

A LITERATURE REVIEW ON THE EFFECTS OF SINGLE-SEX INSTRUCTION ON
STUDENTS' MUSICAL AND ACADEMIC ACHIEVEMENTS

By

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To my mom Ms. Denise “Grace” Lamour: You are the world’s greatest mom. I dare not ask for another. Thank you for all of your unconditional love. Mwen Rinmin-w! I Love You! To my wonderful pastor and brother, Pastor Frantz Lamour, thank you for your prayers and for being the voice of wisdom and encouragement for me during this journey. Thank you to all my friends and family, and members of The Holy Church of Grace. I will always be grateful for prayers, your encouraging words, and acts of love towards me and my family during trying times.

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Abstract of Thesis Presented to the Graduate School
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While research studies on the effects of single-sex instruction on the musical and academic achievement of students are few, many researchers who have studied the effects agree that learning in these classroom settings are showing positive results for both boys and girls. These positive results however, are mostly in favor of female students. The results of a comparative study on music achievement and the effects of single-sex instruction found that girls in a single-sex classroom achieved more success than girls in the coeducational schools. The results also showed boys and girls scoring higher on music achievement test than boys and girls in coeducational classroom settings. Research showed that single-sex learning environments can benefit girls by allowing them the opportunity to develop the critical thinking skills and effort as a way building up their confidence. Other studies showed a 65 percent increase in the grade point averages of students in single-sex classrooms. The aims of this paper are to review and discuss the related literature on the effects of single-sex instruction on musical creativity and academic achievement, the evidences of increased achievements

in the all-boys' and the all-girls' single-sex classes, as well as possible evidence of the positive effects of musical creativity in the all-girls' single-sex classes versus the all-boys single-sex classes.

INTRODUCTION

A Personal Teaching Experience

In summer 2007 the administrative staff of West Riviera Elementary School, (Riviera Beach, FL) made the decision to implement a new concept of effective teaching by placing all the fifth-grade students of the 2007-2008 school year in a single-sex learning environment. With the restructuring of the school and the reassignments of at least four principals at surrounding schools in our area, this new move seemed one that would promise some type of positive change. This school would surely be on its way to “skyrocket to success” on all academic levels. There would be two fifth-grade classrooms for boys under the instruction of two male teachers and two fifth-grade classrooms for girls under the instruction of two female teachers. Looking back on this past year alone, there has been an increased amount of positive change among the faculty, staff, and the student body. Test scores as well as the overall behaviors of the students have increased.

During the beginning years of teaching general music in the primary and intermediate grades, perhaps one of the most observable things to see develop in students over time, is how they are able to work and perform together when engaged in creative music lessons and activities. As a teacher at this particular at-risk school, during the “2007-2008” academic school year, I was able to see progress in the musicianship of a group of fifth-grade boys and girls separately as individual groups in a single-sexed setting. The successful musical performance and overall musical development of these intermediate students were an indication that single-sex instruction may have had some influence on the musical achievements of my students. With the achievements found in standardized tests and classroom assessments given

to students throughout the year, it would be logical to inquire if achievement in music has any effect at all in the learning process. In the music classroom, I observed that the students who showed the most potential in the areas of vocal performance, movement, and improvisational techniques with and without accompanied instruments, were the fifth-grade boys. When performing in concerts, the fifth-grade boys showed increased enthusiasm, willingness to learn, cooperative group participation, as well as an eagerness to learn how to take what they have learned one step farther. Toward the end of the school year it is revealed that male students as well as female students are achieving success in their single-sex classroom environment.

Single-sex Instruction Defined

Many researchers have interchangeably used the phrases “single-sex” or “single-gendered” classrooms to refer to the type of classroom setting that consists of the separate instruction of an all-girls’ group and an all-boys’ group. For example, Wilson (1996, pp.15) defines the phrase “single-sex classes” as an instructional setting comprised of like-gender students. Young (2004, pp.4) refers to the term “single-gender” and states that it will be used interchangeably with homogeneous and will be considered to be only one gender. Ulkins (2007, pp.9) uses both “single-sex” and “single-gender” to describe the classroom setting. Ulkins defines the phrase “single-gender” as a classroom that contains students of one gender (e.g. all male or all female). Newell (1981, pp.13) also defines single-sex education as “Any learning environment attended by students on the basis of their sex. Single-sex education is the practice of conducting education where male and female students attend separate classes in separate buildings or schools. Throughout this discussion and review of the literature, the phrase “single-sex classrooms” instead of “single-gender” will be used

when referring to the musical and academic achievements of a classroom setting that consists of all female students and all male students, as agreed by the definitions of many other researchers.

THE BASIS OF SINGLE-SEX INSTRUCTION

Researchers have indicated the existence of differences in the way boys and girls learn. According to Young (2004), teachers are searching for creative ways to keep students' interested in learning while increasing classroom productivity. With the demands of accountability placed on teachers by the NCLB Act of 2001 for properly financing the education and learning achievement of students, some public schools found implementing single-sex classrooms in public schools is a creative way to fill gaps in learning achievement among disadvantaged students, or students considered at-risk (U.S.D.E, 2004).

Critics such as the National Organization for Women (NOW) and the American Civil Liberties Union (ACLU) have taken the position that single-sex education is a violation of the equal protection clause of the Fourteenth Amendment. They have compared separation of gender to separation by race and have used the United States ruling in *Brown vs. Board of Education* as their legal reasoning; however, Whelan (1998, pp. 1-2) claims that this was not the intention of the Supreme Court's ruling. According to Title IV of the 1972 Education Amendment, "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance (D.O.L, 1972)." In 2006, the United States Department of Education published new regulations governing single-sex education in public schools. These new

regulations were required by a provision in the No Child Left Behind Act of 2001. The intent of the provision was to legalize single-sex education in public schools (NASSPE, 2005(f)).

NATION-WIDE INTEREST IN THE POSITIVE EFFECTS OF SINGLE-SEX INSTRUCTION

Due to the provisions made to legalize single-sex instruction in public schools, the National Association of Single Sex Public Education has reported that a growing number of schools (as of November 2009, there are at least 547 schools) throughout the nation are expressing interest in single-sex instruction in the public school systems. In a news article by Jennifer Medina (Medina, 2009), Paul Cannon, principal of a school that adopted single-sex instruction said, "We will do whatever works, however we can get there. We thought this would be another tool to try." Medina (2009) reported that Mr. Cannon was inspired by reports of the all-girls' classes in North Carolina and was inspired to try single-sex classes at his school. While Mr. Cannon's school is one of the many public schools that have adopted the learning environment of single-sex programs, there are mixed results. Some schools report academic and behavioral success in their programs, while other schools report disappointing outcomes due to the lack of professional development among instructional staff (Sax, 2005).

Many reports account for the positive effects of single-sex instruction on learning achievement in the classroom. Some reports claim that being in single-sex classrooms allows both boys and girls more freedom to explore their own interests and abilities than in the coeducational classroom (NASSPE, 2005(c)). The separation of boys and girls during classroom instruction appears to show some type of positive effect in many different areas. Boys seem more engaged in learning, while girls seem more hesitant to

participate unless guided by an instructor. Research in the field of single-sex instruction and achievement is significant in music education because it readily correlates with what students are being taught in the classroom. Research studies are showing significant findings that support the positive effects of single-sex classrooms.

GENDER DIFFERENCES

In today's classrooms research has shown the gender differences that exist in the way boys and girls learn in the single-sex classroom. These gender differences in learning appear to effect the achievement of male and female students in the coeducational classroom settings. In some cases, coeducational instruction has indicated mixed results in the percentages of achievement for boys and girls. Some research studies show significant evidence of boys and girls learning differently. For example, Labarthe (1997) gave 376 two-year-old toddlers an opportunity to build bridges using building blocks. Of the 376 toddlers, twenty one percent (21%) of boys were able to build bridges versus the eight percent (8%) of girls who were able to complete the same task. Boys had three times more success than girls in learning to complete a specific task or skill. Still, other research shows evidence that the opposite result is also true for girls. Boyatzis, (1993), examined the ability of a mixed group of 34 preschoolers to decode and encode facial emotions and gestures, the examined interrelationships between these skills, and the examined relationship between these skills as well as the children's popularity. Results revealed that there were no age or gender effects on performance. Children performed better on decoding and encoding tasks. In this case study, research showed that girls could interpret facial expressions just as well as or better than boys could (NASSPE, 2005(a)).

This literature review is aimed at discussing the effects of single-sex instruction on musical creativity and academic achievement, evidence of increased achievements in the all-boys' and the all-girls' classes, as well as possible evidence of the positive effects of musical creativity in the all-girls' versus all-boys. According to Newell (1981), curriculum offered in single-sex or coeducational private schools should provide the same opportunity for student achievement in all academic programs, especially those in music education. In agreement with Newell (1981), the review of literature will be used to aid administrators and music educators in their efforts to structure musical curriculum that will meet the needs of students in single-sex classes and schools in the best possible way.

ADVANTAGES OF SINGLE-SEX CLASSES FOR GIRLS

According to Watson & Smitherman (1992), some researchers believe, "The underlying rationale of the single-gender education is that a unique school program is necessary to address the unique needs of urban males." These unique school programs are single-sex classrooms. Agnew-White (2007) commented that young African American males are the group most likely not to experience success in the classroom or in society.

If this "unique school program" helps address the needs of students, both male and female, then the advantages of placing at-risk or disadvantaged students in single-sex education programs must show significant results. According to (Lee & Bryk, 1986; NASSPE, 2005(e)), the advantages of single-sex education for girls are threefold. First, it allows female students expanded educational opportunities. Female students in rare single-sex classrooms are more willing to explore subjects such as computer science,

physics, and woodworking; and leadership roles such as aspiring to be the CEO of a top-selling company. In coed classes, girls choose activities and subjects which will grant them a guaranteed outcome of success. However, in an all-girls' class, when students see female teachers and role models excelling in math, physics, computer programming, or, sports, they are more likely to excel in those areas as well.

The second advantage for girls in a single-sex program is that learning and instructional materials are custom-tailored to their needs. Teachers use different instructional methods to be sure learning is taking place. For example, the pairing of girls with each other instead of with boys shows improvements in academic performance, the use of differentiated instruction, and role playing when involved in whole-group instructional settings (NASSPE, 2005(e)).

The third advantage of a single-sex program for girls is having the sense of greater liberty to make decisions for themselves and by themselves. The National Association of Single Sex Public Education reports that female students in single-sex classes are less likely to have romantic relationships in middle and high school level than coed students. In addition, (NASSPE, 2005(e)) reports that girls in single-sex classes are less likely to experience unwanted pregnancy simply because they do not experience the pressures from coed peers to do what everyone else is doing, since all of their classmates are girls themselves. Girls in single-sex classes have the ability to just say no: they have fewer distractions and worries, and less peer pressure. This is significant because the US continues to have the highest amount of teen pregnancies no matter how small the increase seems. Based on the reports from The Washington

Post, the increasing reverse rate (meaning that in the beginning there was a increase and then a decrease in the rate of teens becoming pregnant) of teen pregnancy rose from 2005 to 2006, after a 14-year decline. “The latest data, from an annual analysis of birth certificates nationwide, found that while the birthrate among girls ages 10 to 14 remained unchanged, the overall rate for those ages 15 to 19 rose again, from 41.9 births per 1,000 to 42.5”(Stein & St. George, 2009).

ADVANTAGES OF SINGLE-SEX CLASSES FOR BOYS

The advantages in single-sex classrooms for boys are similar to the advantages for girls but the benefits are only two-fold. Boys, in the same way as girls, have the advantage of obtaining a more diverse and well-rounded educational experience. Male students are able to view their male teachers in many diverse roles. One principal observed differences among boy attending private schools and public coed schools in his locality. The principal observed that boys attending school with other boys enjoyed choral singing, desired to become fluent in French, and wanted to excel on their own in drama. In the coed public schools, boys considered singing in choirs and learning French to be unexciting activities. Another advantage for boys attending single-sex classes is the provision of customized instructional materials by their teachers to promote learning. Some suggest that teachers can keep boys motivated to learn by keeping the classroom setting loud and lively, calling students by their last name, and adjusting instructional topics to topics that appeal to boys (NASSPE, 2005 (d)).

With regard to the achievement of African American males in single-sex programs, Agnew-White, (2007) cites three components of an effective single-sex program: having African American males as role models, implementing Afro-centric

curriculum, and community involvement. The first component consists of providing positive images of African American male teachers, role models, advocates, and mentors for at-risk students (Ascher, 1991). The second component consists of community involvement in the form of afterschool programs that help keep students out of trouble. Many of these single-sex programs focus on students in elementary schools because of the decline in African American male teachers seen during the third and fourth grade. Mentors involved in these enrichment programs are able to motivate students to learn and also help meet the individual needs of these students with early interventions (Ascher, 1991). The third component is the implementation of an Afro-centric curriculum that helps give students a sense of pride. In addition to a further developed sense of their identity as individual African American males, implementing an Afro-centric curriculum may help nurture their need for a father figure in their lives and may promote positive relationships through male bonding (Ascher 1991; Jordan, 2003).

Eighty percent of boys always experienced positive relations while learning and interacting with each other in single-sex classes (Agnew-White, 2007, pp.74). The new learning environments allowed students more freedom to communicate their thoughts and ideas as well as opportunities of frequent academic achievement in their classrooms (Agnew-White, 2007). Abbott, (2007) found that removing males from the classroom removed the fear of being intimidated by boys, and allowed females more opportunity to experience success in the areas of critical thinking and effort.

RESEARCH ON THE EFFECTS OF SINGLE-SEX CLASSES ON ACADEMIC ACHIEVEMENT

To understand the effects of musical creativity on the academic achievements of students in the single-sex classroom, research that supports the impact of single-sex programs on the academic achievement of students must be reviewed. Experimental studies show significant results on the positive effects of single-sex programs on learning achievements in mathematics and science. For example, Young's (2004) literature review on the effects of single-sex classroom grouping on students' achievement and discipline revealed that public schools are becoming observant of the positive effects of implementing single-sex classes as an alternative way to group students. Young's study is one of many studies that confirm the positive effects that single-sex classes has on test scores. One important aspect from Young's research, was to determine how grouping students in same sex classrooms affected mathematic achievement. Math test scores in of the mixed classes and the all-girls' class differed significantly. One may deduct from Young's findings that perhaps the all-boys' classes had problems with discipline in their classroom setting. The all-girls' class achieved higher scores than the all- boys' class. Over the time-frame of one school year, the girls increased their math achievement scores by 60.78 points, despite an increase in discipline referrals. In contrast, the math achievements of the all-boys' group decreased by 21.82 points; the rate of discipline referrals stayed the same (Young, 2004, pp.40).

Similarly, other researchers found that single-sex instruction in math and science had positive impacts on performance and learning of girls. In one quasi-experimental study, participants consisted of a group of fifth-grade students. All students were tested using three different tools for measuring data: a criterion-referenced mathematics and science examinations in which a pre/posttest was administered, standardized

mathematics and science achievement tests, and the grades from the year-end mathematics and science report card. Results showed that neither girls nor boys were disadvantaged in the single-sex design. Girls showed significantly more academic growth between the pre-test and post-test administrations of criterion-referenced examinations in science than the boys. Wilson, (1996, pp.69) showed the pre-test means of 24.38 for the girls and post-test means of 29.22; a mean growth of 4.83. When statistically controlling for previous mathematics and science achievement, adjusted mean GPA scores raise for girls in both science and math and lowered for boys in both subject areas (Wilson, 1996). There were also significant findings on the effects of single-sex classes on the mathematics among the gifted population. While researching the impacts of single-sex classes and academic success, researchers found that boys and girls do learn differently and that differentiated teaching strategies applied in the single-sex classroom may also be an important factor in determining academic achievement among students. According to the findings of Steven Abbott's research, a single-sex learning environment can benefit gifted females by lessening the effects of stereotypes and giving students an avenue to develop greater critical thinking and effort skills as a way of increasing success and confidence levels in mathematics (Abbott, 2007). His case study of thirty-two girls among the gifted population, showed significant results among two of the eight variables tested: critical thinking and effort. The remaining variables were mathematics achievement, intrinsic motivation to study, study interest, test anxiety, study elaboration, study organization, study self-regulation, and managing time and study environments. Abbott's research found significant differences in critical thinking and efforts among females. As a result of female students

being encouraged to give more effort and when they were informed that classmates of the opposite gender would not bother or intimidate them, female students in the single-sex classes were shown to be scoring higher than females in the traditional classrooms (Abbott, 2007). Another case study on the effects of single-sex education on the academic achievements of African-American males found that the GPA's of sixty-five percent of the students improved, while twenty-six percent decreased with the implementation of single-sex classrooms. In the academic reading and math scores, the results showed that only fifty-five percent of the students improved, while twenty-one percent became worse. These trends in the percentages of non-improvement rates may be attributed to the fact that students were in transition from the traditional classroom instruction to the implementation of single-sex instruction (Agnew-White, 2007).

In a quantitative study in which the achievement of girls in single-sex classrooms was compared to the achievement of girls in traditional mixed-sex classrooms, a significant difference was found in the area of external locus of control. In the group statistics revealed in (Tables 51 and 52 of the research findings (Ulkins, 2007, pp.85), females in single-sex classrooms scored higher in external locus of control (they had a mean score of 4.52 and a standard deviations score of 1.35) than female students in the traditional classroom setting (whose mean score was 2.88, and a standard deviation score of .74). Ulkins (2007) defines "locus of control" as a personality construct designed to assess an individual's perceived control over his/her own behavior. Ulkins mentions two types: internal locus and external locus. "Internal locus of control" refers to the belief of an individual that his or her failures or successes are controlled by that individuals own effort or ability. "External locus of control" refers to an individual's belief

that his or her successes or failures are caused by factors outside of the individual's control, such as fate or luck. It also refers to a belief that other people and events control most of a person's life (Ulkins, 2007, pp.96 and Neill, (2005)). In retrospect, results show girls in the single-sex classroom scoring significantly higher than the girls in the mixed-sex classroom in the area of external locus of control. Differences in external locus of control may be because girls were able to overcome negative stereotypical ideas about science and scientists. Consequently, removing males from the science classroom had some effect on girls in the single-sex classroom, allowing them a greater chance of academic success in science (Ulkins, 2007).

RESEARCH ON THE EFFECTS OF SINGLE-SEX CLASSROOMS ON MUSICAL CREATIVITY

Based on the increasing number of significant findings on the relationships between gender and learning, it can be reported that learning is taking place in most school settings that have adopted the single-sex programs (Abbott, 2007; Agnew-White, 2007; Wilson, 1996). Newell, (1981) concluded that there was evidence indicating that students attending single-sex private schools scored higher on part 1 of Colwell's Music achievement test (MAT 1) than female students attending coeducational schools. The research shows that learning is taking place in single-sex classrooms. Male and female students, who are gifted and non-gifted, were previously considered to be the at-risk students. Studies that show students achieving academic success in mathematics and science in a single-sex classroom, will continue to increase the validity of results as more studies in the effects single-sex classrooms on academic learning and music achievement.

Of the few research studies that have been conducted on the musical achievements of students in a single-sexed learning environment, one study has shown significant results which support the topic of gender and learning. In this comparative study of pitch, meter, and interval discrimination among fourth, fifth, and sixth grade students in selected single-sex and coeducational private schools, the results of achievement as well as musical achievement, were found to be in favor of girls who attended private single-sex schools.

Some researchers such as Ulkins (2007) expected female students in a single-sex environment to earn higher grades compared to female students in a coeducational environment because female students are predicted to show more positive attitudes towards a subject area than female students in a traditional “coed” classroom (Ulkins, 2007, pp.7-8). As a result of this perception of female students in single-sex programs, the conclusions made by Newell (1981) will be in favor of evidences that achievement in a single-sex music class is a possible outcome.

Newell’s (1981) comparative research study of pitch, meter, and interval discrimination among fourth, fifth, and sixth grade students in selected single-sex and coeducational private schools indicates that both male and female students who attend single-sex private schools score higher on interval discrimination than students of the coeducational private schools. Secondly, boys that attend single-sex private schools score higher on interval discrimination than boys that attend the coeducational private schools. The third conclusion showed evidence indicating girls in single-sex private schools scored higher on pitch, interval, and meter discrimination than girls in the

coeducational private schools (Newell, 1981). Overall, the results of this study strongly favored the achievement of girls.

Research studies on the effects of student participation in music education programs and academic achievement show significant results of academic and musical success. According to Jones, (2008) and Eisner (2002), students who participate in a music education program frequently do better than their peers on many measures of academic achievement such as grade point averages and standardized testing.

CONCLUSION

Researchers have shown significant findings that guarantee positive relationships that exist between single-sex instruction and achievement. Critics will continue to challenge the benefits and the effects of single-sex classes in public school systems. However, single-sex education will continue to change the way boys and girls learn, think, and make choices. It is the belief of the researcher that single-sex instruction does not work for all settings. However, for those who have experienced success after implementing single-sex instruction in their schools, it is encouraged that more educators continue with the research on the findings of the positive effects of single-sex instruction and achievement. Proficiency in all subject areas is important. That is why single-sex instruction can help in the prevention of the problem, which in the classroom situations of most educators, is proficiency. Educators want to know that students are learning the material in the curriculum.

Research on the effects of musical creativity on the academic achievement of students in single-sex classroom, were in favor of the all-girls' classes. The advantages of being in a single-sex learning environment produced confidence, created

opportunities of success, and customized learning and instruction. The positive results found in studies of the effects of single-sex instruction at public schools for boys and girls indicated that more research is needed.

This review of the research indicates that the musical and academic achievement of students in single-sex classes is improved for both boys and girls. I would like to continue seeing an increase in the quality of musicianship in students at the fifth grade level. While the fifth-grade boys in my class seemed to have shown much more musicality and musical achievement, I believe that with time the fifth-grade girls will begin to excel in their single-sex classrooms. It would also be interesting to see a schoolwide implementation of single-sex instruction that would result in increase musical and academic achievement in the kindergarten through fourth-grade levels. As the administrators of West Riviera continue with the implementation of single-sex instruction in the fifth-grade level, it is very hopeful that positive changes will continue to develop among the student body.

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BIOGRAPHICAL SKETCH

I am the youngest of five siblings living in the wonderful town of West Palm Beach, FL. Upon graduating from Suncoast Community high school, I relocated to Gainesville, FL to pursue an undergraduate degree in the College of Fine Arts. In the spring of 2005, I successfully obtained a Bachelor of Arts degree in Vocal Performance at the University of Florida. Shortly after graduating from the University of Florida, I secured a general music teaching job at West Riviera Elementary School, located in Riviera Beach, FL. During the “2006-2007” school year, I worked with students from kindergarten through fifth-grade. I am currently working on fulfilling the requirements of my Masters degree in Music in order to graduate during December, 2009.