reading, the focus of this study will be to determine the degree to which gender differences exist in social studies.

1.2 Purpose of the study

The purpose of the study was to examine the extent to which differences were present between Texas high school boys and girls in their social studies skills. Specifically, eight years of the Texas Assessment of Knowledge and Skills Social Studies assessment data were examined to determine the degree to which boys and girls differed in their social studies skills. By analyzing eight years of Texas statewide data, the extent to which a trend was present in the social studies skills of Texas boys and girls was determined.

1.3 Significance of the study

Information regarding the degree to which Texas high school boys and girls differed on their social studies skills added to the extant literature regarding gender and social studies achievement. Based on the results of this multiyear investigation, educational leaders are provided with data and analyses related to the presence of gender gaps in social studies skills in Texas schools. Additional research could be beneficial regarding the variety of social studies skills and the effect that a difference in gender has on these essential skills. Educators can use the conclusions of this study to help identify differences in social studies skills that may exist between boys and girls and their overall performance on high school state assessments.

1.4 Research questions

The following overarching research question was addressed in this empirical investigation: What is the difference between Texas high school boys and girls in their overall social studies skills? Specific subquestions under this overarching research question were: (a) What is the difference between Texas high school boys and girls in their basic understanding of history? (b) What is the difference between Texas high school boys and girls in their understanding of geography? (c) What is the difference between Texas high school boys and girls in their understanding of economic and social influences? (d) What is the difference between Texas high school boys and girls in their understanding of political influences? (e) What is the difference between Texas high school boys and girls in their basic social studies skills? and (f) What is the extent to which trends might be present in the social studies skills of Texas high school boys and girls for the 2004-2005 through the 2011-2012 school years? Each of the first five research questions was repeated for each of the 8 school years whereas the last research question, a trend question, was repeated for the five social studies objectives. Thus, a total of 45 research questions constituted this research investigation.

2 Method

2.1 Research design

A non-experimental, causal-comparative research design[27] was used for this article. In this study, the independent variable had already occurred, and extraneous variables were not controlled. The student archival data that were analyzed in this article represented past state assessment results. As such, the independent variable involved in this research article was gender and the dependent variables were the five TAKS Exit Level Social Studies Objectives for the 2004-2005 through the 2011-2012 school years. These school years were selected as they were the most recent years of data available through the Texas Education Agency at the time that this study was conducted.

2.2 Participants and instrumentation

Archival data previously obtained for the 2004-2005 through the 2011-2012 school years through the submission and fulfillment of a Public Information Request form to the Texas Education Agency Public Education Information Management System(2009)[28] were analyzed herein. These school years were selected as they were the most recent years of data available through the Texas Education Agency at the time that this study was conducted. The TAKS Exit Level Social Studies exam was a graduation requirement for the state of Texas and was used to measure social studies knowledge and skills of Grade 11 students. Beginning in 2012, the State of Texas applied a new standardized assessment, State of Texas Assessment of Academic Readiness (STAAR) to measure achievement in core content areas[25].

The TAKS Exit Level Social Studies exam has five learning objectives that are supported by the Texas Essential Knowledge and Skills designed by the Texas Education Agency in 2000. The TAKS Exit Level Social Studies exam has 55 questions that are comprised of the five objectives. With respect to Objective 1, 13 questions

are present in which students are measured on their understanding of issues and events in U.S. history. For Objective 2, 9 questions are present which measure student understanding of geographic influences on historical issues and events.

Objective 3 has 13 questions in which student understanding of economic and social influences on historical issues and events is assessed. Regarding Objective 4, 9 questions assess student knowledge of political influences on historical issues and events. Lastly, 11 questions constitute Objective 5 in which critical-thinking skills to analyze social studies information are measured (Exit Level TAKS Social Studies Information Booklet, 2004, p. 5). Readers are directed to the Texas Education Agency website for information regarding the score validity and score reliability of this assessment.

Participants in this study were all students who took the Texas Assessment of Knowledge and Skills Exit Level Social Studies exam in the 2004-2005 through the 2011-2012 school years. The Public Information Request form that was previously submitted and fulfilled resulted in data that were analyzed by Wright (2015)[29] in his dissertation on reading achievement and by Alford-Stephens (2016)[30] in her dissertation on mathematics achievement. The data on the TAKS Social Studies test scores had not yet been analyzed.

3 Results

Because five dependent variables that were conceptually related were present, a decision was made to use a multivariate procedure, multivariate analysis of variance (MANOVA), to address the research questions previously delineated. This procedure permits analyzing differences in one analysis rather than conducting five separate statistical analyses, one per TAKS Social Studies objective. Prior to conducting the MANOVA, its underlying assumptions were checked. Specifically examined were data normality, Box's Test of Equality of Covariance, and the Levene's Test of Equality of Error Variances. Although these assumptions were not met, the robustness of a MANOVA procedure made it appropriate to use on the data in this study[31]. Results will be presented in chronological order beginning with the 2004-2005 school year and concluding with the 2011-2012 school year.

3.1 Overall results for all eight school years

For the 2004-2005 school year, the MANOVA yielded a statistically significant difference in social studies performance between boys and girls, Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.025$, small effect size[32]. With respect to the 2005-2006 school year, a statistically significant difference was present between boys and girls in their overall social studies performance, Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.018$, small effect size[32]. Concerning the 2006-2007 school year, the MANOVA revealed a statistically significant difference in overall social studies performance between boys and girls, Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.025$, small effect size[32]. Regarding the 2007-2008 school year, a statistically significant difference was present between boys and girls in their overall social studies performance, Wilks' $\Lambda = 0.97$, $p < 0.001$, partial $\eta^2 = 0.029$, small effect size[32]. For the 2008-2009 school year, a statistically significant difference was yielded in overall social studies performance between boys and girls, Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.019$, small effect size[32]. With respect to the 2009-2010 school year, a statistically significant difference was present between boys and girls in their overall social studies performance, Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.022$, small effect size[32]. Concerning the 2010-2011 school year, a statistically significant difference was revealed in overall social studies performance between boys and girls, Wilks $\Lambda = 0.97$, $p < 0.001$, partial $\eta^2 = 0.034$, small effect size[32]. Regarding the 2011-2012 school year, a statistically significant difference was present in overall social studies performance between boys and girls Wilks' $\Lambda = 0.98$, $p < 0.001$, partial $\eta^2 = 0.018$, small effect size[32]. Boys and girls statistically significantly differed in their overall social studies performance in each of the eight school years of data analyzed herein. Small effect sizes were present in all eight school years.

3.2 Results for social studies objective 1 across all eight school years

For each of the eight school years, univariate follow-up analysis of variance (ANOVA) procedures were calculated to determine the extent to which statistically significant differences were present between boys and girls on the TAKS Social Studies Objective 1. Concerning the 2004-2005 school year, a statistically significant difference was revealed, $F(1, 204630) = 187.88$, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. For the 2005-2006 school year, the ANOVA yielded a statistically significant difference, $F(1, 210742) = 371.22$, $p < 0.001$, partial $\eta^2 = 0.002$, below small effect size[32]. Regarding the 2006-2007 school year, a statistically significant difference was revealed, $F(1, 216567) = 596.84$, $p < 0.001$, partial $\eta^2 = 0.003$, below small effect size[32]. With respect to the 2007-2008 school year, a statistically significant difference was yielded, $F(1, 202320) = 3748.83$, $p < 0.001$, partial $\eta^2 = 0.018$, small ef-

fect size[32]. Regarding the 2008-2009 school year, the ANOVA revealed a statistically significant difference, F (1, 142453) = 1509.18, $p < 0.001$, partial $\eta^2 = 0.01$, small effect size[32]. For the 2009-2010 school year, a statistically significant difference was revealed, F (1, 220214) = 3336.30, $p < 0.001$, partial $\eta^2 = 0.015$, small effect size[32]. Concerning the 2010-2011 school year, a statistically significant difference was revealed, F (1, 220577) = 3972.71, $p < 0.001$, partial $\eta^2 = 0.018$, small effect size[32]. Finally, for the 2011-2012 school year, a statistically significant difference was yielded between boys and girls, F (1, 229217) = 2308.23, $p < 0.001$, partial $\eta^2 = 0.01$, small effect size[32]. In all eight school years, boys and girls answered a statistically significant different number of items on the TAKS Social Studies Objective 1. Five of the effect sizes were small and three effect sizes were in the below small category.

With respect to the 2004-2005, 2005-2006, 2006-2007, and 2011-2012 school years, boys answered, on average, about one-half items more correctly than was answered correctly by girls. Boys answered, on average, about one more question correctly than girls in the 2007-2008, 2008-2009, 2009-2010, and 2010-2011 school years. Descriptive statistics for these school years for the TAKS Social Studies Objective 1 are contained in Table 1.

Table 1. Descriptive statistics for boys and girls on the TAKS Social Studies Objective 1 for the 2004 school year through the 2012 school year

School Year and Gender	*n*	*M*	*SD*
2004-2005			
Boys	102,430	8.24	4.05
Girls	102,202	8.01	3.44
2005-2006			
Boys	104,926	8.73	4.08
Girls	105,818	8.41	3.52
2006-2007			
Boys	106,978	9.05	3.87
Girls	109,591	8.66	3.43
2007-2008			
Boys	97,990	9.9	2.7
Girls	104,332	9.16	2.71
2008-2009			
Boys	69,930	10.23	3.03
Girls	72,525	9.61	3.03
2009-2010			
Boys	108,081	10.01	2.86
Girls	112,135	9.31	2.86
2010-2011			
Boys	108,344	10.34	2.78
Girls	112,235	9.59	2.8
2011-2012			
Boys	113,273	10.07	2.92
Girls	115,946	9.49	2.93

3.3 Results for social studies objective 2 across all eight school years

For each of the eight school years, univariate ANOVA procedures were calculated to determine the extent to which statistically significant differences were present between boys and girls on the TAKS Social Studies Objective 2. Concerning the 2004-2005 school year, a statistically significant difference was revealed, F (1, 204630) = 219.06, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. With respect to the 2005-2006 school year, the ANOVA yielded a statistically significant difference, F (1, 210742) = 32.99, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. For the 2006-2007 school year, a statistically significant difference was revealed, F (1, 216567) = 362.97, $p < 0.001$, partial $\eta^2 = 0.002$, below small effect size[32]. Regarding the 2007-2008 school year, a statistically significant difference was yielded, F (1, 202320) = 935.57, $p < 0.001$, partial $\eta^2 = 0.005$, below small effect size[32]. With respect to the 2008-2009 school year, the ANOVA revealed a statistically significant difference, F (1, 142453) = 1185.19, $p < 0.001$, partial $\eta^2 = 0.008$, below small effect size[32]. Concerning the 2009-2010 school year, a statistically significant difference was revealed, F (1, 220214) = 1070.23, $p < 0.001$, partial $\eta^2 = 0.005$, below small effect size[32]. Concerning the 2010-2011 school year, a statistically significant difference was revealed, F (1, 220577) = 1037.37, $p < 0.001$, partial $\eta^2 = 0.005$, below small effect size[32]. Finally, for the 2011-2012 school year, a statistically significant difference was yielded between boys and girls, F (1, 229217) = 445.98, $p < 0.001$, partial $\eta^2 = 0.002$, below small effect size[32]. In all eight school years, boys and girls statistically significantly differed in the number of items they answered correctly on the TAKS Social Studies Objective 2. In all eight school years, the differences were reflective of below small effect sizes.

Concerning the 2004-2005 and 2005-2006 school years, boys answered, on average, 0.18 and 0.07 more items correctly, respectively, than did girls. With respect to the 2006-2007 and 2007-2008 school years, boys answered, on average, 0.21 and 0.27 more items correctly, respectively, than did girls. Regarding the 2008-2009 school year, boys answered, on average, almost one half more items than girls. Concerning the 2010-2011 and

Table 2. Descriptive statistics for boys and girls on the TAKS Social Studies Objective 2 for the 2004 school year through the 2012 school year

School Year and Gender	*n*	*M*	*SD*
2004-2005			
Boys	102,430	6.42	3.01
Girls	102,202	6.24	2.6
2005-2006			
Boys	104,926	6.49	2.88
Girls	105,818	6.42	2.52
2006-2007			
Boys	106,978	6.85	2.77
Girls	109,591	6.64	2.48
2007-2008			
Boys	97,990	7.43	1.99
Girls	104,332	7.16	2
2008-2009			
Boys	69,930	7.68	1.99
Girls	72,525	7.31	2.01
2009-2010			
Boys	108,081	7.43	1.95
Girls	112,135	7.16	1.92
2010-2011			
Boys	108,344	7.46	1.93
Girls	112,235	7.2	1.94
2011-2012			
Boys	113,273	7.84	1.91
Girls	115,946	7.67	1.92

2011-2012 school years, boys answered, on average, 0.26 and 0.17 more items correctly, respectively, than did girls. Delineated in Table 2 are the descriptive statistics for these eight school years.

3.4 Results for social studies objective 3 across all eight school years

For each of the eight school years, univariate ANOVA procedures were calculated to determine the extent to which statistically significant differences were present between boys and girls on the TAKS Social Studies Objective 3. Concerning the 2004-2005 school year, a statistically significant difference was revealed, F (1, 204630) = 67.35, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. Regarding the 2005-2006 school year, the ANOVA did not yield a statistically significant difference, F (1, 210742) = 0.73, p = 0.39. For the 2006-2007 school year, a statistically significant difference was not revealed, F (1, 216567) = 0.16, p = 0.69. With respect to the 2007-2008 school year, a statistically significant difference was yielded, F (1, 202320) = 2329.37, $p < 0.001$, partial $\eta^2 = 0.011$, small effect size[32]. Regarding the 2008-2009 school year, the ANOVA revealed a statistically significant difference, F (1, 142453) = 508.58, $p < 0.001$, partial $\eta^2 = 0.004$, below small effect size[32]. Concerning the 2009-2010 school year, a statistically significant difference was revealed, F (1, 220214) = 1336.82, $p < 0.001$, partial $\eta^2 = 0.006$, below small effect size[32]. With respect to the 2010-2011 school year, a statistically significant difference was revealed, F (1, 220577) = 267.83, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. Lastly, for the 2011-2012 school year, a statistically significant difference was yielded between boys and girls, F (1, 229217) = 517.38, $p < 0.001$, partial $\eta^2 = 0.002$, below small effect size[32]. In two school years, 2005-2006 and 2006-2007, boys and girls did not differ in their social studies performance. For the remaining six school years, boys and girls answered a statistically significantly different number of items on the TAKS Social Studies Objective 3. One of these effect sizes was small and five effect sizes were in the below small category.

With respect to the 2004-2005 school year, girls answered, on average, 0.14 more items correctly than did boys. Boys answered, on average, 0.58 and 0.34 more items correctly than girls in the 2007-2008 and the 2008-2009 school years, respectively. With respect to the 2009-2010 and 2010-2011 school years, boys answered, on average, 0.43 and 0.19 more items correctly, respectively, than girls. Regarding the 2011-2012 school year, boys answered, on average, 0.26 more items correctly than did girls. Table 3 contains the descriptive statistics for these eight school years.

3.5 Results for social studies objective 4 across all eight school years

For each of the eight school years, univariate ANOVA procedures were calculated to determine the extent to which statistically significant differences were present between boys and girls on the TAKS Social Studies Objective 4. Concerning the 2004-2005 school year, a statistically significant difference was revealed, F (1, 204630) = 232.05, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. With respect to the 2005-2006 school year, the ANOVA yielded a statistically significant difference, F (1, 210742) = 144.59, $p < 0.001$, partial $\eta^2 = 0.001$, below small effect size[32]. For the 2006-2007 school year, a statistically significant difference was revealed, F (1, 216567) = 4.72, p = 0.03, partial $\eta^2 = 0.001$, below small effect size[32]. Regarding the 2007-2008 school year, a statistically significant difference was yielded, F (1, 202320) = 388.47, $p < 0.001$, partial

Table 3. Descriptive statistics for boys and girls on the TAKS Social Studies Objective 3 for the 2004 school year through the 2012 school year

School Year and Gender	*n*	*M*	*SD*
2004-2005			
Boys	102,430	8.75	4.13
Girls	102,202	8.89	3.6
2005-2006			
Boys	104,926	8.77	3.99
Girls	105,818	8.79	3.5
2006-2007			
Boys	106,978	9.56	3.99
Girls	109,591	9.56	3.54
2007-2008			
Boys	97,990	10.72	2.67
Girls	104,332	10.14	2.71
2008-2009			
Boys	69,930	10.96	2.8
Girls	72,525	10.62	2.76
2009-2010			
Boys	108,081	10.9	2.75
Girls	112,135	10.47	2.74
2010-2011			
Boys	108,344	10.99	2.68
Girls	112,235	10.8	2.66
2011-2012			
Boys	113,273	11.17	2.76
Girls	115,946	10.91	2.7

η^2 = 0.002, below small effect size[32]. With respect to the 2008-2009 school year, a statistically significant difference was yielded, F (1, 142453) = 201.05, p $<$ 0.001, partial η^2 = 0.001, below small effect size[32]. Concerning the 2009-2010 school year, a statistically significant difference was revealed, F (1, 220214) = 391.30, p $<$ 0.001, partial η^2 = 0.002, below small effect size[32]. Regarding the 2010-2011 school year, a statistically significant difference was revealed, F (1, 220577) = 205.01, p $<$ 0.001, partial η^2 = 0.001, below small effect size[32]. Finally, for the 2011-2012 school year, a statistically significant difference was yielded between boys and girls, F (1, 229217) = 462.24, p $<$ 0.001, partial η^2 = 0.002, below small effect size[32]. In all school years, boys and girls answered a statistically significant number of items on the TAKS Social Studies Objective 4. All eight of the effect sizes were in the below small category.

Regarding the 2004-2005 and the 2005-2006 school years, girls answered, on average, 0.18 and 0.15 more items correctly, respectively, than did boys. Concerning the 2006-2007 school year, girls answered, on average, 0.03 more items correctly than did boys. Boys answered, on average, 0.18 more items than girls in the 2007-2008 and 2011-2012 school year. With respect to the 2008-2009 school year, boys answered, on average, 0.15 more items than girls. Regarding the 2009-2010 and the 2010-2011 school years, boys answered, on average, 0.17 and 0.12 more items correctly, respectively, than girls. Revealed in Table 4 are the descriptive statistics for these eight school years.

Table 4. Descriptive statistics for boys and girls on the TAKS Social Studies Objective 4 for the 2004 school year through the 2012 school year

School Year and Gender	*n*	*M*	*SD*
2004-2005			
Boys	102,430	6.07	2.93
Girls	102,202	6.25	2.53
2005-2006			
Boys	104,926	6.13	2.96
Girls	105,818	6.28	2.64
2006-2007			
Boys	106,978	6.37	2.85
Girls	109,591	6.4	2.53
2007-2008			
Boys	97,990	7.29	1.97
Girls	104,332	7.11	1.94
2008-2009			
Boys	69,930	7.56	2.04
Girls	72,525	7.41	2.01
2009-2010			
Boys	108,081	7.51	2.02
Girls	112,135	7.34	1.99
2010-2011			
Boys	108,344	7.55	1.91
Girls	112,235	7.43	1.9
2011-2012			
Boys	113,273	7.76	1.96
Girls	115,946	7.58	1.96

3.6 Results for social studies objective 5 across all eight school years

For each of the eight school years, univariate ANOVA procedures were calculated to determine the extent to which statistically significant differences were present between boys and girls on the TAKS Social Studies Objective 5. Concerning the 2004-2005 school year, a statistically significant difference was revealed, F (1, 204630) = 8.34, p = 0.004, partial η^2 = 0.001, below

small effect size (32). With respect to the 2005-2006 school year, the ANOVA yielded a statistically significant difference, F (1, 210742) = 15.50, $p < 0.001$, partial η^2 = 0.001, below small effect size[32]. For the 2006-2007 school year, a statistically significant difference was revealed, F (1, 216567) = 43.64, $p < 0.001$, partial η^2 = 0.001, below small effect size[32]. Regarding the 2007-2008 school year, a statistically significant difference was yielded, F (1, 202320) = 711.31, $p < 0.001$, partial η^2 = 0.004, below small effect size[32]. With respect to the 2008-2009 school year, the ANOVA revealed a statistically significant difference, F (1, 142453) = 756.16, $p < 0.001$, partial η^2 = 0.005, below small effect size[32]. For the 2009-2010 school year, a statistically significant difference was revealed, F (1, 220214) = 364.01, $p < 0.001$, partial η^2 = 0.002, below small effect size[32]. Concerning the 2010-2011 school year, a statistically significant difference was revealed, F (1, 220577) = 417.36, $p < 0.001$, partial η^2 = 0.002, below small effect size[32]. Finally, for the 2011-2012 school year, a statistically significant difference was yielded between boys and girls, F (1, 229217) = 46.01, $p < 0.001$, partial $\eta^2 < 0.001$, a below small effect size[32]. In all school years, boys and girls answered a statistically significant different number of items on the TAKS Social Studies Objective 5. All eight of the effect sizes were in the below small category.

For the 2004-2005 school year, girls answered, on average, 0.04 more items correctly than did boys. Concerning the 2005-2006 school year, boys answered, on average, 0.06 more items correctly than did boys. Regarding the 2006-2007 school year, girls answered, on average, 0.08 more items correctly than boys. Boys answered, on average, 0.26 and 0.34 more items correctly than girls in the 2007-2008 and 2008-2009 school years, respectively. For the 2009-2010 and 2010-2011 school years, boys answered, on average, 0.18 and 0.19 more items correctly, respectively, than girls. Regarding the 2011-2012 school year, boys answered, on average, 0.06 more items correctly than did girls. Delineated in Table 5 are the descriptive statistics for these eight school years.

Table 5. Descriptive statistics for boys and girls on the TAKS Social Studies Objective 5 for the 2004 school year through the 2012 school yearr

School Year and Gender	*n*	*M*	*SD*
2004-2005			
Boys	102,430	8.1	3.65
Girls	102,202	8.14	3.11
2005-2006			
Boys	104,926	8.17	3.63
Girls	105,818	8.11	3.23
2006-2007			
Boys	106,978	8.42	3.28
Girls	109,591	8.5	2.85
2007-2008			
Boys	97,990	9.65	2.22
Girls	104,332	9.39	2.25
2008-2009			
Boys	69,930	9.58	2.33
Girls	72,525	9.24	2.33
2009-2010			
Boys	108,081	9.58	2.18
Girls	112,135	9.4	2.11
2010-2011			
Boys	108,344	9.74	2.17
Girls	112,235	9.55	2.18
2011-2012			
Boys	113,273	9.74	2.27
Girls	115,946	9.68	2.2

4 Discussion

The extent to which differences were present between Texas high school boys and girls in their social studies skills was analyzed in this study. Eight years of Texas statewide data on five TAKS Exit Level Social Studies Objectives were analyzed by gender. In each school year, statistically significant results were present. Following these statistical analyses, the presence of trends for the five Social Studies objectives by gender was determined. Results will be summarized in the next section.

4.1 Social studies objective 1: History

Social Studies Objective 1 contained 13 questions on the TAKS Exit Level Social Studies assessment during each of the 2004-2005 through 2011-2012 school years. Boys had an average score that was 0.23 to 0.75 points higher on the TAKS Social Studies Objective 1 than girls in each of the eight school years of data analyzed. Boys answered an average of 0.23 to 0.39 more questions correctly on this objective than did girls in the 2004-2005 through the 2006-2007 school years. Beginning with the 2007-2008 school year and continuing through the 2011-2012 school year, boys increased the achievement gap as they correctly answered an average of 0.58 to 0.75 more questions than girls.

4.2 Social studies objective 2: Geography

Social Studies Objective 2 contained nine questions regarding student understanding of how geography influ-

ences historical issues and events. Boys had an average score that was 0.07 to 0.37 points higher on Social Studies Objective 2 than girls for each of the eight school years of data examined. Boys answered an average of 0.21 to 0.37 more questions correctly on this objective than did girls in the 2006-2007 through the 2010-2011 school years, increasing the achievement gap.

4.3 Social studies objective 3: Economics and social influences

Social Studies Objective 3 provided 13 questions on economic and social issues in American history from the colonial era to the late twentieth century. Boys had an average score that was higher on Social Studies Objective 3 than girls for five of the eight school years of data examined. Beginning with the 2007-2008 school year and continuing through the 2011-2012 school year, boys increased the achievement gap as they correctly answered an average of 0.19 to 0.58 more questions correctly than girls. Girls had an average score that was 0.02 to 0.14 points higher on Social Studies Objective 3 than boys for two school years, 2004-2005 and 2005-2006. For the 2006-2007 school year, boys and girls averaged about the same number of questions correctly.

4.4 Social studies objective 4: Political influences

Social Studies Objective 4 contained nine questions on the development of representative government in the United States as well as on political influences in American history from the colonization era to the present. Boys had an average score that was higher on Social Studies Objective 4 than girls for five of the eight school years of data analyzed. Beginning with the 2007-2008 school year and continuing through the 2011-2012 school year, boys increased the achievement gap as they correctly answered an average of 0.12 to 0.18 more questions than girls. Girls had an average score that was 0.03 to 0.18 points higher on TAKS Social Studies Objective 3 than boys for three school years, 2004-2005 to 2006-2007.

4.5 Social studies objective 5: Social studies skills

For Social Studies Objective 5, students were given 11 questions that assessed critical thinking skills used to analyze social studies information. Boys had an average score that was 0.06 to 0.34 points higher on Social Studies Objective 5 than girls for six of the eight school years of data investigated. Girls had an average score that was 0.04 to 0.08 points higher on Social Studies Objective 5 than boys for two school years, 2004-2005 and 2006-2007.

4.6 Connection with existing literature

Although some researchers have contended that gender is not related to social studies achievement, other researchers[15,16] have established that differences in social studies achievement do exist when measured by standardized test scores. In this investigation, boys outperformed girls on the TAKS Exit Level Social Studies Exam for the 2004-2005 to 2011-2012 school years. These results were consistent with researchers[5,17] who have also noted that boys have statistically higher scores on standardized exams in history. By analyzing each of the five objectives of the TAKS Exit Level Social Studies Exam, differences in social skills between boys and girls were also revealed. Boys have higher averages cores on all objectives but did overwhelmingly better on Objective 1 and Objective 2. Objective 1 contains questions that involve issues and events in United States History. Researchers[5,17] have indicated that boys have outperformed girls on standardized United States History exams. Similarly, researchers[15,16] have also demonstrated that boys have scored statistically significantly higher on competency-based geography exams than girls. Therefore, results of this study are consistent with the findings of other researchers[5,15–17] who have revealed differences in social studies achievement between boys and girls.

4.7 Implications for policy and practice

Based upon the results of this multiyear investigation, several implications are present for policy and for practice. With respect to policy, policymakers and educators should be aware that gender bias may be present in social studies state standards, curriculum, and textbooks. Heafner and Fitchett (2018)[22] noted that gender inequalities in social studies curriculum affects how students make sense of the concepts. Continued disregard for women in social studies curriculum will only exacerbate the gender gap evident in social studies performance[20–22]. Therefore, it is necessary for policymakers to investigate social studies standards, curriculum, and textbooks to ensure that the role of women in history is equivalent in value to the role of men in history.

In regard to practice, educators need to be cognizant of how the role of women in social studies is being presented in the classroom. Moller *et al.* (2013)[4] indicated that postsecondary outcomes are determined by school context and curriculum. Therefore, it is recommended that educators incorporate more female figures into their lessons so that girls feel more valued in social studies disciplines. Schools may need additional training on how to

increase the role of women in their social studies curriculum.

4.8 Suggestions for future research

Based upon the results of this multiyear, statewide analysis, several suggestions for future research can be made. Analyzed in this study was the relationship between boys and girls and the social studies performance of each group on the TAKS Exit Level Social Studies exam. An extension of this investigation to other subject areas such as reading, mathematics, and science is highly recommended. Additionally, only the TAKS Exit Level Social Studies exam that was administered to Grade 11 students was examined in this article. Lower level grades could be investigated to determine the extent to which differences might exist in social studies performance between boys and girls in Grades 3-10.

Further, research is limited and inconsistent with regard to gender differences in social studies performance[23]. This study was limited to the State of Texas. Accordingly, researchers are encouraged to extend this study to other states to determine whether the findings delineated herein would be generalizable to other states. A final recommendation for future research would be to analyze social studies performance as a function of other student demographic characteristics such as their ethnicity/race and economic status.

As readers are aware, our results presented in this investigation were obtained from data on only students in Texas. The extent to which these findings are generalizable to students in countries other than the United States is unknown. Accordingly, researchers need to replicate this study with students in other countries to ascertain the generalizability of the findings delineated herein. Rather than assuming that gender differences are present in the area of social studies across different countries, empirical research investigations need to be conducted. Such studies are important because to the degree that gender differences are present in social studies, then teaching strategies would be needed to address any gender disparities that would be present.

5 Conclusion

In this research study, the extent to which Texas high school boys and girls differed in their social studies achievement was addressed. After obtaining and analyzing eight school years of Texas statewide data, statistically significant differences were revealed between boys and girls in their social studies skills. Boys had statistically significantly higher average raw scores on all five Social Studies Objectives than did girls.

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