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Same Gender Classrooms and Student Achievement

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by

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Same Gender Classrooms and Their Effect on State Mandated Tests

by

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Abstract

Leonard Sax, executive director National Association for Single Sex Public Education (2008) noted, “Same Gender Classrooms have long existed in educational institutions” (p. 1). According to Cable and Spradlin (2008), “The option of single-sex schooling in public schools has emerged once again through federal policies associated with the No Child Left Behind Act of 2001…” (p. 1). The purpose of this study was to determine if Same Gender Classrooms impact state mandated test scores. More than a dozen schools throughout the Midwest implementing Same Gender Classrooms were contacted and interviewed. Test scores from schools implementing Same Gender Classrooms were compared to co-ed classroom test scores. This study focused on grades 5^{th} – 8^{th} communication arts and mathematics. Findings of the study showed students enrolled in Same Gender Classrooms tended to increase scores on state test scores, as well as to show a decrease in discipline and build higher, more positive self-esteem. In conclusion, implementation of Same Gender Classrooms is one program to assist with learning styles and increased tests scores for boys in communication arts and girls in mathematics.

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CHAPTER ONE - INTRODUCTION

Background

In the last twenty years of education, schools have implemented instructional strategies to improve or enhance student learning and achievement. Research (Atwell, 1998; Gardner, 1993; Kagan, 2000; Marzano, 2003; Wong, 2004) has prompted educators to recognize student differences and learning styles. One learning style is gaining much attention: gender. According to Barton (2004), "Gender segregation in the classroom is advocated as academically beneficial…" (p. 29).

Scores from state mandated tests have increased the pressure for educators to meet both federal and state expectations, as shown on the Adequate Yearly Progress (AYP) and Annual Progress Report (APR). Students in Missouri are assessed annually, using the Missouri Assessment Program.

School districts attempt to maintain the right to a free and public education for every individual so each student can succeed and achieve to his/her maximum potential. According to Dr. Dorothy Limunga Njeuma (2006), "The overall goal of education for sustainable development is to integrate the principles, values, and prices of sustainable development in all aspects of education and learning" (as cited in Nsom, p. 1).

Student achievement varies from district to district. One program implemented throughout the nation is Same Gender Classrooms. According to Sather (2007), "Supporters of same-sex education say it builds confidence and helps students concentrate on their work by removing the distractions of dating and other social pursuits" (p. 1).

Although there is a vast array of differences among individuals, academic achievement and learning styles continue to be researched and developed. Gender is a factor in a student's learning. Younger and Warrington (2004) reported, "Researchers found that the single-sex classroom format was remarkably effective at boosting boys' performance particularly in English and foreign languages, as well as improving girls' performance in math and science" (p. 37).

It has been proven that girls consistently outperform boys in Language Arts while boys tend to outperform girls in mathematics and sciences. According to Dee (2006), "We've known for a long time, since the 1970's that girls outscore boys in the National Assessment of Educational Progress (NAEP) reading tests, while boys tend to outperform girls in math and science" (p. 68). Same Gender Classrooms programs may assist in the gap.

By designing classrooms of one gender, students tend to gain in test and academic performance. According to Rowe (2000), "What is not so well known is that both girls and boys in single-sex settings perform better than their counterparts in co-education environments especially during the senior years of schooling" (p. 1). Rivers and Bennett (2007) agreed, "We realize that single-sex schools are not for everyone. Many boys are doing just fine in regular co-ed schools, but too many are failing and we simply can't afford that" (p. 8).

In 1972, Title IX of the United States Education Act, as reported by the United States Department and Labor (2006), guaranteed that no educational institution receiving federal funds could discriminate on the basis of sex. This allowed for equal distribution of resources, textbooks, and class subject availability, as well as opportunities in the

sports fields. Cable and Spradlin reported (2008) on President Bush's signing of the NCLB, "[The signing] made funds available to local public school districts to be used for innovative programs, including single-sex classes and schools" (p. 3).

Same Gender Classrooms meet need differences in boys and girls. Rivers (2006) purposed, "Anyone that is involved with young children understands that boys and girls are very different" (p. 1). The implementation of Same Gender Classrooms has proven to be beneficial. Pytel (2006) reported, "Single gender classrooms can promote self-esteem and boost test scores" (p. 1).

Same Gender Classrooms is a program to eliminate the achievement gap between boys and girls. A recent four-year study at Cambridge University (Younger & Warrington, 2005) found, "The single-sex classroom format was remarkably effective at boosting boys' performance particularly in English and Foreign Languages, as well as improving girls' performance in math and science" (p. 18). Research as early as 1995 suggested, "Many girls do better in single-sex schools, where they often attain higher levels of academic performance and career aspirations than girls in co-education settings" (Sadker, p. A19). Chandler and Gold (2008) argued, "Girls and boys are too often shortchanged by co-ed classrooms and that students from lower-income families deserve access to learning environments once exclusive to private schools" (p. A1).

Same Gender Classrooms are being implemented across the nation. In the NASSPE directory for single-sex schools (2006), Sax, director of the National Association for Single Sex Public Education, noted, "Currently, 32 states have public schools with at least some single-gender classrooms" (p. 2). Pearson (2008) concurred, "Almost more than 400 public schools in the United States offer single-sex educational

schools, classrooms, and/or programs according to a report from the National Association for Single Sex Public Education. . . .” (p. 1).

Wilson (2006) claimed, “Males and females have different learning styles. Girls learn best in small, cooperative settings, while boys tend to prosper as individuals” (p. 8). Findings on these differences led to Same Gender Classrooms. Montgomery (2005) concluded, “Males and females, on average show differences in learning skills” (p. A1).

The basis for NCLB is that all children can learn. If schools are to implement instructional strategies to improve or enhance student learning, Same Gender Classrooms is one strategy for educators to consider. Adcox (2007) reported, “The theory is that by separating girls and boys…lessons can be more effective because they are in unique classroom settings” (p. 3F).

Statement of the Problem

In recent years, mandated tests, such as MAP, have ignited an in-depth study and implementation of programs in order for students and school districts to achieve the 100% proficiency target as required by NCLB. School districts are to analyze each subject area of the tests. Missouri’s Department of Elementary and Secondary Education brochure (2004) noted this:

> “The MAP assessments incorporate three types of test questions in order to evaluate student achievement…the Department is now developing communication arts and mathematics grade-level tests as well as refining existing communications arts, mathematics and science assessments to comply with NCLB requirements” (p. 1).

Disaggregated information allows educators to closely examine differences in boys' and girls' achievement status. Rowe (2000) stated, "The fact that girls consistently outperform boys in terms of academic progress throughout their primary and secondary schooling is well established. Same Gender Classrooms appear to be one program that will raise test scores for both boys and girls. Rowe also reported, "Evidence suggests that during these key adolescent years, single-sex settings better accommodate the specific developmental needs of students" (p. 1).

If Same Gender Classrooms are effective, state mandated test scores should improve for both boys and girls. Adcox (2007) posited, "The theory is that by separating girls and boys…lessons can be more effective" (p. 4).

Purpose of the Study

The purpose of this study was to determine if girls and boys placed in Same Gender Classrooms score academically higher on state mandated tests than girls and boys placed in traditional co-ed classrooms.

Research Questions

The following research questions guided this study:

1 In what way, if any, are state mandated test scores (MAP) different from students enrolled in Same Gender Classes to students enrolled in traditional co-ed classes?

2 What is the difference, if any, between Communication Arts scores of students enrolled in Same Gender Classrooms to students enrolled in traditional co-ed classes?

3 What is the difference, if any, between mathematics scores of students enrolled in Same Gender Classrooms to students enrolled in traditional co-ed classes?

Design of the Study

This study was a Mixed Design of Qualitative and Quantitative. Creswell (2008) defines, "These designs are plans for a study, and they include three important elements: philosophical assumptions, strategies of inquiry, and specific research methods. The choice of research design is based on considering these three elements as well as the research problem in the study" (p. 12).

Population

The population was grades 5^{th} – 8^{th}. Two school districts within the state of Missouri included enrollment of 5,000 or greater for MAP test scores. More than a dozen school districts in the Midwest were contacted for interviews via phone or e-mail. Pseudonyms replace the actual interviewee name and school for confidentiality.

The two districts implementing Same Gender Classrooms scores were compared to the states' scores in disaggregated data as reported on DESE MAP analysis. Scores in Communication Arts and mathematics were compared. Dee (2006) researched, "…girls tend to outscore boys in areas of language arts and foreign languages while boys tend to outscore the girls in science and mathematics" (p. 71).

Instrument

Yearly MAP scores may be accessed through the MDESE website. Profiles of each school district in the state of Missouri can be examined through MDESE and a school's Adequately Yearly Progress report.

Data Collection

Data were collected from the MDESE website under each school's *Educational Performance Data.* MAP scores from 2006, 2007, and 2008 were obtained for comparison and contrast. Interviews via e-mail and telephone were conducted with the principals of each school.

Data Analysis

Disaggregated MAP scores in Communication Arts (English) and mathematics were analyzed. Girls' and boys' scores were compared. State scores in disaggregated data were compared to the individual schools' disaggregated data of girls and boys in Same Gender Classrooms. Three years of MAP scores ('06, '07, '08) were used in this study. The two school districts used in the study had implemented Same Gender Classrooms since 2006.

Significance of the Study

Other researchers, Chandler (2008), Flannery (2006), Laitsch (2004), Pytel ((2007), and Younger (2007) have conducted similar studies on Same Gender Classrooms. There are supporters and critics on the issue; however, there are findings that students have scored higher on state mandated tests. Davis (2007) reported, "The goal of the single-gender initiative is to start moving PACT {Palmetto Achievement Challenge Test} scores to the next level from scores of basic to proficient" (p. 1).

The findings of this study will provide insight for an instructional program without revamping curriculum. These findings will assist teachers, administrators, counselors, and curriculum directors in schedule design and student achievement. Levit (2004) concluded, "…single-sex academies could provide a solution to declining

enrollment in the district. Supporters claim that single-sex arrangements offer girls a better learning environment…" (p. B9).

Limitations of the Study

Limitations of the study include the following:

1 The instructional strategies implemented within a classroom.

2 Teacher training and on-going professional development.

3 Same Gender Classrooms implemented in few districts across the United States.

An assumption of this study was that students currently enrolled in Same Gender Classrooms were at one time enrolled in co-ed classrooms.

Definitions of Terms

The key terms and definitions, essential to the foundations of the study, are provided:

*Academic achievement***.** "MAP achievement level of Below Basic, Basic, Proficient, or Advanced; Each student receives a percent-correct score on items related to specific Show-Me Standards, which is helpful to teachers in identifying academic strengths and weaknesses" (Missouri Department of Elementary and Secondary Education [MDESE], revised 2006, p. 2).

*Co-ed Classroom***.** "A traditional classroom comprised of both girls and boys" (Kosmerl, 2003, p. 5).

*Same Gender Classroom***.** "A classroom comprised of one gender, either all girls or all boys" (Rensenbrink, 2001, p. 43).

*Missouri Assessment Program (MAP)***.** "An assessment tool designed to measure student progress in meeting the Show-Me Standards" (MDESE, 2006, p. 1).

Summary

The purpose of this study was to determine if girls and boys in Same Gender Classes score higher on state mandated tests than those girls and boys enrolled in traditional co-ed classrooms. Rowe (2000) noted, “The fact that girls consistently outperform boys in terms of academic progress throughout primary and secondary schooling is well established” (p. 1).

More than a dozen schools were interviewed to record the process and evaluation of the program, Same Gender Classrooms. Two schools within the state of Missouri were used to compare MAP scores in Communication Arts and mathematics between students enrolled in Same Gender Classrooms and students enrolled in co-ed classrooms.

A review of literature was presented in Chapter Two. Chapter Three described methodology, and Chapter Four contained the analysis and comparisons of the data collected for the study. Finally, Chapter Five provided the summary and conclusion of the study along with recommendations for the practice and direction of implementing Same Gender Classes.

CHAPTER TWO - REVIEW OF LITERATURE

Same Gender Classrooms is one program to assist in academic achievement and meet the needs of individual students. Cable and Spradlin (2008) offered reasons in support of Same Gender Classrooms, "…the characteristics of the students attending themselves, a greater degree of order and control, a reduction of sex bias in teacher/student interaction, a reduction of sex stereotypes in curriculum and opportunities, and an elimination of sex differences in a school setting" (p. 6).

Same Gender Classrooms are not new to education, they have just been expanded. According to Adcox (2007), "Until last year, single-sex classes were allowed in only limited cases, such as gym and sex education classes. But the US Education Department has made it easier to allow same-sex education anytime schools think it will improve students' achievement, expand the diversity of courses or meet students' individual needs" (p. 4). A report from NASSPE (2006) concluded, "The benefits of single-sex schools are not only academic. Just as importantly, single-sex education has been shown to broaden students' horizons, to allow them to feel free to explore the own strengths and interests, not constrained by gender stereotypes" (p. 8).

The public schools are adopting what was long standing instructional practices in private schools. Cable and Spradlin (2008) reported, "Single-sex schools and classrooms have long existed in educational institutions such as religious, private, and preparatory schools…" (p. 1). According to the NASSPE directory, Sax (2008) reported, "At least 97 of the 442 schools qualify as single-sex schools, meaning that students attending any of those 97 schools have all their school activities in a setting which is all-boys or all-girls" (p. 1).

At Foust Elementary School in Owensboro, Kentucky, principal Jeff Gray stated, “The gender-based curriculum gave the school the edge we needed. Test scores are up. Discipline problems are down” (Tyre, 2005, p. 11). This is a common observation in schools across the United States implementing Same Gender Classes. The fact is that girls and boys learn differently. The differences are evident throughout stages of life. Wolinsky (2008) concurred, “There is evidence that the differences may persist in adulthood. If so, this could help explain why men tend to keep directions simple, while women provide detailed directions…” (p. 6).

The reasons that girls and boys differ in learning are not always as obvious as gender. Tyre (2005) reported, “Girls have more serotonin in their brains, which helps control. With boys having less serotonin, they tend to fidget more in the classroom” (p. 11). Adcox (2007) interviewed teacher Becky Smythe, “Boys like the activities. They like moving around. They like something dramatic” (p. 4). Snow-Turner (2004) agreed girls’ education has made strides, “We have made enormous strides in issues of gender equality in education and every other area” (p. T5).

Some critics argue that Same Gender Classes is a form of segregation. Adcox (2007) reported, “There are ways to appeal to interest and learning styles and abilities without lumping people based on gender, which is not a good measure of anything” (p. 4). However, the United States, with the assistance of Title IX, has made Same Gender Classes a program for learning and meeting the needs of individual students. Adcox wrote, “The US Education Department has made it easier to allow same-sex education anytime schools think it will improve students’ achievement, expand the diversity of courses or meet students’ individual needs” (p. 4).

In Long Beach, California, a voluntary program was established for parents to register their middle school children in same-sex classrooms. Carl Cohen, Long Beach superintendent stated, “Some believe that girls will participate more freely in same-sex classrooms, particularly in math and science. It behooves us to do a much better job preparing these youngsters academically, so the luxury of being distracted by the opposite sex is something that may need to go away” (Hill, 1999, p. 1).

Same Gender Classrooms are fast becoming an intervention to low test scores and increase in discipline issues. “Boosted by money in the so-called No Child Left Behind law (NCLB) and recent changes to sex discrimination laws, the number of U.S. public schools with single-gender classrooms has soared from four in 1998 to 211 in 2006” (Flannery, 2006, p. 1). Same Gender Classrooms are an inexpensive instructional program. Arms (2008) reported, “Yet, due to recent changes to Title IX (the 1972 law that among other things leveled the playing field for women’s athletics), single-sex classrooms may be coming to your local, co-educational public school. For free” (p. 1).

Reports indicate Same Gender Classrooms are on the up-rise across the United States. Fleming (2007) reported, “In 2006 the US Department of Education changed the rules about same-sex classes, making it easier for public schools to offer all-boy or all-girl classes in an effort to improve the learning environment” (p. 1). More than 30 states implement Same Gender Classrooms or same-sex schools in public sector. Sax (2006) stated, “At least 223 public schools across the country already offer some single-sex classrooms – up from four in 1998” (as cited in The Associated Press, p. 1).

According to Sadker (2006), professor at American University, “Research shows that the differences within a sex are much bigger than the differences between sexes.

Assuming that all boys like war games and all girls like dolls is a very big assumption" (p. 2). There are not only physical differences, but learning differences. Research on brain function has gathered new information about the way male and female brains develop and process information. Tyre (2007) reported, Studies show that girls…have more active frontal lobes, stronger connections between brain hemispheres and "language centers" that mature earlier than their male counterparts" (p. 1).

Critics often argue that Same Gender Classrooms focus on the tests rather than learning. Banchero and Little (2007) reported, "It's important to recognize that very subtle changes in tests can have quite a significant impact on the relative performance of different groups" (p. 1). There is a learning style difference between boys and girls. Banchero and Little continued, "Some researchers and educators attribute the variations in performance to the difference in the physical makeup of the male and female brains. But there is mounting evidence that the content and structure of achievement exams also plays a role" (p. 2).

Salmone (2005) reported, "Single-sex education is a reasonable, legally supported alternative to co-education, particularly in the case of disadvantaged minority students" (Salomone, intro). Times are changing. The view toward Same Gender Classrooms is supported because of the data coming in, showing evidence of increased achievement. Arms (2007) concurred, "All girls or all boys schools may conjure up visions of prep school boys in "Dead Poets Society" or "The Prime of Miss Jean Brodie". In both films the message is clear: single-sex schools are for the rich [and] the privileged" (p. 1).

After realizing increased academic achievement on MAP tests, one school located in a Midwest state divided fourth and fifth grade classrooms into same gender. "School

data show that boys and girls in the same-sex, fifth-grade rooms this year improved significantly from their academic levels in previous years when they were mixed-gender classrooms" according to principal Carol Garman, (Heavin, 2007, p. 1). Although one year of data is not enough to create a statistical conclusion, it certainly can lead to an implementation of a program to verify what is best for students.

South Carolina schools are offering more and more single-gender programs. Students participate in gender driven activities, such as evaluating cosmetics for science projects and interviewing for surveys to determine fractions, decimals, and percentages in mathematics for girls, while boys use microphones and ball playing in classrooms.

> "Research shows boys don't hear as well as girls, so teachers of all-boys classes often use microphones. And because boys' attention spans tend to wander, incorporating movement in a lesson, like throwing a ball to a student when he's chosen to answer a question, can keep them focused" (Adcox, 2007, p. 3F).

A segment on Dateline NBC (2006) showed a school in California with significant increase in girls' academic status and a decline in boys' discipline after implementing Same Gender Classrooms in English, math, and science. In the interview, Sax stated, "We live in a very sexist society. In traditional co-ed classrooms that sexism dictates what is to be learned by the gender" (2009).

Although the American Civil Liberties Union is claiming discrimination by providing separate but equal education, a new organization has formed to promote same-sex education. This group, noted as National Association for Single Sex Public Education, stated, "Same sex schools have grown from three to 262 in just the past 11 years. The schools that have been successful in this format teach the two genders

differently" (Pytel, 2007, p. 1). Segregation is not the issue. The issue is the fact there is an academic gap between girls and boys. Same Gender Classrooms is one program to eliminate such a gap. Zwerling (2001) reported, "For single-sex schooling to be successful at empowering both girls and boys, the school must be driven by an agenda of gender-equitable education" (p. 2).

One reason for the change to implement Same Gender Classrooms is the academic achievement gap. A Missouri school district has implemented Same Gender Classrooms since 2005. The principal of the school stated, "One reason for the change is [this schools'] students failed to meet federal standards for annual yearly progress on state tests" (Flener, 2006, p. 1).

Same Gender Classrooms continue to increase in numbers across the United States. Chandler and Glod (2008) reported, "With encouragement from the federal government, single-sex classes that have long been a hallmark of private schools are multiplying in public schools" (p. A1). The numbers continue to increase as the concern for the achievement gap between boys and girls is on the rise. "…reports indicating achievement gaps for both boys and girls alternately, legal changes, and successful single-sex schools have renewed a public dialogue and interest in single-sex schools" (Cable and Spradlin, 2008, p. 2).

Supporters argue that boys and girls do learn differently. They also state that both boys and girls can perform better if given the opportunity to be a part of same-sex education. "Backers of single-sex classes point to research that shows the genders learn in different ways. At elementary school age, girls vision and thought processes have

developed to respond better to color and detail, while boys brains are more apt at processing motion and direction" (Gross, 2006, p. A9).

Sax stated, "If you don't understand gender differences, you end up furthering gender stereotypes" (Gross, 2006, p. A9). Sax predicted more schools will join the movement once the Education Department finalizes new Title IX regulations proposed in March 2004. According to NASSPE directory "For the 2008-2009 school year, there are at least 442 public schools in the United States offering single-sex educational opportunities. Most of those schools are co-ed schools which offer single-sex classrooms" (p. 1)

Same Gender Classrooms is an alternative program to meet individual needs of students and enhance state tests achievement. Banchero and Little (2007) reported, "That matches decades of national testing data, which have shown that girls, in general, perform better on reading and writing exams, while boys do better in math and science" (p. 2). Goodman (2006) concurred, "The boy crisis isn't exactly a myth. It's a "some boys' crisis." Race and class are the real issues. It's sexier to think about gender. It's something people like debating. Americans have gotten used to thinking poor and minority students do poorly in school" (p. B11).

What most people do not understand is that Same Gender Classes are not a separation of genders but a change in an educational program to improve student learning and achievement. Richmond Elementary in a Kansas City school district is one school to change its program. Sharon Powell, principal, responded to the critics, "We're not going to just separate a population, we're going to change strategies. I envision adapting teaching styles to the different strengths of boys and girls. Fidgety boys will be allowed

to move around more and work in groups. Girls' classrooms will be quieter, with pupils seated in their desks collaboratively working in pairs" (Hanson-Metcalf, 2006, p. 5).

Research on single-sex schools is providing powerful information for improving our public schools. "In all female schools, girls become club leaders, athletic superstars and class presidents, another lesson lost on coed schools. Girls' schools often take pride in their strong women role models, as coaches and math and science teachers, and especially as the head of the school. In coed schools, student status positions usually go to boys, especially in athletics, while men monopolize positions of power" (Sadker & Sadker, 1995, p. A19).

Barton and Cohen (2004) researched, "The influence of gender on a wide variety of children's peer social developmental outcomes is profound. Some research documents educational benefits of same-sex classrooms for both genders" (p. 40). There are academic advantages in Same Gender Classrooms. The social advantages are also evident. "The impact of classroom gender composition on children's social development is apparent in terms of friendships and peer nominated social behaviors…results suggest a complex relation between classroom gender composition and children's peer relations" (Barton and Cohen, 2004, p. 42).

Research has always indicated that girls outscore boys in reading and writing, while boys outscore girls in math and sciences. However, data from the National Assessment of Educational Progress recently reported, "Girls score higher in reading and writing and boys score higher in math and science, but girls are closing the math gap faster than boys are closing the writing gap" (Goodman, 2006, p. B11). As a society we must prepare each individual for the workforce and strive to succeed.

An Austin American Statesman editorial reported in April:

> "We realize that single-sex schools are not for everyone. Many boys are doing just fine in regular coed schools, but too many are failing and we simply can't afford that. Their failure affects all of us, whether we're talking about a shortage of eligible men for marriage and fatherhood or an expansion in prison and unemployment rolls. When we fail our boys by not preparing them for the workforce or college, we all pay the price in higher taxes" (Rivers & Bennett, 2007, p. 8).

Davis (2007) concurred, "No news here: boys and girls are different. As are their learning styles" (p. 2). Government supported, Same Gender Classrooms is not a fix all, but one program to shrink the achievement gap between boys and girls. Sather (2007) reported,

> "The Bush administration seems to regard same-sex education as a cure-all for what ails the nation's public schools. The No Child Left Behind Act, singed into law in early 2002, authorized districts to use funds to establish same-sex schools or classrooms" (p. 1).

"There is a small body of research on Catholic or private schools from the 1980's and the 1990's that notes some benefits to girls attending single-sex schools. These studies found that students who attended all-girls schools had less stereotypical sex-role attitudes, and were more likely to major in traditionally male fields such as math, science, or engineering" (Arms, 2008, p. 2).

Separation of the sexes does more than avoid distractions of the opposite sex. Single-sex classrooms provide a higher self-esteem for both genders and one gender does

not monopolize the other during classroom discussions or teaching. “It is true that there is anecdotal evidence to support the idea that single-sex education can have a positive impact. Eighth grade girls are more comfortable doing physics experiments without boys around to monopolize the equipment. They also speak up more frequently and participate more enthusiastically without a horde of males out shouting them in the mistaken belief that they are outsmarting them” (Weiner, 1996, p. 21).

Faith Wilson, currently an administrator of an all girls’ school, analyzed the benefits and drawbacks for single-sex education. She concluded that research is well documented on the issue. Mrs. Wilson brought forth the idea of the hidden curriculum, and that single-sex classrooms diminish as much as possible the stereotypical counterparts of girls and boys. “Biases are part of the human condition, and we as educators must be aware of them and deal with them appropriately, as well as teach our students to do likewise. My research and experience has led me to believe that separating the sexes in the classroom is helpful at various point in a young man or woman’s education” (Wilson, 2006, p. 8).

Separation of sexes is not bias, nor is it breaking any law. “Under new regulations announced Tuesday by the U.S. Department of Education, public school districts nationwide will find it easier to offer same-sex classes. The new rules stem from the No Child Left Behind Act. It included a mandate that the Education Department update regulations to give more latitude for single-sex classes” (Robertson & Bormann, 2006, p. A1). The new regulations require co-ed public schools to provide rationale for creating a same-sex classroom. “There must be accessible, co-ed classes in the same subject and every two years a review has to be conducted determining whether a single-sex

classroom is still necessary" (Pearson, 2008, p. 1). The 2002 NCLB authorized districts to use funds to establish same-sex schools. In 2006, new regulations allowed single-sex classrooms in co-ed public schools.

Although critics opposing Same Gender Classrooms are uncertain about the research, supporters state Same Gender Classrooms has more positives than cons on the learning environment. Gowen (2002) stated, "Supporters of same-sex education say it allows students to concentrate on their work and takes the focus off the ups and down of popularity and dating" (p. B1). Sadker (2002) quoted, "Reliable studies on the benefits of same-sex education for boys are scant. Studies on girls vary, but some suggest that students at all-girls schools are not only more confident, but also more likely to go to graduate school and venture into math and science" (as cited in Gowen, p. B2)

The gender gap may be one factor in the academic achievement gap. Dee (2006) found, "The evolution of the gender gaps in achievement as children mature suggests that what occurs in schools and classrooms may play an important role" (p. 68).

Patt Todd, director of student assignment in Kentucky's Jefferson County Public Schools, noted, "We do think it's [same-sex classrooms] a good idea. We're going to continue to look at its feasibility" (Kenning, 2005). South Carolina school districts have an increased number of schools implementing Same Gender Classrooms. Davis (2007) reported, "If successful, single-gender classes won't be mandatory, but a choice parents can opt for their children within the school" (p. 2).

Karen Mershon (Montgomery, 2005) a teacher in North Kansas City district, stated that, "single sex education is 'differentiated instruction'". Diane Halpern, past president of the American Psychological Association and author of *Sex Differences in*

Intelligence, agreed, "Within each gender, the differences between one brain and the next can be countless; the averages are close by comparison. It's that way in height, too: the gap between the tallest and shortest boy is far greater than the average boy and average girl" (Montgomery, 2005, p.A1). Boys and girls are different. Their learning styles are also different. Davis (2007) reported, "Generally, gender does matter. Single gender classes allow teachers to address learning styles of boys and girls" (p. 2).

Same Gender Classes are brain-based researched. Research proves that male and female brains are different. Brain processing, or thinking, is different. Thought is different. Thinking is different. Learning is different. Schools must adapt to the differences in learning, so that each individual child can achieve to his/her maximum potential. Rick Montgomery reported on several startling statistics:

- At age 12 it's three times more likely for a boy than girl to misfire enough to be medicated for attention deficit/hyperactivity disorder.
- One out of 11 American boys that age downed medicine for the condition in 2003.
- Boys bring home roughly 70 percent of the D's and F's
- Boys mature one year behind girls
- Boys tend to fall in two camps: overachievers or discipline cases that end up as dropouts

(*Kansas City Star*, 2005, p. A1)

"The fact that girls consistently outperform boys in terms of academic progress throughout their primary and secondary schooling is well established. What is not so well known is that both girls and boys in single-sex settings perform better than their counterparts in co-education environments especially during the senior years of schooling" (Rowe, 2000, p. 1).

Author of *The Disposable Male,* Michael Gilbert supports same sex education. He agrees that boys and girls are and learn differently. "Our schools are entrusted with the

preparation and training of young impressionable minds. America can continue to feed outdated gender fantasies or it can celebrate the captivating distinctions between the sexes by developing nuanced educational approaches that treat young boys and girls as the delightful, demanding, and wondrously different creatures they are" (2007, p. 9).

Critics claim Same Gender Classrooms are a form of segregation. Supporters claim Same Gender Classrooms are a program to assist in academic achievement. Gross (2006) reported, "Supporters argue that boys and girls learn differently and that single-sex education can help both genders perform better" (p. A9). Sax (2006) concurred, "Current federal rules allow single-sex schools, but only when a district creates a comparable single-sex school for the other gender" (as cited in Gross, p. A9).

Segregation concerns are covered under federal guidelines. Haynes (1997) reported, "Title IX is mostly known for requiring schools to set up girls' sports programs that are equivalent to boys' sports programs – not necessarily co-ed teams" (p. A7). In the same article, state education officials say they envision their plan restoring single-gender public schools.

Differences between Same Gender Classes are not limited to only academic achievement.

> "Understandings are emerging from the research evidence suggesting that co-educational settings are limited in their capacity to accommodate the large differences in cognitive, social, and developmental growth rates of girls and boys between the ages of 12 and 16. In contrast, this evidence suggests that during these key adolescent years, single-sex setting better accommodate the specific developmental needs of students" (Rowe, 2000, p. 1).

Boys and girls learn differently. Factors of learning can vary. Dee (2006) agreed, "The majority of arguments for single-sex schools and classrooms focus on the effects on interactions among students, but they also present the possibility of greatly increasing the number of students with teachers of the same gender" (p. 68). Same gender teacher compliments the Same Gender Classroom role.

Ghey (1997) conducted research on gender and interaction in the classroom and concluded, "The use of different approaches appears to be governed by pupil gender. Boys tend to explain failure in terms of controllable factors such as luck and effort. Girls explain failure in terms of uncontrollable factors such as lack of ability" (p. 4).

David Sadker, author of *Failing at Fairness: How America's Schools Cheat Girls,* pointed out the reasoning for the argument that same sex education is only beneficial to girls. "As we create single-sex girls' schools, we are also creating single-sex boys' schools, a fact that advocates of all girl public schools forget to mention. The reason for this amnesia is that all-boy schools do not have the same strong research supporting their effectiveness. And why should they? Boys don't need their own school to become the center of attention; they are already the center of attention in the coed classroom" (Sadker & Sadker, 1995, p. A19).

Perhaps there is mislabeling on boys' behavior. Ellis (2008) reported, "Many parents, and teachers will tell you they think there has been a rush to judge fidgety boys as inattentive boys. Maybe, just maybe, the labeling is not totally correct" (p. 1). In her comment section, Ellis interviewed Males who stated, "There is no doubt that boys learn differently than girls. Their brains are wired differently and process the same information, presented at the same time, in different ways" (p. 4). Sadker & Sadker (1995) reported,

"After undertaking over a decade of classroom observations and studies, we have reached one very clear, if painful conclusion: In today's coed classrooms, girls are short-changed" (p. A19).

Moving to Same Gender Classrooms was an easy decision for a north central Missouri school. School data showed that boys and girls in the same-sex rooms improved significantly from their academic levels in previous years, when they were in mixed-gender classrooms. The principal stated, "Although one year of data isn't enough to create a statistical conclusion, it's telling a good story" (as cited in Heavin, 2007, p. 1).

In a different interview, Sax stated, "If you don't understand those differences and you teach boys and girls as if they were the same, the end result is a kindergarten classroom where the boys tell you drawing is for girls and a middle school classroom where girls tell you computers are for boys. If you don't understand gender differences, you end up furthering gender stereotypes" (*The Associated Press,* 2006, p. 1).

Girls tend to perform better than boys in mathematics and sciences. However, in mixed groupings there is a slight deterioration.

> "One possible way to remedy the situation could be by separating the sexes for math lessons. It has been shown that girls achieve more success at math and science subjects in single sex schools. Single sex groupings for math have shown good results for the girls. It was found that in general the girls groups were able to work with little disruption and their confidence grew as they were able to participate fully in the lesson without silly comments and fooling around by the boys" (Ghey, 1997, p. 5).

Same Gender Classrooms is one program of instructional practice to implement for student learning. Strauss (2002) noted, "….educators have increasingly considered single-sex education. This has been fueled by research on the co-ed classroom culture that showed that some girls failed to reach their academic potential, and by brain research that showed that boys and girls process some information differently" (p. A9).

The study supported Same Gender Classrooms as a practice to improve student achievement. Cable and Spradlin (2008) concurred, "[Same Gender Classrooms] has become a desirable alternative for many students and is offered by an increasing number of school districts" (p. 1). Fleming (2007) agreed, "Supporters of single-sex classes claim that students will benefit because they'll be less distracted in the classroom. Critics suggest that the distraction argument gives too little credit to serious students" (p. 1).

Ben Wright, principal at Thurgood Marshall Elementary School in Seattle, moved forward with implementing same sex classrooms in 2001. Ninety-seven percent of the population is minority, and 80 percent are on free and reduced lunch. "Suddenly there was a decline in boys' suspensions and an improvement in academic achievement. The girls stopped trying to impress and irritate the boys. Teachers could have frank discussions without embarrassing the opposite sex. And the boys didn't feel it was not cool to learn" (Strauss, 2002, p. A9).

Professor Analia Schlosser, an economist from the Eitan Berglas school of Economics at Tel Aviv University, was interested in the study of same-gender classrooms. Schlosser's study indicated that mixed classrooms, with a higher enrollment of girls, proved academically better for both girls and boys, "Renewed interest on the effects of classroom gender composition on students' learning, since a new amendment to

America's Title IX regulations gives communities more flexibility in providing single-sex classes and schools" (*American Friends of Tel Aviv University,* 2008, p.2).

Same Gender Classrooms is one program for academic achievement on state tests. Heaven (2007) stated, "This is one piece of the puzzle. The real bullet is excellent instruction, excellent curriculum and starting that early on" (p. 1). There is no quick fix. All instructional tactics should be researched and evaluated for a districts' needs. Hill (1999) agreed, "It [the school district] should know within a year of the pilot program if kids achieve more in single-gender classes than they do in mixed classes" (p. 1).

Both boys and girls struggle in school with a variety of academics and activities. According to Flannery (2006), "Single-sex classrooms might be a particularly good fit for minority, low-income students, who often lack academic and social supports at home. And, especially in secondary school, they may prevent kids from dropping out" (p. 2)

The few schools that are experimenting with same-sex classes are implementing Same Genders in the math and science classes. Pamela Haag, director of research for the American Association of University Women's educational foundation, stated, "The hard work is creating a curriculum that appeals to boys and girls, encouraging innovative teaching. Single-sex schools with innovative teaching and a good curriculum will serve girls and boys well" (Zwerling, 2001, p. 3).

Research indicates girls score lower in mathematics and sciences while boys tend to score lower in English and Foreign Languages. Same Gender Classes is one program to help the achievement gap. Irwin reported, "Girls and boys score nearly evenly on standardized math and science test until about the seventh grade, when boys' scores start to pull away from girls" (p. 17A).

Research by Barton and Cohen (2004) identified, “Girls usually tend to score lower in mathematics, while boys tend to score lower in English” (p. 29). The reason for this has been the subject of much research over recent years and there appear to be many factors contributing to this situation. Ghey (1997) noted, “…genetic differences between males and females, parental and social expectations, the mathematics curriculum and classroom organization” (p. 1).

Wolinsky (2008) suggested that “Girls may have a greater need than boys to develop understanding through discussion. Thus, girls are at a disadvantage in the classroom when there is insufficient discussion” (p. 6). Other areas, such as math and sciences tend to be hands-on activities in the classroom. Irwin (1994) agreed, “Programs at some schools help to sensitize teachers to gender bias in the classroom, in the belief that girls need more encouragement and fairer treatment to achieve more in math and science” (p. 17A).

When discussion is sufficient in the classroom, such as in English, there needs to be equal opportunity for each individual student to feel safe when participating in the discussion. “Supporters argue boys and girls learn differently, and that single-sex education can help both genders perform better” (The Associated Press, 2006, p. XX).

Girls tend to score lower in mathematics and science. Boys tend to score lower in English and foreign languages. Ghey (1997) reported, “Research has shown that in primary schools girls tend to perform better than boys at mathematics, but as they progress through secondary education there is a progressive deterioration of this lead until by the age of 18 the positions are reversed” (p. 5).

Research compares and contrast boys' and girls' academic performance. Research also compares and contrast boys' and girls' behavior patterns. Economic status can affect boys' and girls' academic performance. "According to a comprehensive report by the Education Department, elementary school boys are 50 percent more likely than girls to repeat to repeat a grade and they drop out of high school a third more often. Boys from minority and lower-income families fare the worst" (Gilbert, 2007, p. 9).

Until recently, research on Same Gender Classrooms versus co-educational classrooms had been inconclusive. Schemo (2004) reported, "A 1998 survey of research by the American Association of University Women found no overall benefit to same-sex classrooms or schools, but some research since then has suggested that girls learn differently than boys, and that some students learn better when separated from the opposite sex" (p. 2). There is evidence of change. Sharpe (2000) concurred, "We have seen many students start to focus heavily on academics. Girls are learning to be more academically competitive and boys are learning to collaborate" (p. 1).

Chesterfield Ruby Middle School also implemented same sex classrooms. Their focus was on math and language arts. Principal Andrea Hampton, "I didn't want to do this on a whim. We're a data-driven school. A lot of research does support single-gender classes" (Davis, 2007, p.1). Test scores measured the program's results. The district liked the results, academic improvements and discipline decrease so well that the single-gender classes were expanded to sixth and seventh grade subjects as well. Hampton continued to discuss the advantages of single-gender classes, "Males, generally being the more fidgety, impulsive, and hard of hearing benefit more from hands-on instruction and a

competitive learning environment. Girls, on the other hand, enjoy small group work and can maintain focus on one task for longer period of time" (Davis, 2007, p. 2).

Professor Analia Schlosser, researched for a Tel Aviv University study (2008) found, "Classes with more than 55 percent of girls resulted in better exam results and less violent outbursts overall" (p. 1). All girls' classes tended to show stronger effects in academic standings and discipline issues. Schlosser observed, "It appears that this effect is due to the positive influence the girls are adding to the classroom environment" (p. 1).

Besides academic performance increase for boys, the discipline issues decrease. Research indicates Same Gender Classrooms assists the girls' behavior and social patterns as well. Goodman (2006) reported, "The problem is either feminism that demonizes boyishness, or sexism that boxes boys in. It's either nature that hard-wires the boy brain to learn differently or nurture that creates what has been called a "biologically disrespectfully model of education"' (p. B11).

Public schools same sex classrooms have boomed over the past decade. There are 25 same sex public schools across the United States. These were all formed after 1996, according to Leonard Sax. "Because of success stories like that of Girls High, and the desire to present parents with more education options for their children, in 2001 the Bush administration set out to make it easier to form such schools. This also holds true for single-sex schools. To establish a boys' school, a district must show only that equal offerings are available at a nearby coed school" (Mendez, 2004, p. 1).

"The Bush administration has proposed regulations giving public school districts new freedom to create same-sex classes and schools, as long as substantially equal opportunities are also provided for the excluded sex" (Schemo, 2004, p. 1). Single sex

classrooms (or schools) can be funded through the NCLB as deemed under "innovative programs" to improve education and academic standards.

In Louisville, Kentucky, Jefferson County Public Schools is reconsidering single-sex classrooms. According to Pat Todd, director of student assignment, "We do think it's a good idea. We're going to continue to look at is feasibility. Creating single-sex schools would improve achievement" (Kenning, 2005, p. 01A). The debate of single sex education is in part because of the U.S. Department of Education finalizing new regulations allowing districts to receive federal funding for single sex schools, "as long as they offer comparable coursework and facilities" (Kenning, 2005, p. 01A).

Same Gender Classrooms provide less distraction in the classroom so teachers can teach and students can learn. Kenning (2005) reported, "It [Same Gender Classroom] would let teachers tailor lessons to each gender and reduce distractions and misbehavior created when both sees are in the same classrooms" (p. 1A). Discipline issues are minimal in Same Gender Classrooms.

Girls tend to like, or prefer, single sex classroom settings over boys. Girls tend to see success as an individual self-esteem status. "Girls in single-sex classes were satisfied with their experiences. In short, the successes of single-sex experiments can be tied to factors such as self-selection of students, smaller class sizes, attention to core academic subjects and the novelty of the experiments themselves" (Levit, 2004, p. B9).

"Gender segregation in the classroom is advocated as academically beneficial, particularly for girls" (Barton & Cohen, 2004, p. 29). The question is then raised: Is the practice of single sex education beneficial to all students or only a select group? Kim Gandy, president of National Organization for Women, does not support same sex

schools. “There are ways to appeal to interest and learning styles and abilities without lumping people based on gender, which is not a good measure of anything. At what point is it OK to make judgments of entire groups of human beings based on race or sex? Segregating boys and girls could damage students if boys come away with sexist ideas of being superior” (Adcox, 2007, p. 4).

Little research has examined the relation between same-sex classroom composition and children’s peer relations. “Gender of peers is a powerful influence on children’s social lives. Indeed, during middle childhood, children appear to operate within separate cultures defined by gender. Although same-sex classroom composition has received much attention as an academic issue” (Barton & Cohen, 2004, p. 29).

David Chadwell, state coordinator of single-sex education in South Carolina, supports single sex schools. This is due not merely to the separation of the genders, but that instruction and learning is tailored to the learning style of each gender. “Boys and girls can get through the awkward middle school years better when they’re separated, learning in classrooms tailored to the learning styles of each sex” (Adcox, 2007, p. 4).

A two year study commissioned by the United States Department of Education (2004) found single sex schools for girls did improve academic achievement in math and sciences. “Research effort will focus on single sex schools and not separate classes within co-educational schools” (Laitsch, p. 1). School districts use research to determine the implementation of instructional programs. Rivers and Bennett (2007) reported, “Increasingly, school districts are turning to single-sex classrooms and schools to address boys lagging performance” (p. 8).

Consistently, across the nation, girls have outscored boys on state and national exams. While boys do tend to perform better in math and sciences, overall girls are more likely to graduate on time, get better grades, be named valedictorian, and enroll in college. “If young men are, indeed, falling behind in elementary school, it raises concerns not only about how classrooms are run, but also about the boys’ futures in college and the workforce” (Banchero & Little, 2007, p. 1).

The Associated Press interviewed Sax (2006), “As more same-sex schools crop up, data is beginning to show results” (p. 1). Sax noted state test results in Florida, “In Woodward Elementary School’s co-ed classrooms, 57 percent of girls and 37 percent of boys passed a state writing test. In the single sex classes, 75 percent of girls and 86 percent of boys passed” (p. 1).

In Lake Oconee, Georgia, school officials are moving in the direction of same sex schools. Currently, a middle school for girls is available, and the next step is to look at an all boys’ high school. Says, Janice Gallimore, board chair, “We looked at the data on single-sex schools, and it was very exciting, and with the overwhelming support of the board, we wanted to move forward” (Jonsson, 2008, p. 3). The idea became an issue when school district officials noted that 30 percent of students (mostly boys) drop out before graduation, only half the questions on benchmark assessments are answered correctly at the high school level, and the district ranks 332/369 in terms of grades.

Tel Aviv University professor Analia Schlosser concluded in her study on same gender classes, “In the middle schools, girls were found to have better academic achievement in English, languages and math. And in high school, the classrooms which

had the best academic achievements overall were consistently those that had higher proportion of girls" (Science Daily/Physorg.com, 2008, p. 1).

Principal Ben Wright of Seattle investigated research in hopes to improve the academics and discipline of his school. "Some show that girls do better in academics, athletics and social situations in all girl programs and that their self-esteem improves. But a 10-year study in Australia found that self-esteem in girls and boys who had been in single-sex classes initially declined when they started going to coed classes" (Strauss, 2002, p. A9).

If teachers do not understand gender learning differences, education ends up furthering gender stereotypes. Sax responded, "If you don't understand those differences and you teach boys and girls as if they were the same, the end result is a kindergarten classroom where boys tell you drawing is for girls and a middle school classroom where girls tell you computers are for boys" (The Associated Press, 2006, p. 1).

Separation of the genders is separating the learning styles. Same Gender Classrooms provide a learning environment conducive to the maturity level. Chadwell agreed, "Boys and girls can get through the awkward middle school years better when they're separated, learning in classrooms tailed to the learning style of each gender" (Adcox, 2007, p. 3F).

Equality environment is established in Same Gender Classrooms. Girls and boys learn more effectively when separated as classroom instruction is the focus. A study by Parker and Rennie (2002) showed, "There was almost universal agreement that single-sex girls' classes were more pleasant environments than mixed-sex classes or single-sex boys' classes" (p. 888). Pearson (2008) added, "The support for single-sex classrooms is

fueled by an achievement gap between boys and girls" (p. 1). Same Gender Classrooms is one program to eliminate the achievement gap.

Same Gender Classrooms is catching on. The number of Same Gender Classrooms and schools continues to grow in the United States as schools search for a program strategy that meets the needs of kids and sets high academics. Paulson and Teicher (2006) reported, "Theories that each gender has different learning styles or brain growth, or that boys are losing ground in traditional schools, has caught on in the media and popular imagination" (p. 1). Hanson-Metcalf (2006) reported from NASSPE, "Two-hundred twenty three public schools nationwide have implemented some form of single-sex education as of this month" (p.5).

Not all critics agree that Same Gender Classrooms is the solution to the achievement gap. One critic responded, "There is no research that backs up that students learn better in single-sex environments" (Christine, 2007, p. 3). However, there is research that supports that Same Gender Classrooms provide academic assistance for both boys and girls. There is enough research for opponents to take notice. "I've read a few essays on this that offer up some pretty convincing arguments and that do point to a real correlation" (Chris, 2007, p. 3). "There is a significant amount of material suggesting rather strongly that girls do better in an all girls environment from abut eighth grade on" (Smith, 2008, p. 2).

Other critics claim that Same Gender Classrooms is a form of segregation, a format long ago challenged. However, supporters agree that Same Gender Classroom implementation is one program to assist academics and meet needs of students. Powell, as cited in Hanson-Metcalf (2006) stated, "We're not going to just separate a population,

we're going to change strategies. Montgomery (2005) agreed, "Advocates of single-sex public schools are touting neurological data to justify separating classrooms by gender – to help both sexes" (p. A1). Nsom (2006) also agreed, "Such education efforts would encourage changes in behavior that would create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations" (p. 1).

Research and educators indicated that girls are the stronger individuals in language abilities, such as reading, writing, and oral communication. A single sex classroom environment will strengthen the girls' abilities while opening opportunities for boys to experience an entire new aspect of learning. Doug Burman, a neuroscientist for Northwestern University Developmental Cognitive Neuroscience Laboratory, explained his conclusion from a brain activity test, "For girls, it doesn't matter whether you are reading or hearing the words, the information gets converted into an abstract meaning, an abstract thought. For boys, the research suggests it's really going to be very important whether they're hearing or reading words. That is going to determine how well they're processing the language" (Wolinsky, 2008, p. 6).

Mathematics and science instruction in same sex classrooms may result in higher achievement for girls. "Research has suggested an academic benefit for girls, particularly in mathematics and science achievement, as well as increased self-confidence" (Laitsch, 2004, p. 1).

In 1999, Jefferson Leadership Academies Middle School in Los Angeles went to single-sex classes. According to Kristi Kahl, district coordinator, "Some people pay a lot of money to send their children to these kinds of schools. We thought maybe this is

something that could work in a public school setting" (Sharpe, 2000, p. 1). The findings after one year were an astonishing grade point average increase per student. Principal Jill Rojas said, "We have seen many students start to focus heavily on academics. They no longer clown or try to impress the opposite sex. Girls are more apt to answer questions aloud in class as well as ask them. Girls are learning to be more academically competitive and boys are learning to collaborate" (Sharpe, 2000, p. 1).

Research states that same gender classrooms build confidence and help students concentrate on their work by removing the distractions of the opposite sex. Mary Rose McCarthy, assistant professor of education at Pace University noted, "We do know that in the major study--based on data collected in the 1980's—that girls who attended single-sex Catholic schools had higher academic achievement than girls who attended coed Catholic or public schools" (Sather, 2007, p. 2).

The US Department of Education clears the way for public schools to offer single-sex curriculums. There is a need to improve academic achievement for both boys and girls. Educators maintain what is best for students. "Research has shown for a long time that girls are not assertive about their education if boys are in the classroom. Girls also receive less attention from teachers. Studies have shown that teachers wait longer for boys to give an answer than girls" (Pytel, 2006, p. 1).

More and more public school districts are evaluating research results of same sex classes. No more is the move seen as a fad or educational trend but rather an important step to progress the achievement and learning of future generations. Changes in federal law allow for public schools to host same sex classes other than physical education and sex education course work. Leonard Sax, executive director of the National Association

for Single Sex Public Education predicted, “If public schools follow the path of private schools, where 7 percent are single sex, some 5,000 single-sex schools could open in the next 20 years” (Christine, 2007, p. 3). In another article, Sax stated, “Hundreds of school districts have expressed interest in the concept. Boys and girls learn differently, and single-sex education can help both genders perform better” (The Associated Press, 2006, p. 1).

Because the Department of Education has revamped Title IX, public schools now have right to rewrite same sex curriculum. “Some schools have a yen to return to the old ways. In districts across the country, public schools are reinstituting sexual segregation in the name of education reform. Some believe dividing the sexes will conquer distraction, while others hope to raise the self-esteem of girls by tightening the discipline of boys” (Weiner, 1996, p. 21).

Single sex classrooms and education are catching among educators. Enough evidence from research supports that students benefit. States are in support of same gender classrooms and education. “Florida schools would be allowed to offer same-sex classrooms, under proposed Senate Bill 0242. Similar legislation was challenged in Louisiana in 2006” (Colavecchio-Van Sickler, 2008, p.1).

Title IX has also been challenged. The result was Same Gender Classroom acceptance in other areas besides physical education and health classes. According to an article in the *Christian Science Monitor* (2004),

> “The US Department of Education unveiled a proposal to change Title IX. Whereas in the past, only limited subjects like gym or sex education could be held in single-sex classrooms, under the new regulations, a school may create an all-

girls physics class, for example, as long as the same caliber of text books and equipment is available to boys in a coeducational setting" (p. 1).

Assistant Secretary of Education Stephanie Monroe clarified the Department of Educations revamp, "The research, though it's ongoing and shows mixed results, suggests that single-sex education can provide benefits to some students under certain circumstances. Any single-sex environment would be voluntary and an equivalent coeducational option would be available" (Paulson & Teicher, 2006, p. 1).

Leonard Sax argued against those who do not support same sex education. "We as a nation do not understand gender difference and regard it as politically incorrect to discuss it. As a result schools are not helping students reach their potential. We are unintentionally pushing girls out of computer science, and pushing boys out of subjects such as arts and languages" (Chandler & Glod, 2008, p. A1). Levit (2004) disagreed and does not support Same Gender Classrooms. Although Levit agrees there is no magic bullet to the academic progress of students, "No magic bullet exists to remedy the various inequalities in co-education" (p. B9).

With the extensive research on same sex private schools, it is no wonder public schools are competing to raise achievement scores, improve drop out rates, and build gender self esteem. Public education has long been the receiver of criticism; now public education takes a stand. "Research suggests that many girls do better in single-sex schools, where they often attain higher levels of academic performance and career aspirations than girls in coeducational settings. Women at all-women's colleges are more likely to major in math or science, and two or three times more likely to become doctors.

These are strong reasons to maintain and strengthen our single-sex schools" (Sadker & Sadker, 1995, p. A19).

In her published editorial for the *Washington Post,* Laurie Snow Turner recounts the astonishment of our society not moving forward with women's equality. During her daughters junior high honors assembly, the principal remarked how especially proud of the girls' academic success in math and science. "Rather than being helpful and motivating girls to continue to achieve, these comments send a message that girls are less capable than boys in the areas of math, science, and technology" (2004, p. T5).

Michael Gilbert, author of *The Disposable Male,* agreed that same sex education is a program more schools should implement. "The time has come to support experimental options like single-sex schooling, training teachers and educators in the different ways that girls and boys learn, and sensitizing the educational establishment to the developmental disparities between the sexes" (2007, p. 9).

Williamsburg Middle School in Arlington had such positive response from teachers, parents, and students on single sex classes that area districts used Arlington as a model to divide entire classes. According to principal George Smitherman, "Teachers want to expand 'Science for Girls' into a 'Math for Girls'. I have been inundated with calls from other principals who want to divide their fourth, fifth, and sixth graders into same sex classes – and even for lunch period" (Gowen, 2002, p. B1).

Gary Marx, spokesman for the American Association of School Administrators, is also in support of same-sex education, but with caution. He is a driving force behind the Education Department's two year study on developing policy for single-gender academies. "Educators from across the country will keep a close eye on that program.

The jury is still out on whether this is the best thing to do, but the idea may be attractive for some districts facing serious problems that have not yielded to other solutions" (Haynes, 1997, p. A7).

Kenning (2005) reported that "More than 200 public schools are experimenting with same-sex classrooms nationally, but there are only a few dozen single-sex schools" (p. 1A). Several states are taking lead. "I'm hopeful we'll see more states following South Carolina's lead" stated Leo Sax, founder of the National Association for Single-Sex Public Education (Adcox, 2007, p. 3F). Gilbert (2007) reported, "There are more than 90,000 coed schools in America. While the single-sex option has long been popular in parochial and private schools, until last autumn less than 250 public schools, scattered across 33 states, provided it. Taking note of the deteriorating situation of boys, there is growing anecdotal evidence and initial findings suggesting broad benefits for both sexes" (p. T5).

A rise across the nation supports single-sex schools and classrooms. "The No Child Left Behind law allowed districts to use public school funds for single-gender education and directed the US Education Department to update its rules" (Adcox, 2007, p. 3F). "Under new rules educators could create new schools or classes exclusively for students of one sex" (Schemo, 2004).

Haynes (1997) noted that schools are adopting the idea of same-sex schools and classrooms. "Around the nation, some school district have begun to explore the potential benefits of educating boys and girls separately as a way to spur order and learning in the public sector" (p. A7). Schemo (2004) supported the federal changes under NCLB,

"Federal officials said the changes would allow schools to offer a greater variety of educational options" (p. 1).

Research conducted in 2002 concluded, "This study has suggested that single-sex classes provide environments in which teachers can implement gender-inclusive science instructional strategies more readily and effectively than in mixed-sex settings, addressing some of the apparent shortcomings of the students' previous education" (Parker & Rennie, p. 894). Two years later another study reported, "Classroom gender composition obviously is relevant to the social development of children currently being educated in single-sex environments. Educational research literature suggests academic advantages for both genders in same-sex education" (Barton & Cohen, 2004, p. 42).

Benefits for both genders in same-gender classrooms are evident in research. "The single-sex setting in some cases eliminated social distractions and allowed for better concentration on academics and open discussion about dating and pregnancy" (Zwerling, 2001, p. 2). Gowen (2002) concurred, "Single-sex education advocates say that research abroad and in private schools supports their contention that boys and girls learn better in classrooms tailored to their learning styles - - more competitive for the boys, more collaborative for the girls" (p. B1).

Research on same-gender classes and schools began thirty years ago. A study during the 70's and 80's by Cornelius Riordan, a professor of sociology at Providence College, showed that black students made gains in same-sex schools (Mendez, 2008, p.3). Research on same-gender classes is limited when it comes to African-Americans. Principal Ben Wright conducted his own research study on same-gender classes. "There was plenty of research, but most of it was on girls. And there was little I could find on

African American students, who make up 70 percent of my school's population" (Strauss, 2002, p. A9). The Associated Press (2006) reported "Backers of single-sex classes point to research that shows the genders learn in different ways" (p. 1).

The MAP test scores illustrate significant assessment analysis for each school district and its individual school buildings (grade levels). A DESE brochure (2004) read, "The assessment system, known as MAP, is designed to measure student progress in meeting the Show-Me Standards" (p. 1). MAP test scores have become significant data for Adequate Yearly Progress (AYP).

Bias questioning fades as results prove academic increases. "Academics who support it point to a growing body of research suggesting that single-sex education benefits girls, and teachers who run the courses say they notice an increase in the enthusiasm and self-esteem of their female students" (Irwin, 1994, p. 17A). Fairfax County schools have adopted the idea. "The approach is based on the much-debated yet increasingly popular notion that girls and boys are hard-wired to learn differently and that they will be more successful if classes are designed for their particular needs" (Chandler & Gold, 2008, p. A1). Not only do the girls and boys learn differently, but teachers teach differently. Professional development must support the implementation of Same Gender Classrooms. Pytel (2007) noted, "There is evidence that does support this view. Merely separating boys from girls does not mean teaching differently. Research shows they learn differently. Separating them is not enough" (p. 1).

In a separate article (2006) Pytel noted the criteria for Same Gender Classrooms:

- Must be geared toward improving achievement
- Must meet the needs of students

- Must treat male and female students equally
- Must be enrolled on a volunteer basis (p. 1).

Research exists. School districts run on data driven evidence.

> "The research is well documented that there exists, in even the most sensitive classroom environments, a phenomenon known as "the hidden curriculum" This is predominantly an unintentional system and teacher bias supported by language, books, and other resources that carry gender messges about how society values and views the sexes" (Wilson, 2006, p. 8).

Ghey (1997) from the Cockcroft Report concluded, "…this study lead[s] me to believe that girls definitely benefit more" (p. 10). Atlanta Public Schools Superintendent Beverly Hall sees the whole picture for students, "This is a strategy designed to really turn around what is a failing environment for lots and lots of young people" (Associated Press, 2006, p. 2). The National Association for Single Sex Public Education reported at a 2005 conference, "Even after controlling for students' academic ability and other background factors, both girls and boys did significantly better in single-sex schools than in coed schools" (p. 3).

There are benefits for underserved student groups. Cable and Spradlin (2008) reported, "Many researchers agree that single-sex schooling does have positive impacts for some students in some settings, particularly for females" (p. 5). Same Gender Classes is one program for instruction. No longer is this program for the private sector but the public as well. "Single-sex education has succeeded in private spheres; this is an opportunity that should be open to students in public schools as well, including those who cannot afford the option any other way" (Cable and Spradlin, 2008, p. 6).

Sadker & Sadker (1995) underestimated the cause of single-gender classrooms. "After undertaking over a decade of classroom observations and studies, we have reached on very clear, if painful, conclusion: In today's coed classrooms, girls are short-changed. Girls receive fewer teacher questions, less help and less praise, less of all the intense instruction that makes for academic confidence and success" (p. A19). David Sadker is the co-author and editor of the researched based book, *Failing at Fairness: How Our Schools Cheat Girls.*

Supporting single-sex schools, author of *Same, Different, Equal: Rethinking Single-Sex Schooling*, Rosemary Salomone stated, "For disadvantaged students, they don't necessarily identify with academic achievement, and for many families, the choice of a single-sex school is a very pro-academic choice. You're saying, particularly to teenagers, school is a very serious business. It frees them from the social distractions of the other sex" (Paulson, 2006, p. 3).

Same-gender classes are not a quick fix but could adapt to the growing problem. Weiner (1996) acknowledged, "The behavior of boys should be modified and the academic curriculum for girls should be reformed" (p. 21). According to Pytel (2006) there are two good reasons for single-sex classes; 1) to boost test scores and 2) to boost self-esteem (p. 1).

Brain activity is the key. Wolinsky (2008) reported, "The sexes' brains perform differently while doing language tasks, and there may be implications in the way boys and girls are taught in the classroom as well as they way men and women communicate with each other (p. 6). Francis Spielhagen, a professor at Mount Saint Mary College in

New York found, “[There is] some gains for boys in language arts and for girls in math” (as cited in Chandler and Glod, 2008, p. A2).

Jonsson (2008) affirmed, “Members have cited improved academic performance in New York City and suburban Atlanta, which both provide options to go to single-sex schools” (p. 3). “In an effort to boost boys’ success across the spectrum, some Illinois schools have created single-sex classroom” (Banchero & Little, 2007, p. 2). “The theory is that by separating girls and boys—especially during middle school years—lessons can be more effective” (Adcox, 2007, p. 4). Shrinking the achievement gap between boys and girls is possible. One program strategy is Same Gender Classrooms. Wilson (2006) agreed, “Girls learn best in small, cooperative settings, while boys tend to prosper as individual. Positive adaptation to these learning differences can be accomplished by teacher training and simple student pairing” (p. 8).

Superintendent Bernard Taylor, the Kansas City School District, stated “Single-sex academies could provide a solution to declining enrollment in the district” (Levit, 2004, p. B9). Others supporting single-sex classes agreed. “Single-sex arrangements offer girls a better learning environment and for boys, remove the distractions of girl classmates” (Levit, 2004, p. B9).

Whether the design of single-gender is classroom or schools, supporters feel it is long overdue. “Successful models actually diminish gender stereotypes” (Robertson & Bormann, 2006, p. A1). Montgomery (2005) supported Robertson & Bormann, “Males and females, on average, show differences in learning skills – differences that may be hard-wired. And the evidence is compelling enough that school rooted in equal treatment should rewrite their manuals to keep more boys engaged” (p. A1).

Lerner and Sadker (2009) emphasized the issue of gender equity in classrooms. Same Gender Classrooms would eliminate the stereotype, "Our girls and boys remain the victims of gender stereotypes in text and resource materials" (p. 1) Author of *Gender Equity in Coeducational and Single-Sex Classroom,* Emily Arms lists the following questions parents and patrons should ask administrators regarding Same Gender Classrooms:

- Why did you decide to implement Same Gender Classrooms at this school?
- What is your philosophy regarding single gender instruction?
- What types of professional development did your teaching staff receive prior to implementing Same Gender Classrooms?
- Will the all-boys and all-girls classes have the same resources? Curriculum? (If yes, then what will be different about Same Gender Classrooms?)

--Erlbaum, 2007, p. 1

Arms warned parents and patrons about the professional development question. "This is the BIG one. Most schools don't bother to train their teachers for this very different kind of classroom environment" (p. 1).

Professional development and federal funding make Same Gender Classrooms possible and effective on academic achievement. "Students would benefit more from increased funding for schools, which would provide more teacher training and more modern equipment" (Fleming, 2006, p. 1). Sax, as cited in Robertson & Bormann (2006), stated, "Public schools that have demonstrated dramatic improvement in

academic performance to show that single-sex schools, with strong professional development for teachers and community support, can succeed" (p. 2).

CHAPTER THREE - METHODS

Purpose of the Study

David Chadwell stated his belief regarding Same Gender Classrooms. "Boys and girls can get through the awkward middle school years better when they're separated, learning in classrooms tailored to the learning styles of each gender" (as cited in Adcox, 2007, p. 4). Gilbert (2007) reported, "The educational performance of boys has generated much notice of late. They are falling behind girls at just about every grade level and dropping out of school in ever greater numbers" (p. 9).

Principal Andrea Hampton concurred after selecting 8th graders to be placed in same-gender classrooms, "I didn't want to do this on a whim. We're a data-driven school. A lot of research does support single-gender classes" (as cited in Davis, 2007, p. 1). Principal Hampton selected the 8th graders based on test scores because students near high school tend to dip on standardized test results.

Gowen (2002) suggested, "Single-sex education advocates say that research supports their contention that boys and girls learn better in classrooms tailored to their learning styles" (p. B1). While the past few decades have seen an improvement in the treatment of girls in methods and curriculum, it is still premature to declare the issue victorious (Lerner & Sadker, 1999).

Supporters argue that boys and girls learn differently, and that single-sex education can help both genders perform better (Associated Press, 2006). Leonard Sax, director of the National Association for Single Sex Public Education, stated, "Single-gender classrooms promote self-esteem, can boost test scores and break down gender stereotypes" (as cited in Pearson, 2008).

Under new regulations, public school districts nationwide will find it easier to offer same-sex classes (Robertson & Borman, 2006). According to Rowe, Principal Research Fellow at the Australian Council for Educational Research, "Understandings are emerging from the research evidence suggesting that co-educational settings are limited in their capacity to accommodate the large differences in cognitive, social, and developmental growth rates of girls and boys between the ages of 12 and 16. This evidence suggests that during these key adolescent years, single-sex settings better accommodate the specific development needs of students" (2000, press release).

Research Questions

The following research questions guided this study:

1 In what way, if any, are girls' and boys' state mandated tests scores (MAP) different from those students enrolled in Same Gender Classes to those enrolled in traditional co-ed classes?

2 What is the difference, if any, between boys' communication arts scores of students enrolled in Same Gender Classrooms to students enrolled in traditional co-ed classes?

3 What is the difference, if any, between boys' mathematics scores of students enrolled in Same Gender Classrooms to students enrolled in traditional co-ed classes?

Sampling Procedure

Classrooms and subjects were from Midwest states implementing Same Gender Classrooms within a district. Only two known public school districts within the state of Missouri have implemented Same Gender Classrooms. These two districts were used for

the comparison test scores. Missouri Assessment Program (MAP) results for the 2007 and 2008 spring testing were analyzed and compared student scores in Same Gender Classrooms to student scores in co-ed classes. Specifically, Communication Arts and mathematics for grades 7 and 8 were compared.

Phone and email interviews were conducted to 11 different states in the Midwest region of the United States, with the exception of one state located far west and one state far east. Schools implementing Same Gender Classes were listed on the NASSPE website.

External Validity

This study proposed, that although current Same Gender Classes are not implemented within the Missouri school districts, the results of the study will show an improved academic status among boys and girls enrolled in same-gender classes in comparison to those boys and girls enrolled in coed classes. Therefore, with supporting evidence and researched results, in order to improve state mandated test scores, districts should consider the implementation of Same Gender Classrooms within the public schools.

Research Design

Four different classrooms were analyzed in each selected district. These classrooms included two math classes, one consisted of all girls the other consisted of all boys and two English (communication arts) classes, one consisted of all girls the other of all boys. State mandated MAP scores of these two comparative classes were analyzed. The same-gender classes' MAP scores were compared to coed classrooms' English and math MAP scores.

Instrument

The instrument used to compare subjects academic success was the MAP. Missouri Department of Elementary and Secondary Education reported (2004) "The assessment system, known as MAP, is designed to measure student progress in meeting the Show-Me Standards. To achieve the Show-Me Standards, students must have a strong foundation of knowledge and skills in basic subject areas and be able to apply what they know to real world problems and situations" (p. 1).

Five research questions were asked to schools implementing Same Gender Classrooms. Interviews were conducted with administrators, counselors, teachers, or curriculum directors using the following questions:

1. When did the program begin? How long has the program been implemented in your district?

2. What resources and information did the district base its decision for same gender classrooms?

3. What benefits and cons has the district observed?

4. How does the district evaluate the program?

5. What are the long range plans for the program?

Validity

The MAP scores, based on the past three years (2006, 2007, and 2008) are verified through MDESE and scored by an official site in California. Only the MAP scores were used to compare academic achievement evaluation in Communication Arts and mathematics. Internal structures and behaviors within the classroom that may account

for outcomes were not observed. For example, do teaching methods differ in the same-gender classroom as in the coed classroom?

Procedure

Procedure for this study entailed analyzed data and research, comparison / contrast of same-gender classes' MAP scores to coed classes' MAP scores and interviewed curriculum or special program directors directly employed with school districts implementing Same Gender Classes. Specifically content areas to compare / contrast were English (Communication Arts) and mathematics. Grade levels analyzed were students enrolled in the 7th and 8th grade. Test scores were those in the Communication Arts and mathematics for the 7th & 8th grade. To obtain a valid comparable test score, ranges of the test were the proceeding and following years of the students currently enrolled in the 7th and 8th grade.

More than a dozen Midwest states, one western state, and one eastern state implementing Same Gender Classrooms were interviewed. The contact person for each school served as principal, special programs director, or curriculum director for the school district. Interview times and comments were logged and documented. For confidentiality pseudonyms were assigned.

The research and study proved that students enrolled in same-gender classrooms score higher on MAP than those students enrolled in coed classrooms.

Summary

The research design and methodology were presented in Chapter Three. An overview of the study was presented with cited data and research as the introduction. The

subjects, male and female 7th and 8th grade students, were listed along with the sampling procedures of the research.

Nine states in the Midwest, one western state, and one eastern state were selected to be interviewed, as listed by the NASSPE, implementing same gender classrooms within several school districts. The number of schools responding varied by state.

The validity, design, and instrument (MAP) to be used were also presented. Finally, the validity and procedure of this research was described in detail.

CHAPTER FOUR – RESULTS

Introduction

Same Gender Classrooms have increased in implementation within the last few years. “In 2002, only 11 public schools offered single-sex classrooms. Right now, we know of at least 518 public schools offering single-sex classrooms” (Sax, 2009). The reason to implement Same Gender Classrooms was the focus of this study.

School districts revamp to meet the success of its students. According to Mrs. Landston, Curriculum Director at a Midwest middle school, (2009) “It works. Overall, their grades were better than students in mixed gender classes” (p. 1).

Same Gender Classrooms is one solution to the pressure of meeting state mandated tests expectations. School districts act accordingly. Barton (2004) reported, “Gender segregation in the classroom is advocated as academically beneficial…” (p. 29). When districts begin to see an increase in academic test results, programs are initiated and evaluated.

Several schools across the Midwest region have implemented Same Gender Classrooms. These schools were contacted via phone interview or email to discuss the implementation of such a program. The following five questions were asked of each district:

1 When did the district begin implementation of Same Gender Classes?

2 What resource and information did the district base its decision for implementing Same Gender Classrooms?

3 What benefits and concerns has the district observed from the program?

4 How does the district evaluate the program?

5 What is the district's long range plans for the program?

Those interviewed included principals, teachers, counselors, and district curriculum advisors.

Results

Interview One:

Jerry Smallton is a 6th grade teacher at an intermediate school in the Midwest. This 2008-2009 is the pilot year for all girls' and boys' math classes. The boys in the classroom were randomly selected from the 41% of boys already enrolled in after school tutoring. The school is currently on a 70% Free Reduced Lunch rate. Same Gender Classrooms were implemented because it is a minimal cost program. And, although discipline referrals decreased, the program was not a rehabilitation program for behavior.

Smallton observed an increase in boys' value. "The self esteem was tremendous!" He also noted that boys tend to see the competiveness edge to Same Gender Classrooms, whereas girls were too chatty. "The girls were not able to establish norms. They were more concerned with answering and receiving a good grade rather than how the concept works."

To begin the program, Smallton and a couple of other teachers attended Leonard Sax's conference. Currently the class is designed in a ninety minute block class. Mathematics is not the only subject designed for Same Gender Classrooms. There is also English Literature. Depending on the spring test scores, the program will not be re-implemented next school year. "An all girls' class has proven to be quite a challenge. There isn't a teacher that is willing to accept the all girls. Besides, in some instances, the

all boys' classes were given a stigma of being homosexual. It's sad, I know. To me such a program is a strong advocate for student success. There just wasn't enough teacher training or strong enough Professional Development to commit to the program."

A survey given to the parents regarding continuing the program resulted in forty in strong approval, forty not in approval, and twenty neutral. Smallton did note that dads tended to support all girls' classrooms more so than mothers.

Interview Two:

Cindy Thomas is the principal of a middle school in Wisconsin. All three grade levels, 6th, 7th, and 8th, have the option to participate in Same Gender Classrooms. "We are currently in our second year of implementing Same Gender Classrooms. We have seen a rise in test scores for both 8th grade boys' Language Arts and 8th grade girls' mathematics." Another observation not as easily analyzed included 6th grade girls' development of self-confidence.

Before implementing the program, Dr. Leonard Sax educated the entire staff. "There was a three year homework study before we implemented the program" stated Thomas. The district is pleased with results. The district uses the NWEA (Northwest Evaluation Association) to measure individual students and building level progress. Thomas indicated that the middle school plans to continue monitoring the program as they believe it is one way to teach students. Currently their enrollment is 1,000 students. Students and parents have the option of participating in Same Gender Classes. "As of now more than a third of our student population opts to be a part of the program" said Thomas.

Information is updated on this particular middle school's homepage from the web. They have designed a special section titled "Single Gender Education News."

Interview Three:

A high school in Tennessee offers a 9th grade Same Gender academy. Beginning in the fall of 2007, 5th grade implemented Same Gender Classrooms for English and mathematics. Cora, the front desk receptionists, described the program very straight-forward with little detail or elaboration. "The program was initialized because of data testing results. The district wanted higher scores in English and mathematics. Currently there is a 9th grade academy for all boys and all girls. The transition from the middle school into the academy was difficult." The district uses the Gateway Test for evaluation of the program. They also analyze discipline data and a writing data. The program in the lower grade level may be reconsidered, but the 9th grade academy will continue district wide.

Interview Four:

Mr. Brian Singleton, principal at a middle school in Iowa, responded in the following way: "[Our] school does not currently offer any single sex classes. I do understand that there is a research base out there showing the value of single sex classes, but I was not working at [our] school when these classes were offered or when the program was discontinued. I would, in the future, consider any program that would help improve student achievement."

The NASSPE reported the above middle school as offering Same Gender mathematics classes.

Interview Five:

Two middle schools, both in Kentucky, have also reported discontinuing the program. Michelle Baxter, current principal at one of the schools, indicated the reason for disbandment was due to lack of staff development. “This was not a district initiative. With staff turnover the school council made the decision to disband the program due to teachers lacking the experience to implement the instructional practices necessary to meet the gender specific needs of the variety of classrooms.”

Interview Six:

A middle school in Ohio began offering Same Gender Classrooms during the 2006 – 2007 school year. Classes are offered to 5th and 6th graders in the four content areas: mathematics, social studies, science, and language arts. About one-third of the students, chosen at random, participate in the program.

Amy Lynn and Kristin Carrie have been spearheading the program for several years. Both were very responsive in participating in an on-line interview. Kristin reported the program had been implemented in the district a little over three years ago. “I came from teaching 3rd grade and was asked to participate in the pilot program. I was excited to try something new. I was not a part of the initial decision of the implementation of the program.”

Although she felt the Board might have a different view of the program, Carrie did feel the benefits of the program included an increased comfort level of students to ask questions, more participation, more students on task and focused on instruction, and differentiated instruction to meet boys/girls needs. However, there were drawbacks to the program as well. “Support from parents and district is minimal. I also get the same

number of students each year. Students stay with the same group of girls / boys for their core classes, much like an elementary setting. I feel if they were able to mix like the other pods it would be a better situation."

The program is evaluated through parent and student survey responses. Lynn summarized the program stance:

"There is really no district support, no money for training, and no administrative support at parent meetings. Everything was put on me to make this project successful. My feeling on this is that we should not be doing this. There is no real plan for gathering information, no district timeline plan…nothing. At this point we are separating the students with little focus on really doing something educationally different for them. I think it is a really unfortunate occurrence, because we do have parental support and most of the kids really like it. I don't foresee the district continuing the practice next year."

Interview Seven:

A middle school for girls and a middle school for boys in one Midwest state has not only implemented Same Gender Classrooms, but has opened a pair of middle schools solely for the genders. Each school houses separate facilities and administrative staffs. Ms. Maya Farmington, principal of the girls' middle school, offered much time and assistance for the interview via email.

"The single gender schools were implemented four years ago. The information was brought to the district by a former Assistant Superintendent of Learning services along with research from the internet and other literature, in addition to his personal experiences." Farmington has been with the district since the time of its change. Farmington observes only one drawback with such a school. She stated the obvious was

that girls' socialization with boys is limited. However, the benefits/gains with such a program, to her, were endless.

"The girls feel more comfortable participating in class and other school activities, such as the talent show, that they may not have participated if boys were on campus. More girls read in and out of the classroom than in a co-ed environment. They are better focused and don't worry about what the boy in the back of the room of elsewhere is thinking or saying the girls have an opportunity to ask questions without being criticized by their peers; they help one another more. Another thing I have observed is that the girls can be girls, meaning they spend more time jumping rope, playing tetherball, basketball or four-square and less time primping. The school is able to address the entire student body in assemblies regarding sensitive issues and have teachers involved. They are more open and comfortable with their identity as a female."

Many of these observations tended to be just that: observations. How were these measureable for improvements or academic success? Farmington responded, "I am not sure there is an actual evaluation in place. The district looks at the programs that have been developed in the schools and if they are a benefit to the students. I guess the tool of measurement presently being used are the results of the Benchmark Exams to determine growth and comparing those to the co-ed results."

The school currently houses just fewer than 900 female students grades 6th through 8th. After four years of the Same Gender Schools, the district considers to continue the program with a slight change. Farmington commented, "We hope to add a re-integration program in the 8th grade to prepare the girls for high school and returning to the co-ed environment."

Interview Eight:

Teri Landston teaches science to both Same Gender Classes and co-ed classes at an Arizona middle school. The program has been in effect since the 2004-2005 school year. Landston responded, “Single gender at [our school] began in 2004 and has been going ever since. Our principal at the time…decided it was another option that parents and students could choose and thus hopefully increase our school enrollment as well as our school’s achievement.”

This particular Arizona middle school has evaluated the GPA of students in Same Gender Classes as compared to those students in co-ed classes. According to the NASSPE Same Gender Classrooms directory (2009), “Academically, the program is clearly benefiting both girls and boys. The average GPA for girls in the single-gender science class is 3.67; for girls in the co-ed science class it is 3.05. Boys in the all boys’ science class have an average grade of 3.22, while boys in the co-ed class have an average grade of 2.44” (p. 6).

Landston concurred, “Overall, their grades were better than students in mixed classes. Data was collected the first year – it is believed that the program increases self-esteem and thus increases academic performance. The girls’ single gender classes are remarkably different from co-ed classes in that the girls are not shy during presentations, ask more questions, and are more focused.” In the beginning the program was evaluated by Dr. Carrington, former curriculum director of the district, but is now evaluated through student and parent feedback. The long range plans for the program have not been made clear although Landston felt the program will continue, and should. She had hopes the program will expand into other core content areas.

Interview Nine:

In a final interview with Dr. Leonard Sax, executive director of NASSPE, information of Same Gender Classes in general was obtained. The interview was conducted via email from his office in Pennsylvania. The three questions asked to Dr. Sax were of the same content as those directed to school districts implementing Same Gender Classrooms:

1 How long has the Same Gender Classrooms been implemented in Public Schools across the United States?

2 How do you suggest a school district evaluated the effectiveness of the program?

3 What do you consider to the benefits / cons of Same Gender Classrooms in core subject areas for a school?

According to Sax, Same Gender Classrooms, or as he used the term single-sex public education, can be traced as far back as the 1750's. There are currently 518 public schools offering Same Gender Classrooms, and of those, 95 schools are completely single sex format. An Arkansas school with such a format was used for the historical interview research.

Sax concurred that the program should be evaluated for grades, testing, discipline, and attendance. "The effectiveness of the program should be evaluated in terms of grades, test scores, discipline referrals, and attendance. Each of these parameters should be analyzed comparing students in same sex classrooms with students in co-ed classrooms." Later, the researcher will provide such an evaluation to further investigate

effectiveness of Same Gender Classrooms.

Williams earlier commented that teacher training was crucial to the implantation of such a program. In order for Same Gender Classes to be effective, professional development and teacher training has to be supported and in place. As Sax discussed,

"The single-sex format has NO benefits if the school simply puts girls in one room and boys in another, without appropriate training for teachers in how to lead gender-separate classrooms. That approach has lead to disaster in many cases. The single-sex format creates opportunities; that's all. You can do things in the boys' classroom which you can't do in the co-ed classroom. If teachers have no training in these opportunities, then the odds of a good outcome is much reduced. When teachers do have this training, you can dramatically improve the performance of boys in subjects such as reading, language arts, and creative writing; you can improve the performance of girls particularly in subjects such as computer science and physics."

Analysis of Data

The second part of this study analyzed Same Gender Classrooms test scores with those students enrolled in co-ed classrooms just as Sax had advised needs to happen for evaluation of the effectiveness of the program.

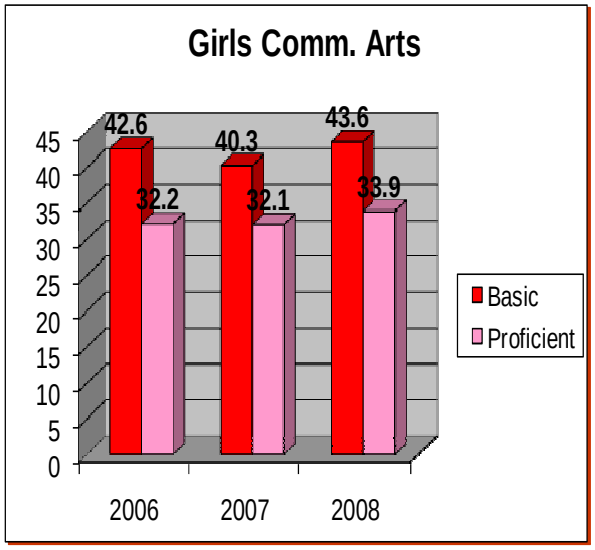
Two Midwest state schools' state test scores were obtained over a three year period in which the Same Gender Classrooms had been implemented in Communication Arts and mathematics. School A houses more than 600 students in grades 7 and 8. Same Gender Classrooms include mathematics, reading, and a test assessment course.

Results indicated that in all three years both girls and boys in Same Gender Classes outscored girls and boys in co-ed classes in both Communication Arts and

mathematics. The co-ed classrooms represented the state co-ed scores and not specifically School A co-ed scores.

School B houses more than 500 students and consist of grades 5 and 6. The program is not mandated but rather is an option for parents living within the boundaries of School B to choose. Only test scores in grade 5 are compared to state co-ed scores as grade level 6 is not state tested.

Results varied in that girls in Same Gender Classes outscored girls in co-ed Communication Arts and mathematics but boys in Same Gender mathematics did not outscore the co-ed grade level 5. It must be noted that, although the boys in Same Gender Classes did not outscore in the advance and proficient levels of the state mathematics test, Same Gender Classes moved a greater percentage of boys out of the lowest level to the next two levels more so than the boys in co-ed classes.



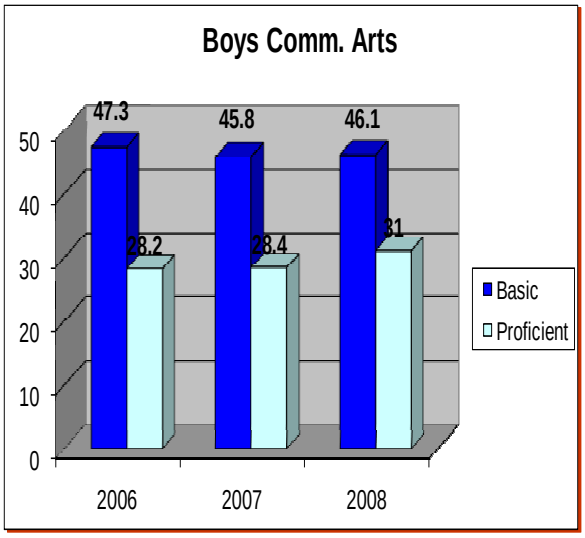


Figure 1

The two figures compare 5th grade state co-ed classroom scores. Girls tend to outscore boys in Communication Arts. Research has already shown that girls tend to outscore boys in English and languages. Schlosser (2008) stated, “In the middle schools, girls were found to have better academic achievement in English, languages and math. And in high school, the classrooms which had the bet academic achievements overall were consistently those that had a higher proportion of girls enrolled” (p. 1).

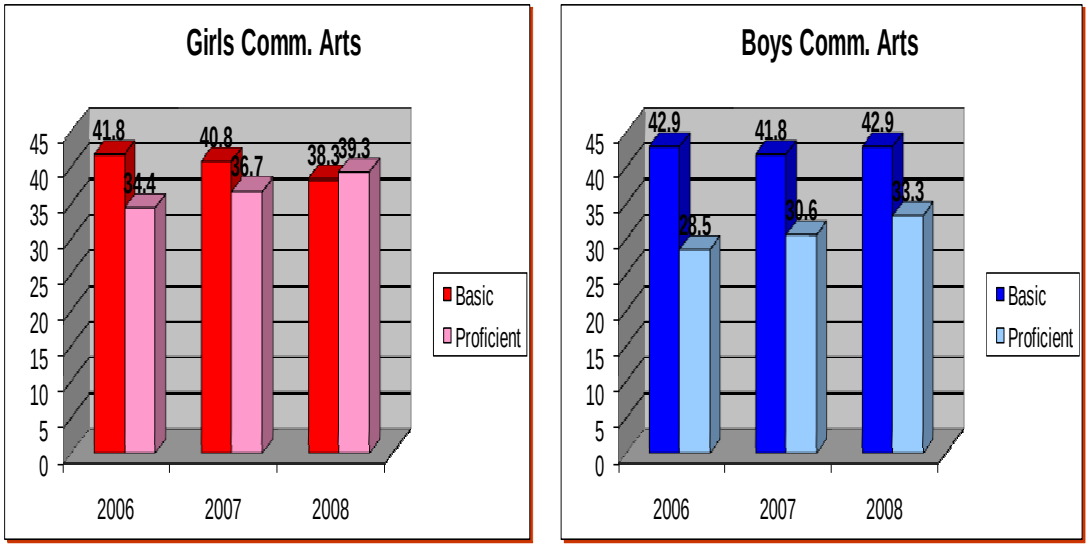


Figure 2

The two figures compare 7th grade state co-ed classroom scores. Girls tend to outscore boys in Communication Arts. Research has shown that girls tend to outscore boys in English and languages. Sharpe (2000) reported, “Teachers of all-girl classes seemed to validate the idea that girls performed better in single-sex classes” (p. 1).

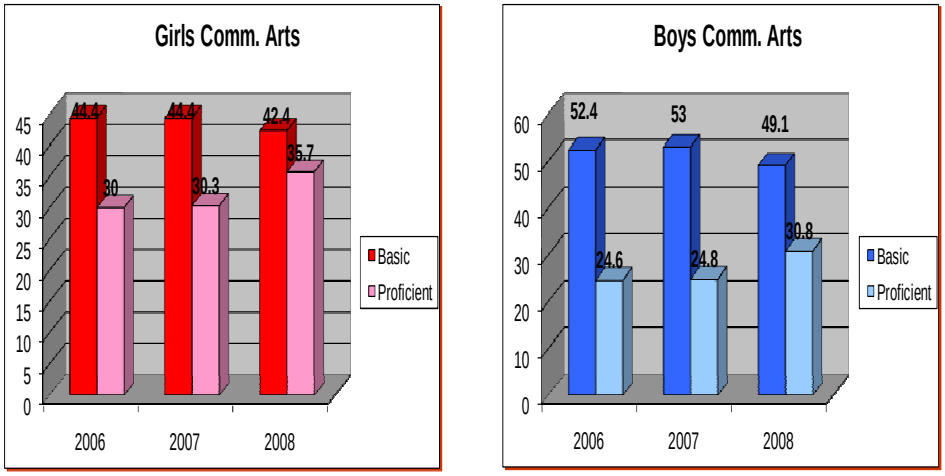
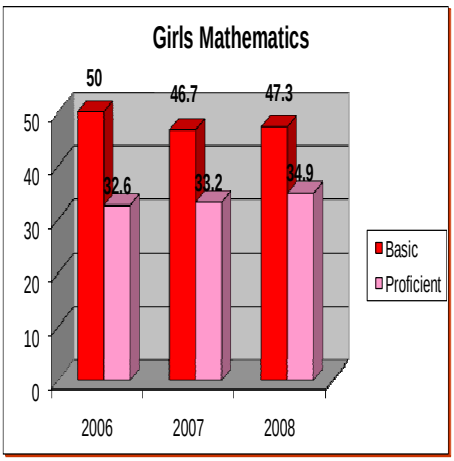


Figure 3

The two figures compare 8th grade state co-ed classroom scores. Girls tend to outscore boys in Communication Arts. Research has shown that girls tend to outscore boys in English and languages. Sather (2007) found, "We do know that in the major study – based on data collected in the 1980's – that girls who attended single-sex Catholic schools had higher academic achievement than girls who attended coed Catholic or public schools" (p. 2).



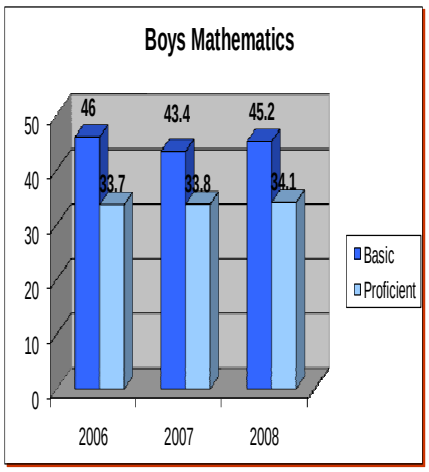


Figure 4

The two figures compare 5th grade state co-ed classroom scores. Boys tend to outscore girls in mathematics. Research has shown that boys tend to outscore girls in math and sciences. Dee (2006) concurred, “Gender gaps in educational outcomes are a matter of real and growing concern. We’ve known for a long time, since the 1970’s, that girls outscore boys in the National Assessment of Educational Progress (NAEP) reading tests, while boys tend to outperform girls in math and science” (p. 68).

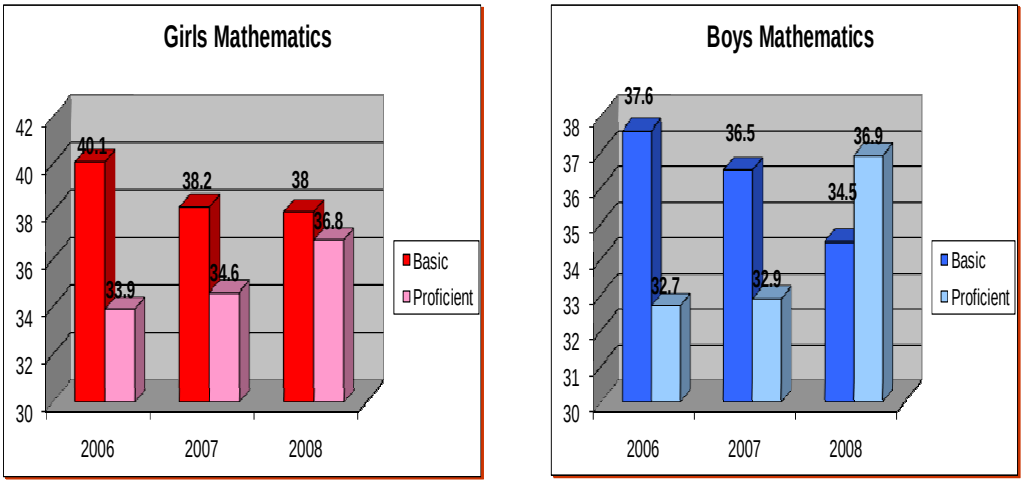


Figure 5

The two figures compare 7th grade state co-ed classroom scores. Boys tend to outscore girls in mathematics. Research has shown that boys tend to outscore girls in math and sciences. Although in this particular comparison girls remained higher in the Basic, the Proficient results indicated girls scoring slightly higher with the exception of 2008. Paulson and Teicher (2006) reported, “The research, though it’s ongoing and shows mixed results, suggests that single-sex education can provide benefits to some students under certain circumstances” (p. 1).

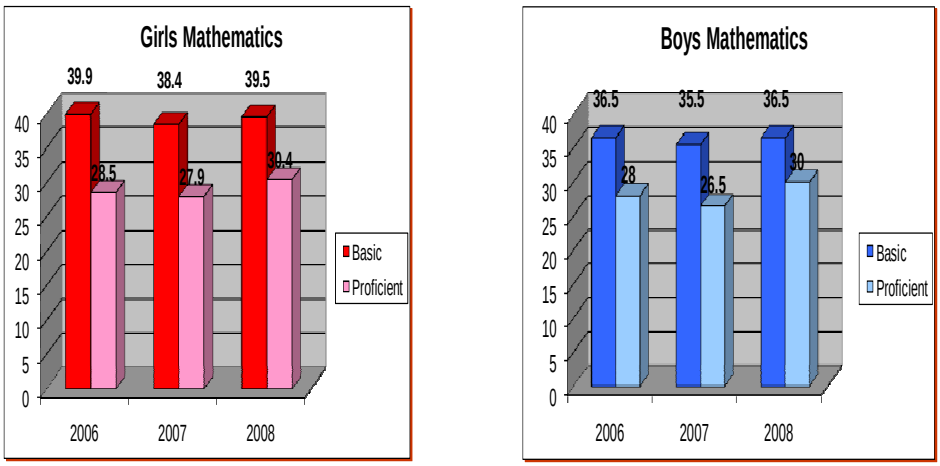
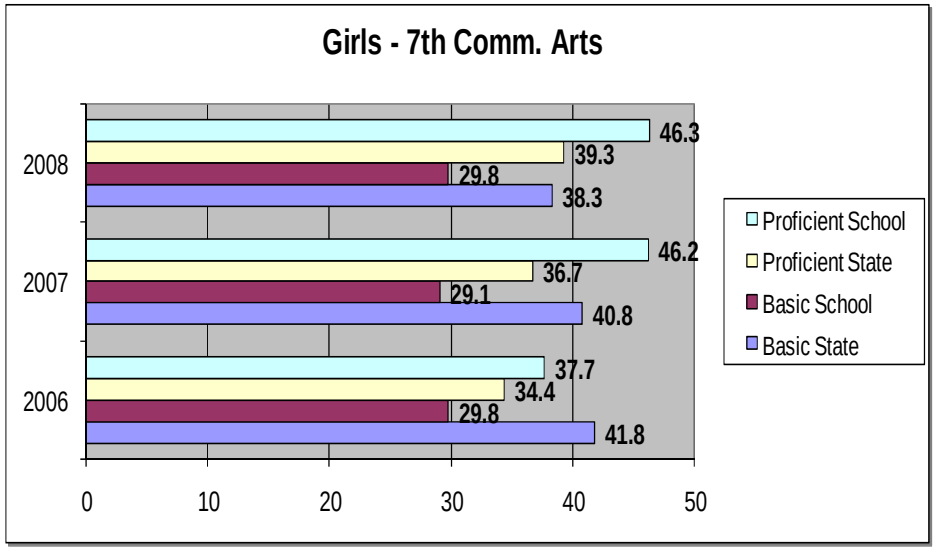


Figure 6

The two figures compare 8th grade state co-ed classroom scores. Boys tend to outscore girls in mathematics. Research has shown that boys tend to outscore girls in math and sciences. In comparison at the 8th grade level, boys scored lower in Basic, but girls tended to score higher in Proficient. However, further investigation proved that boys had higher numbers in the Advanced. Results posted on DESE showed, "Advanced Girls' Mathematics 11.7 (2006), 13.5 (2007), 13.1 (2008) compared to Advanced Boys' Mathematics 13.1 (2006), 15.2 (2007), 15.2 (2008)"



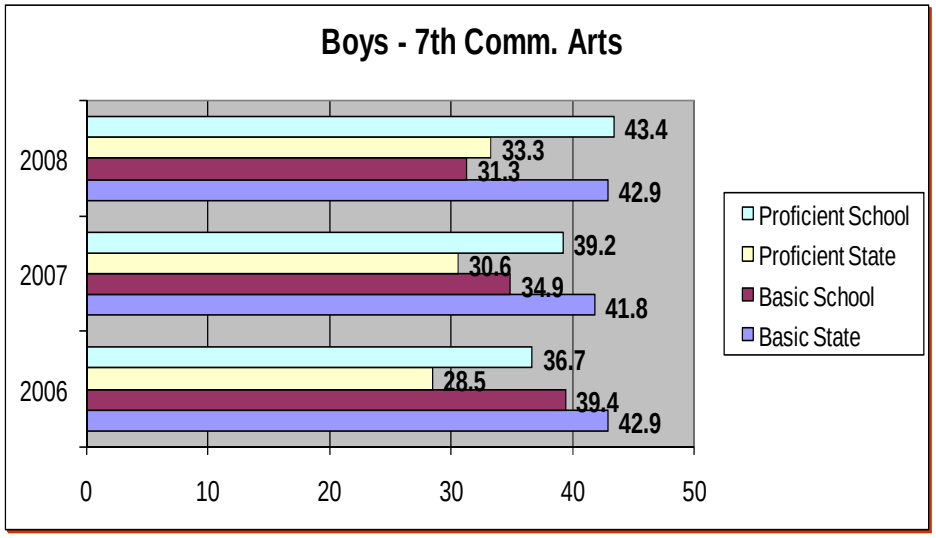
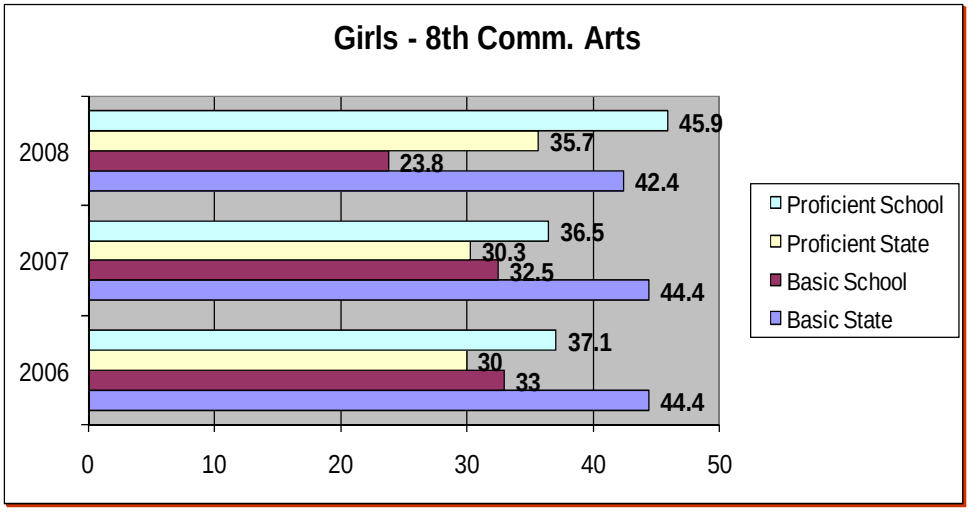


Figure 7

These two figures show Communication Arts scores over the past three years to State Co-ed classrooms and School A Same Gender Classrooms. Boys and girls in Same Gender Classrooms outscored those students in co-ed classrooms. Montgomery (2005) stated, “That males and females, on average, show differences in learning skills – differences that may be hard-wired. And the evidence is compelling enough that schools rooted in equal treatment should rewrite their manuals to keep more boys engaged” (p. A1).



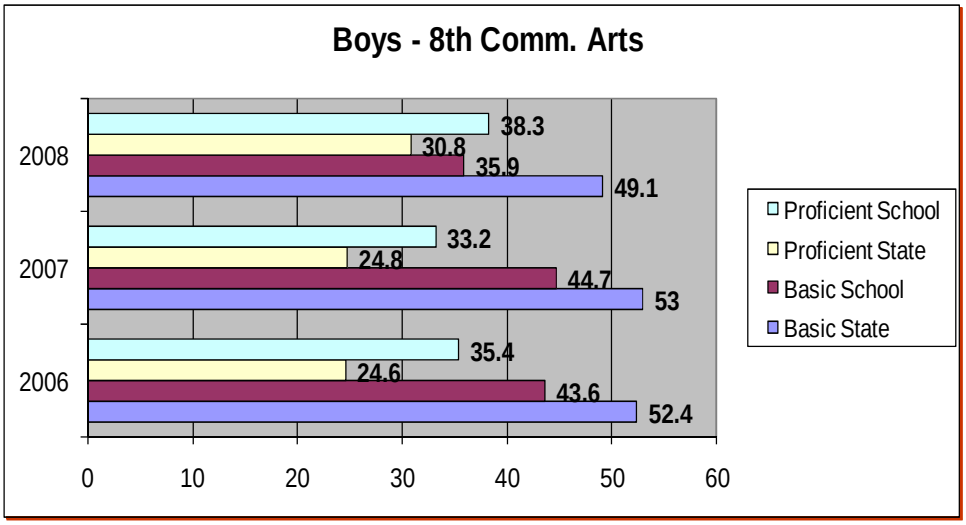


Figure 8

These two figures show Communication Arts scores over the past three years to State Co-ed classrooms and School A Same Gender Classrooms. Boys and girls in Same Gender Classrooms outscored those students in co-ed classrooms. Robertson and Bormann (2006) observed, “Girls are taking more risks and speaking up more. The boys are writing more” (p. A1).

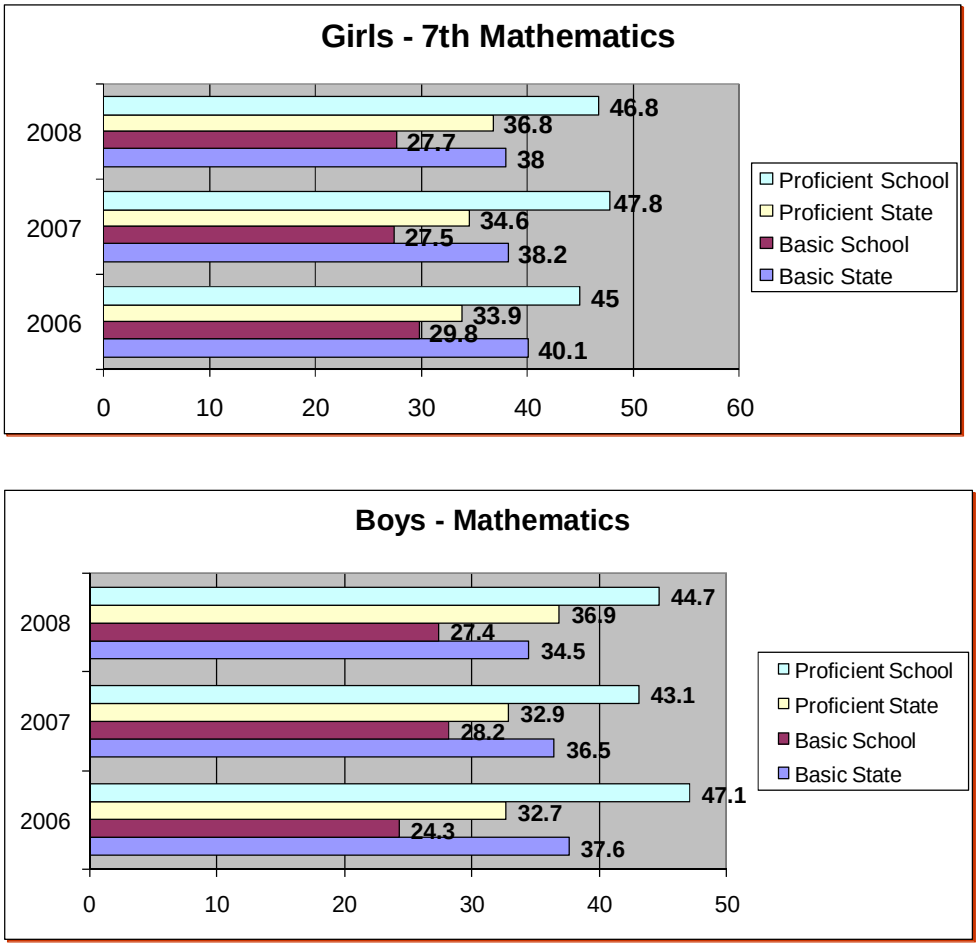
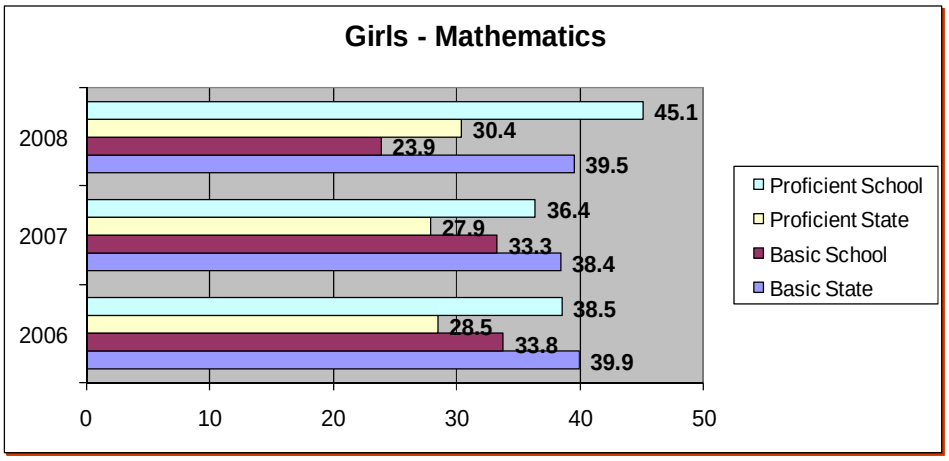


Figure 9

These two figures show 7th grade Mathematics scores over the past three years to State Co-ed classrooms and School A Same Gender Classrooms. Boys and girls in Same Gender Classrooms outscored those students in co-ed classrooms. Cable and Spradlin (2008) found, “After the change to single-sex education, many schools have found that students’ scores have risen and discipline problems have lessened” (p. 6).



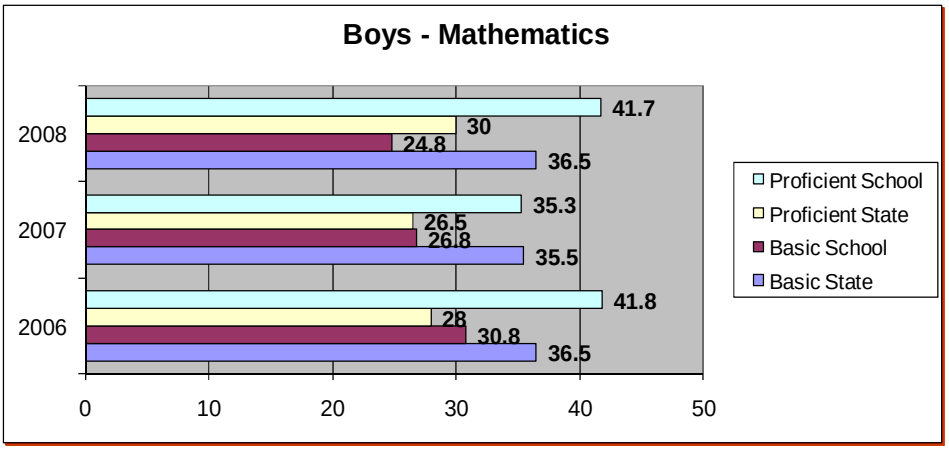
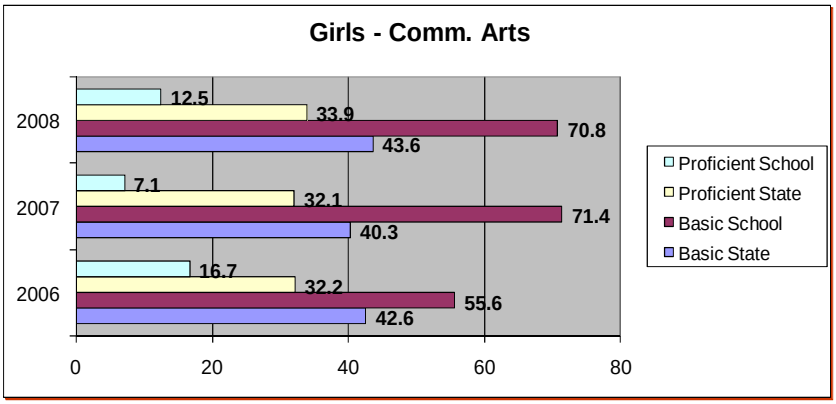


Figure 10

These two figures show 8th grade Mathematics scores over the past three years to State Co-ed classrooms and School A Same Gender Classrooms. Boys and girls in Same Gender Classrooms outscored those students in co-ed classrooms. Weiner (1996) detailed, “It is true that there is anecdotal evidence to support the idea that single-sex education can have a positive impact. Eighth grade girls are more comfortable doing physics experiments without boys around to monopolize the equipment. They also speak up more frequently and participate more enthusiastically without a horde of males outshouting them in the mistaken belief that they are outsmarting them” (p. 21).



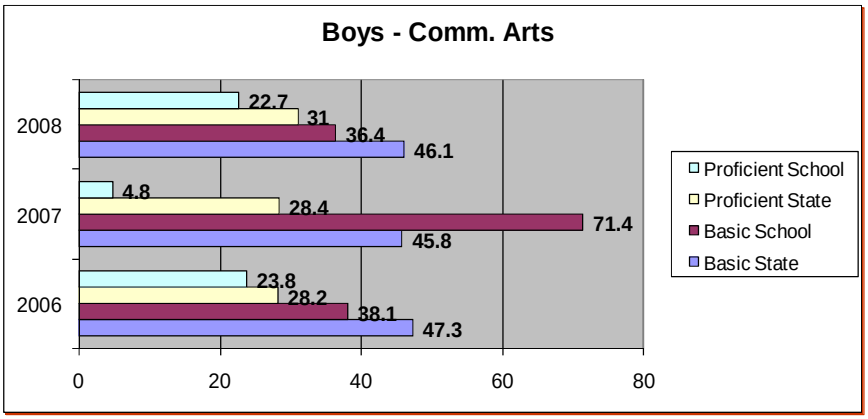
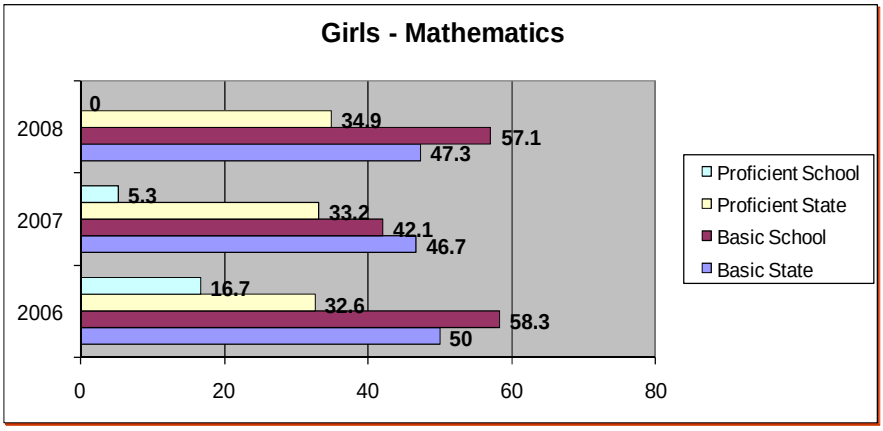


Figure 11

These two figures compare 5th grade Communication Arts School B Same Gender Classes to state co-ed classrooms. Results indicated at this level Same Gender Classrooms did *not* assist with state test score improvements. Adcox (2007) reported, "The theory is that by separating girls and boys – especially during middle school years – lessons can be more effective" (p. 4).



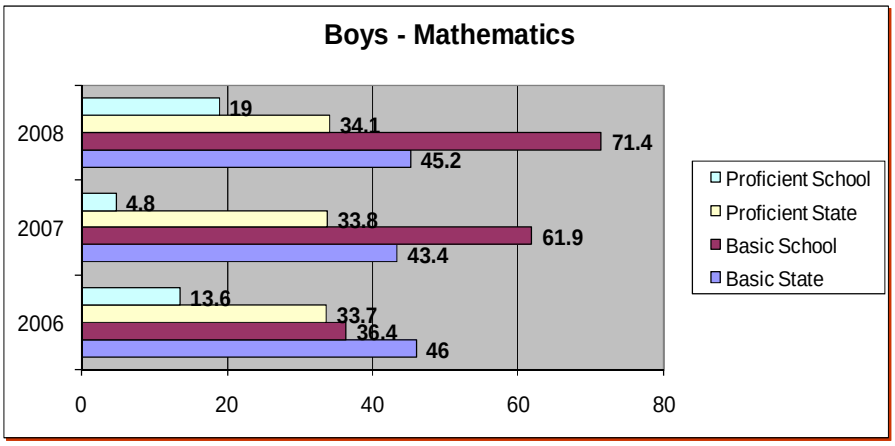


Figure 12

These two figures compare 5th grade Mathematics School B Same Gender Classes to state co-ed classrooms. Results indicated at this level Same Gender Classrooms did *not* assist with state test score improvements. Barton and Cohen (2004) stated, "Although same-sex classroom composition has received much attention as an academic issue little research has examined the relation between same-sex classroom composition and children's peer relations" (p. 29).

Summary of this Chapter

Sax (2004) stated, “Classmates are more comfortable in a same-sex environment due to biological differences between boys and girls that should not be ignored. Research indicates that girls learn best in a friendly environment” (p. 2).

Interviews indicated evaluation was completed through observations. If students felt better about their self-esteem, they increased their academic performance. Glibert (2007) reported, “Boys and girls appear to thrive when spared the competition and social pressures in co-ed classrooms, and discipline problems clearly diminished” (p. 1).

David Chadwell is a statewide coordinator of single-gender education. His theory is that boys and girls learn better if separated. Chadwell noted, “The theory is that by separating girls and boys – especially during middle school years typically marked by burgeoning hormones, self-doubt and peer pressure – lessons can be more effective because they are in unique classroom settings” (p. 3F).

Overall, Same Gender Classrooms are implemented as one solution to a decline in academics, state mandated tests, and low self-esteem. Same Gender Classrooms are not a fix all but one step. Chandler and Glod (2008) reported, “Proponents of same-sex schooling argue that girls and boys are too often shortchanged by co-ed classrooms and that students from lower-income families deserve access to learning environments once exclusive to private schools” (p. A1).

CHAPTER FIVE - DISCUSSION

Introduction

Dr. Leonard Sax (2008) responded to the nation's growth of Same Gender Classrooms. "We as a nation do not understand gender differences and …regard it as politically incorrect to discuss it. As a result, schools are not helping students to reach their potential. We are unintentionally pushing girls out of computer science, and pushing boys out of subjects such as arts and languages" (Chandler & Glod, p. A1).

Schools considering implementation of Same Gender Classes must be aware of criteria to implement such a program. Justification of a program is more than putting boys in one room and girls in another. According to Pytel (2006), "Criteria for classes come with approval of some restrictions: must be geared toward improving achievement, must meet the needs of students, must treat male and female students equally, and must be enrolled on a volunteer basis" (p. 1).

Same Gender Classes are not a segregation act, but rather a program to assist individual learning and achievement. Parker and Rennie (2002) accounted, "Previous research and analyses of the circumstances surrounding the implementation of single-sex classes warn that the success of the strategy requires due consideration of the nature of the instructional environment for both boys and girls, together with appropriate support for the teachers involved" (p. 881).

Implications for Effective Schools

Interviews indicated that, although Same Gender Classrooms had not been implemented within each district over a long stretch of time (more than five years) there is still much to be researched about Same Gender Classrooms. As indicated, teacher

training is crucial to the success of the program. Sax (2009) enforces, "If teachers have no training in these opportunities, then the odds of a good outcome is much reduced. When teachers do have this training, you can dramatically improve the performance of boys in subjects such as reading, language arts and creative writing; you can improve the performance of girls particularly in subjects as computer science and physics" (interview).

Same Gender Classroom data analysis for the purpose of this research showed an increase on test scores for both boys and girls in Communication Arts and mathematics. States needing to meet mandated criteria for accreditation may want to consider implementing Same Gender Classrooms. Lerner and Sadker (2008) recommended, "Many teachers who analyze their own attitudes and behaviors, discover the subtle and pervasive nature of gender inequity in the classroom. This program is one tool for that self-observation, analysis and reflection" (p. 1).

In the research, not only did School A prove that girls and boys enrolled in Same Gender Classes outscore co-ed girls and boys but that School A tests scores continue to be one of the highest in the state. School A has received recognition for Distinction in Performance the last six years. As a format to follow, other schools should consider the Same Gender Classes. Rowe (2000) reported, "Differences between gender groupings of students are not restricted to academic achievement. Similar patters are evident for students' behaviors, perceptions, and enjoyment of school" (p. 1).

Recommendations

Schools should consider Same Gender Classrooms. The level of Same Gender Classrooms should remain within the middle school, in-between years or 6^{th} – 9^{th} grade.

Adcox (2007) stated, "…separating girls and boys – especially during middle school years typically marked by burgeoning hormones, self-doubt and peer pressure – lessons can be more effective…" (p. 3F).

Such a program cannot be implemented without the support of parents, community, and administration. These areas were not researched in-depth but through the interviews several interviewees alluded to the success or even failure of the program due to the support or lack thereof. Williams, of Merrillville recalled, "There needs to be a strong Professional Development and commitment from the district in order for the program [Same Gender Classrooms] to work and be successful."

It is also recommended that districts implementing the program understand the Same Gender Classes are not a fix all but one step toward the solution of academic achievement and student success. Principal Andrea Hampton referred to classes at Chesterfield (2007), "I didn't want to take this on a whim. We're a data-driven school. A lot of research does support single-gender classes. We're not just putting boys in one class and girls in another. The teachers are being trained and participating in professional development" (pp. 1 & 2).

Summary

Same Gender Classrooms are a fairly new concept for the public schools. Further research is needed to focus on the training of staff and implementation of such programs. Schools currently implementing such programs see benefits in decreased discipline issues and higher self esteem in both boys and girls. However, the purpose of implementation of such a program is sought to increase state test scores and individual student academic achievement. There is little difference of state mandated test scores between girls and

boys in Same Gender Classrooms and those boys and girls in co-ed classrooms.

It is therefore recommended that schools look at Same Gender Classrooms as a means to alleviate discipline, build self-confidence, and consider as one instruction process meeting the needs of students. According to Strauss (2002) "…as U.S. schools have searched for ways to improve student achievement in the past dozen years, educators have increasingly considered single-sex education. This has been fueled by research on the coed classroom culture that showed that some girls failed to reach their academic potential, and by brain research that showed that boys and girls process some information differently" (p. A9).

This research observed the history of Same Gender Classrooms and limited state test scores comparing co-ed with Same Gender Classrooms. There are other areas to further research for Same Gender Classrooms. Ellis (2008) commented, "Single-sex classrooms are not a "silver bullet", but they have proved to be effective with three important cautions: IF they are implemented carefully, IF both boys and girls have equal opportunities to learn the entire curriculum, and IF teachers receive appropriate professional development training in the ways in which boys and girls learn differently" (p. 1).

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Vita

Amy L Viets was born in Springfield, Missouri, 1968. Her educational career was served at Missouri State University at which she received her undergraduate and graduate coursework. In education for more than fifteen years, Ms. Viets served as In-School Suspension Supervisor at her almamater, Parkview High School, for her first educational employment. She then served four years as 6th grade English/Reading teacher for Reed Middle School of Springfield.

During this time, Ms. Viets continued to work on her Master's Degree in Administration and accepted a position with Bolivar Middle School, Bolivar, Missouri as middle school assistant principal. By 2000, Ms. Viets was serving as principal of a k-12 district in Chadwick, Missouri.

Currently, Ms. Viets teaches 8th grade English and speech/drama at Branson R-IV schools in Branson, Missouri.

Aside from the many committees and programs on which Ms. Viets serves, her extra curricular services include Vacation Bible School director, church council secretary, president of the Lutheran Student Center Council located on the Missouri State University campus, and a current member of the Alpha Psi Chapter of the Delta Kappa Gamma Society.