Fall 11-2015

A Comparison of Single Gender and Coeducational Classrooms, Student Engagement, and Achievement Scores

Myra Pendleton
Lindenwood University

A Comparison of Single Gender and Coeducational Classrooms, Student Engagement, and Achievement Scores

by

Myra Pendleton

A Dissertation submitted to the Education Faculty of Lindenwood University

in partial fulfillment of the requirements for the

degree of

Doctor of Education

School of Education

A Comparison of Single Gender and Coeducational Classrooms, Student Engagement, and Achievement Scores

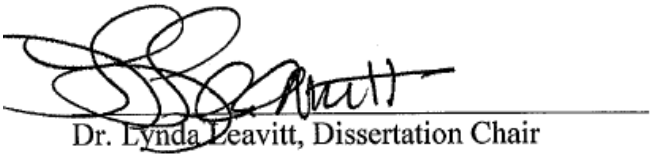
by

Myra Pendleton

This dissertation has been approved in partial fulfillment of the requirements for the degree of

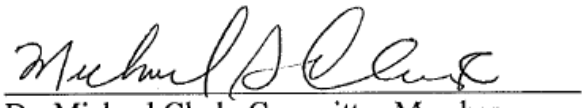
Doctor of Education

at Lindenwood University by the School of Education



Dr. Lynda Leavitt, Dissertation Chair — 11/20/2015 Date

Dr. John E. Jackson, Committee Member — 11/20/2015 Date



Dr. Michael Clark, Committee Member — 11/20/2015 Date

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Myra Michelle Pendleton

Signature: _____ Date _____

Acknowledgements

I thank God for providing me with the will and desire to accomplish this great feat. I am extremely thankful for the time and dedication my doctoral committee invested to making this study a success. Dr. Emrick, I appreciate your support and advice of encouraging me to seek Dr. Leavitt. Dr. Leavitt, I want to thank you for your patience, your keen eye, and your acceptance of only greatness. There were many obstacles during this course and you would keep me encouraged and steadfast. Dr. Jackson, I thank you for the countless hours of guidance, your detailed feedback, and the constant reminder to why this research was pertinent. To Dr. Clark and the Saint Xavier University Statistics Department, thank you for your time and dedication with the analysis portion and for helping me gain an understanding to why I completed this research. All of your expertise promoted a successful accomplishment.

Through the constant support of my family and friends, this terminal degree became achievable. To my parents, the numerous sacrifices you made to ensure I had the best outlook on life made me into the person I am today. Mom, "God knew what he was doing when he gave me to you." Dad, "Loving you is easier than breathing." To Jenni, my aunt that is more like a sister, thank you for the many days of "eradicating stress" and always lending an ear. To Candice, my sister-friend to the end: We Did It! To "My Granny," who passed during this process: You were a beacon of light and the ultimate example of a matriarch. To My Lexington Family, I thank you for your encouragement and will to succeed in all areas of the education arena. I cannot thank everyone personally, but please know that all of my family and friends have put their personal touch in making the completion of my dissertation possible.

Abstract

The purpose of this study was to determine if there was a difference in the academic achievement in reading among students enrolled in single-gender and coeducational classes, as well as the impact of teachers' perceptions on the outcome of academic achievement. The study used a mixed-method approach to address this purpose. This study reported quantitative findings from reading scores on the Acuity test for 396 students in grades two through eight, from four elementary and two middle schools within an urban district in Missouri. Acuity scores were examined in several ways: comparison of the means for coeducational and single-gendered classrooms by grade and gender, as well as Chi-Square test of significance and the analysis of variance. The findings of the study varied by grade level for single-gender and coeducation classrooms, but overall there was no significant difference. Using the qualitative method, this study reported findings from 36 teachers that were in six different groups. The researcher divided the teacher participants into six sample groups. Each group consisted of six subjects. Two groups taught single-gendered classes of the same sex. Another two groups taught single-gendered classes of the opposite sex as the instructor, and the last two groups taught coeducational classes. The results of the teacher perceptions indicated that a single-gendered classroom did not necessary alter student behavior. If student behavior was not altered, there was no expectation of positive change in student achievement. The overall findings of this study concluded that there was no significant difference in student achievement between single-gendered and coeducational classrooms in an urban setting. From this study, the researcher recommended that school leaders

should cautiously embrace single-gendered classrooms, due to the notion that they do not necessarily fulfill the claims that supports previously made.

Table of Contents

List of Tables

List of Figures

Chapter One: Introduction of Study

As Americans moved into the 21st century, African Americans made significant progress in education. More African Americans completed high school and went to college, standardized test scores increased, and the number of African Americans who lived above the poverty line increased (Patterson, 2012). Despite the progress, there were still visible learning gaps between Caucasian and African American students (Patterson, 2012). According to the National Assessment of Educational Progress (NAEP), Hispanic and African American students made large gains, but were still straggling behind their White peers (as cited by National Center for Educational Statistics [NCES], 2011). Statistics provided by the National Center of Educational Statistics in 2009 and 2011 revealed a 20 plus point gap on the NAEP in math and reading assessment. Children in grades four and eight took the assessment, and their results revealed a difference of approximately two grade levels between Caucasians and their African American and Hispanic peers (Education Week, 2011).

These statistics generally attributed to social economic differences in race, income, family composition, and access to resources, as well as parents' educational level. According to a study created by the Annie E. Casey Foundation in 2011, children living in poverty had lower language skills than middle-income families by the age of three (as cited by Education Week, 2011). Expectations based on race accentuated low expectations for African Americans. In a news report, Cafferty (2012) addressed the issue, 'What does race have to do with achieving the American Dream?' In his report, Cafferty addressed the socioeconomic status of one's family being a leading depicter of their socioeconomic status in the future (Education Week, 2011). Cafferty went on to

provide information from a study funded by the Pew Charitable Trusts (Cafferty, 2012) and reported a family's race, economic background, and neighborhood played a critical role in economic mobility. The study further uncovered, "While 84% of Americans have higher incomes than their parents did at the same age, those born at the top and bottom of the income ladder are likely to stay there" (Cafferty, 2012, p. 1). When race was a factor, Whites were more likely to supersede their parents in terms of income, and unfortunately African Americans born into poverty had a smaller chance of escaping that environment (DeNavas-Walt, Proctor, & Smith, 2010). This was important because in the researcher's experience as an urban school administrator, economic mobility often related to education.

Sherman (1997), author of the *Children's Defense Funds Poverty Matters: The Cost of Child Poverty in America,* indicated that low academic achievement and socioeconomic status often went hand in hand (as cited in Eamon, Wu, & Zhang, 2012). As early as 1966, the Coleman Report alarmed the nation with the significant role of family background and academic achievement (Coleman, 1966). Moving forward, a similar meta-analysis study of literature conducted by Sirin at New York University in 2005 reported the effect socioeconomic status had on academic (as cited in Lindo, 2014). . The results showed a medium-to-strong socioeconomic status in relation to student academic achievement (Lindo, 2014). Low income appeared to have a negative impact on academic achievement. An article by Mullins (2013) argued that deficiencies in the United States' low-test scores showed a relation to socioeconomic status. This article summarized a study completed the Organizational of Economic Co-operation and

Development (OECD) where high-school-aged students took the Program for International Student Assessment (PISA) (as cited by Mullins, 2013).

Administered, every three years the PISA delved into the educational system around the world by assessing students in the areas of reading, mathematics, and science (Mullins, 2013). In the area of mathematics, "The U.S. came in 26th among the 34 OECD countries, with scores on par with Hungary, Norway, Portugal, the Russian Federation, the Slovak Republic, Spain, and Sweden" (Mullins, 2013, para. 3). In the area of Reading "The U.S. came in 17th, on the same level as Austria, Czech Republic, Denmark, France, [and Hungary]" (Mullins, 2013, para. 3). According to OECD, disadvantages occurred due to socioeconomic status. The U.S.' 15% variation in performances, when compared to the 10% of countries like Finland, Hong Kong-China, Japan, and Norway, attributed to students' socioeconomic status (Mullins, 2013).

Historically, education was always essential for African Americans, dating back to the early days of slavery. For instance, according to Civil Rights historian and author Williams (2009), those enslaved understood the power struggle or the desire to keep them enslaved by denoting their urge to become literate. It was customary to threaten slaves with physical bodily harm if they tried to read or write. Not just these barriers, but also others placed on literacy for enslaved African Americans attributed to the already evident learning gap due to cultural and language differences (Williams, 2009). Moving forward, once slaves were emancipated it was written into law that literacy was illegal for African Americans, and they would be punished for learning to read and write. This concept lasted well into the 19th century in some states (Williams, 2009). In the *History of Multicultural Education Volume 2: Foundations and Stratifications,* Grant and Chapman

(2011) detailed education reform on a global level. In order to detail historical content, some references used in this document, found to be relevant by this researcher, may be over 10 years old.

Early in the 20th century, large debate surfaced in regards to education and African Americans. Two famous African Americans who were serious about education and encouraged the Black community to delve deeper were, Booker T. Washington and W.E.B. Du Bois (Rampersad, 2012). Both activists privately and publicly shared their disagreement for the way society presented educational strategies for African Americans in public schooling. Washington was vocal on his stance of educating African Americans (Williams, 2012). He believed in self-efficacy and bettering one's self, in-turn this would better the person emotionally and financially while not focusing on the racial inequalities or disparities that existed. Believing whole-heartedly in his practices, Washington laid the groundwork and opened Tuskegee Institute (as cited by Williams, 2012).

DuBois, on the other hand, thought focusing on self-efficacy for African Americans would prompt oppression from White society and African Americans should focus on the racial disparities (Rampersad, 2012). DuBois took his concept and founded the National Association for the Advancement of Colored People (NAACP) (Rampersad, 2012). While Washington focused on industrial education, DuBois focused on academics and advancing education through sciences and the arts. The ideologies of Washington and for educating African Americans were at separate ends of the spectrum (Williams, 2012).

Integration of African Americans into schools with Caucasians did not receive a warm reception. Many schools peacefully demonstrated the non-acceptance of African

Americans, while some school districts showed resistance openly and violently (Rampersad, 2012). The true essence of the feelings of many, exemplified by race riots, violent mobs, screaming, and hate crimes, prompted a dark era for African Americans in the 20th century (Grant & Chapman, 2011). Through the violent outbursts regarding the discomfort of African Americans receiving education in schools alongside Caucasian students, integration prevailed (Grant & Chapman, 2011).

This marked the rise of activists supporting the movement of equal opportunity for African Americans. Malcolm X unknowingly opened the eyes of all during that time to racial indecencies (as cited by Serrano, 2010). Malcolm X was direct in his accusations regarding whom he faulted for the racial tensions and injustice in America. Openly stated, Malcolm X highlighted White America as the root to the evil that had overcast African Americans (Serrano, 2010). Malcolm X's rigid propagandizing did not receive acceptance by all, including African Americans. To counteract the harsh undertones of Malcolm X, brought to the forefront was a man the world came to know as Dr. Martin Luther King, Jr. (King & Carson, 2010). King, a man dignified by humility, carried a non-accusatory mind-frame and promoted peace and acceptance. During the renowned "I Have A Dream" speech, King (1963) expressed the words, "All men are created equal" (p. 17) and children shall "not be judged by the color of their skin but by the content of their character" (p. 33). Through the teachings of both Malcolm X and King, the Civil Rights movement took flight (Serrano, 2010).

To understand the status and importance of education for African Americans, it is important to discuss briefly the role of education in America. The U.S. had one of the most extensive and diverse educational systems in the world and until the 1830s most

American children attended school irregularly, and most schools functioned either privately or by charities (Grant & Chapman, 2011). During this time, the irregular system, known as Common Schools, created specialized courses to train the fast-growing immigrant society on becoming citizens (Grant & Chapman, 2011). Not until around the 1840s did public schools develop in the U.S. (Klien & Rice, 2012). By 1890s, states began to expand attendance requirements, making it mandatory for more children to attend school regularly. The new law arose to ensure all students, including immigrants integrated into society, an equal opportunity and access to at least primary schooling (Klien & Rice, 2012). Additionally, students obtained instruction on rigorous skills that prepared them for the industrial changing world.

Education became increasingly important during the 1900s, as America refined its demands for a more literate and skilled workforce (Grant & Chapman, 2011). In addition, school offered courses for college preparatory, commercial or business, industrial, vocational, home economic, agricultural, and a modified academic program (Klien & Rice, 2012). By the early 1900s, students attending all-women's colleges showed a drastic jump and increase (Jones, 2012). According to an educator and pioneer in women students, Solomon (1987), enrollment for single-gender and coeducational institutes increased during the 1900s and the women's suffrage movement followed this era. Around this time, the student body make-up of coeducational higher learning institutes included 47% of women (Solomon, 1987, p. 111). Arguments in favor of coeducation included the wastefulness of separate institutes, equal opportunity, and the idea that men would be easier to manage if there were a presence of women. By the late 1920s, many colleges were growing and women outnumbered the men (Jones, 2012).

This era lasted only until the 1930s, which then marked the return of women's traditional roles in society. Emphasis was placed on the family and keeping women at home (Jones, 2012). As a result, education expanded rapidly and near the end of the 20th century many states required children to attend school until they were at least 16 (Grant & Chapman, 2011). Strengthened mandates allowed for enrollment in advanced education to rise; this was a necessity for success to compete in the global, technologically-changing world (Paulsen, 2013). Keeping with this theme was the variance in annual income. "According to the U.S. Census Bureau, workers with a bachelor's degree in 1997 earned an average of $40,000 annually, while those with a high school degree earned about $23,000. Those who did not complete high school earned about $16,000" (DeNavas-Walt et al., 2010, p. 35).

Increasingly, those who did not acquire a post high school degree or even complete high school were African Americans (DeNavas et al., 2010, p. 35). Several recommendations surfaced and attempted to correct the dilemma facing African American communities and the lack of students receiving a quality education. In more-recent times, President Barack Obama stated in 2009, "America will not succeed in the 21st century unless we do a far better job of educating our sons and daughters" (p. 1). To help correct the downhill trend of the failing educational system in America, the federal and state government implemented major reform efforts like No Child Left Behind, Race to the Top, and Senate Bill 319; which was a revised statue established in 2001 for school districts in Missouri (Grant & Chapman, 2011). Senate Bill 319 provided an early assessment of students' reading skills and interventions put into place for students who were unable to achieve the desired reading level (Missouri Department of Elementary and

Secondary Education [MODESE], 2012). These reform efforts pressured the U.S. educational system to equip more students meet state standards (Grant & Chapman, 2011).

Throughout the years, government and school districts alike began developing strategies to close the achievement gap (Grant & Chapman, 2011). However, the vast variance in race, gender, and socioeconomic status continued to remain evident. "Achievement gap is often used to refer to the performance gap between minority students, particularly African American and Hispanic students, and their white peers, and similar disparities between students from low-income and well-off families" (Zhao, 2009, p. 1). These disparities were noted in various areas, including but not limited to: grades, college and career readiness, test scores and high school graduation rates (Zhao, 2009). This researcher believed one specific way of looking at the educational gap was through the lens of the organizational setting, which when used provided an environment for progress. Northouse (2013) described an organizational setting to include members of the organization and the relationship between them and the actual organization, the leadership skills development, and the behaviors reported and communicated to and from the authority (p. 103). The development of organizational setting in an educational institute, specifically within a classroom setting required educators to consider objectives, learning styles, assessments, and accountability to create a successful atmosphere (Northouse, 2013). After the establishment of variables in the organizational setting, assessed was the fit contingency. The contingency of 'fit' referred to how well the setting worked between the instructor and the students (Grant & Chapman, 2011). Zhao (2009) described the process of an organizational setting reform within large urban school

districts as two waves. He concluded that the first wave of reform during the 1980s responded to the problem of an educational gap by tightening the reigns of bureaucratic controls over the curriculum and over the teaching practices and strategies. Opponents believed the bureaucratic controls were damaging to the educators' morals and incompatible with the autonomy of the schools and instructors (Zhao, 2009). According to Northouse (2013), decreasing bureaucratic control was accepted as an approach and labeled the second wave of reform, during the 1980s. This approach enhanced working conditions and relied upon the expertise of educators (Northouse, 2013).

The major focus of this study was to determine if an organizational setting played a role in a student's academic success. For the purpose of this study, the organizational setting was a coeducational classroom, or single-gendered classroom. Studies recent to this writing suggested an effective way of dealing with student low achievement in minority groups was through single-gendered classrooms (Patterson, 2012). Advocates and educational researchers supported single-gendered classrooms after conducting a study in which they found that the separation of boys and girls removed barriers and allowed for high levels of rigor (Patterson, 2012). Conversely, Park, Behrman, and Choi (2013) expressed a need for an increased emphasis on coeducational classrooms, which led to the following overarching research question: Are single-gendered classrooms more effective than coeducational classrooms? The purpose of this study was to determine if there was a difference in academic achievement of African American between students within a single gender or coeducational classroom setting.

Advocates of single gendered classrooms believed they faced opposition due to previous rulings and laws. *Plessy v. Ferguson* (1896) set the tone for separate, but equal

in education and stated that a separated educational facility for Blacks and Whites was constitutional (Bishop, 1977; Medley, 2013). It was not until *Brown v. The Board of Education* in 1954 that this law was overturned (as cited in Medley, 2013). Moving forward, less conservative educators believed that single-gender education was a regression to when females lacked access to the large number of schools available to males (Patterson, 2012). Previous research revealed the quality of education provided for females was lacking for males and perpetuated the belief that boys and girls processed information differently (Jones, 2012). Inherent in this belief was the implication that women were the weaker and less dominant of the two sexes. This provided a platform for government debate over loosening the restraints of legislation that made room for single-gendered classes (Jones, 2012).

In 2001, New York Senator Hillary Clinton addressed the issue of single-gender education and its availability for all families, regardless of economic status (Sommers, 2011). The end goal for the push for single-gender education was to make single-gendered classrooms an available option for all children. This option was available regardless of the socioeconomic status of the children's family (Mullins, 2013). Clinton stated, "There should not be any obstacle to providing single-gender choice within the public school system" (as cited in Sommers, 2011, p. 1). Clinton took the position that it was unfair to offer single-gender education to families who could not afford to pay for private schools offering this alternative (Gross-Loh, 2014). A graduate of single-gendered schooling, Clinton teamed-up with a republican colleague in the U.S. Senate to work, propose, and pass legislation that provided single-gendered schooling opportunities to all (Gross-Loh, 2014). Together they worked to pass an amendment to the Title IX

legislation regarding single-gender education (Sommers, 2011). After this change in public education, the number of schools that offered single-gendered classes increased (Mullins, 2013).

Background of the Study

Due to the positive outcome of previous studies on single-gender education, gender specific classrooms became the focal point of schools not only in the U.S. but also around the world (Ibanez, 2011). Although single-gendered schools pointed to positive outcomes, there were also concerns in the disparities in the education quality that each gender received (Ibanez, 2011); specifically related to race, culture, socioeconomic status, and gender (Mullins, 2013). Prior to the passing of Title IX legislation, single-gender education in the public school setting appeared to cause more harm to females than support, according to The American Association of University Women (AAUW, 2011). With the establishment of separate facilities for both boys and girls, these facilities were still drastically unequal (Ibanez, 2011). Inequalities existed in allocated resources where options became limited due to funding (American Association of University Women [AAUW], 2011). The AAUW (2011) took the stance that preventing discrimination or inequalities in education stood to evaporate due to superior civil rights standards. The organization formally known as National Association For Single Sex Public Education (NASSPE), known at the time of this writing as the National Association for Choice Education (NACE, 2011). described Title IX legislation as a means of providing specifications that required schools to make available equal services, including but not limited to the curriculum, admission, courses, programs, activities, and facilities (NACE, 2011). Creating this legislation placed a balance on single-gender

education and removed previous restrictions. Although restrictions were lessening, the Office for Civil Rights admitted, "There are still more gains to be made" (as cited by U.S. Department of Education [USDOE], 2014, p. 2). The U.S. Department of Education (2014) referred to ways of reaching new heights when creating guidelines that required or offered substantial equal opportunities by not only gender; but in the classes, school, programs, clubs and content area (p. 2). Title IX legislation also made provisions for remedial and affirmative action if necessary (NACE, 2011). Based on improving education and meeting individual needs, Title IX provided the means to help reform education by allowing for remedial action. Remedial action in education restored equality over time, while affirmative action had a more immediate effect of restoring equality to certain groups (Northouse, 2013).

There was concern that African Americans were unsuccessful in the educational system (NACE, 2011). According to Park et al. (2013), improving the educational achievement of students and meeting individual student needs were two ways of correcting this trend. Single gender education proposed a means of helping African Americans succeed. In 1965, the U.S. Congress passed the Elementary and Secondary Education Act, which included the possibilities that educational institutions used a portion of their funds to support gender-based education or single gender classrooms (NACE, 2011). In 2001, general provisions of the No Child Left Behind Act allowed previously considered discriminatory single gender education to be considered as a viable option and allocated funds as a means of supporting single-gendered classes (NACE, 2011). Section 5131 (a) (23) of The Elementary and Secondary Education Act of 1965

contained guidelines to assist school districts and schools in complying with the requirements pertaining to single-gendered classes (USDOE, 2014).

Not all educators praised single-gender education as best practice (Pahlke, Hyde, & Allison. 2014). Some of the research indicated single-gendered schools were unhealthy, defined as not in the best interest of promoting positive social interactions with the opposite sex (Pahlke et al., 2014). Other criticisms of single-gender education included the notion that one gender would suffer and not receive the same quality education as the opposite gender, along with the underlying issue of fiscal resources (Adelman & Taylor, 2013). Changing coeducation classrooms to those of gender-specific classrooms carried an additional cost when implemented correctly, and there was concern over funding this transformation due to limited funding (Bradley, 2010). Critics of single-gender education feared funds from other essential programs, resources, and staffing would lead to the use of supporting single-gendered classrooms at the expense of other educational offerings (Bradley, 2010). In 2005, the U.S. Department of Education completed a study revealing that employment was limited, transportation was scarce, resources were diminishing, and programs that once were available were becoming obsolete with the implementation of single-gendered classes (as cited in Adelman & Taylor, 2013).

Many studies focused on gender-based classrooms consisted of ideas and viewpoints from the students or specialists; however, these same studies lacked the teacher's perspective (Booth, 2014; Kimmel, 2014; Pahlke et al.2014). Some critics of single-gender education believed there were benefits to single-gendered classrooms but lacked the finances to support them (Smyth, 2010; Strauss, 2014). Lewin (2011) found

that the NASSPE reported there were more than 200 U.S. public schools providing gender-based classes. However, the same report noted that 44 of the 200 schools were already single-gender educational facilities (USDOE, 2014, p. 57). Regarding higher education, during the early 1800s, colleges for women, called seminaries, did not carry the classification of colleges. Some of the schools modeled the curriculum that most prestigious colleges offered men, while others became the prototype for all-girl schools (Jones, 2012). Many seminaries that were providing education for women only provided a means of education that was equivalent to a high-school level. Courses in these seminaries prepared women to be domestic; many graduates were teachers, mothers and wives (Jones, 2012).

The idea of separate educational facilities based on gender began in the early 19th century when educational separation of the sexes was the norm (Patterson, 2012) and the separation was predominately due to topic or course subject (Medley, 2013). The belief that separate classes prepared students for life was the driving force behind this approach, while learning styles were irrelevant (Patterson, 2012). During these earlier times, adults believed that interactions with the opposite sex constituted a code of ethics violation (Grant & Chapman, 2011). When the same course was available to both male and female students, schools deemed it inappropriate to have coeducational classes. In most cases, the adults held assumptions prevalent of the time that interaction with the opposite sex was indeed a code of ethics violation (Patterson, 2012). The history of women's suffrage traveled through women's rights as they (women) faced to gain equality in regards to men and equal opportunities (Klien & Rice, 2012). These equalities stemmed from feminism, property rights, equal opportunity in work and education, and equal pay. This

was not only for women in comparison to men, but also for African American women compared to Caucasian women (Klien & Rice, 2012).

Statement of the Problem

Faced with budgetary constraints and a constant strive for academic success, districts were forced to make cuts in every aspect of education during the reform era of the 1980s. School districts searched for known practices that provided positive results for their students within their budget constraints. Many studies indicated that the reform efforts to improve academic instruction in the urban community would take more than the known factors of parental involvement, teacher encouragement, school resources, discipline, and an advantageous environment (Grant & Chapman, 2011; Klien & Rice, 2012; Northouse, 2013).

As a possible solution for the failing status of students in an urban community, school districts juggled with the idea of single-gender education (Noguera, 2012). Title IX was one law in relation to specific provisions regarding gender in the classroom (Mullins, 2013). Researchers identified specific criteria to utilize as norms and best practices, but were unable to specify what worked in single-gendered classrooms (Ibanez, 2011; Park et al., 2013). The topic of single-gendered classrooms created dismay between community members, parents, students, and the educators within the school (Park et al., 2013). Although school districts developed single-gendered classrooms and included research-based best practices, they failed to address the change in the environment due to possible discomfort, uneasiness, and stress (Sommers, 2011) of the educators involved.

Tension developed between school districts and staff implementing single-gender instruction centered on the educators' views and personal gender bias. When educators had preconceived notions, it became difficult to conform to the ways each gender received information (Ibanez, 2011). Receiving information differently contributed to the gender gap and what Wilson (2013) considered the Boy Crisis (as cited in Noguera, 2012).

The rationale for the development of this Boy Crisis centered on the scientific evidence that revealed a trend in which boys had higher dropout rates due to a gap in academic achievement (Norguera, 2012). According to Barnett and Rivers higher drop-out rates developed from factors such as working to assist the family as well as the availability of employment (as cited in Noguera, 2012). Boys leaving school was highly visible and an area of increasing concern throughout the urban communities (Rampersad, 2012).

Purpose of the Study

Education viewed as a means to promote equality was inherent in the American democratic society, and when achievement in education formed the basis for mobility in our society apparent achievement gaps pointed to both inequality and failure on the part of our educational system. Throughout the years, research supported the notion that students receive and understand information differently (Brown, 2013; Smyth, 2010; Ward, 2012). Evidence of different learning styles included methods of understanding and views on education as a whole (Brown, 2013).

Ibanez (2011) noted that educators at the time of his writing must learn to conform to today's students and not yesterday's teaching styles. Brown (2013) indicated

that although the achievement gap was lower in one district than in another, the mere fact that there was a gender gap was a problem. The primary purpose for conducting this study was to ascertain if the organizational setting of a single-gender classroom might provide a successful strategy for educating African Americans. African Americans faced a trend of having low expectations for themselves, along with a similar view displayed by others (Noguera, 2012). African American children, especially males received life lessons on the 'streets' that created a path of poverty and future imprisonment, or even death (Wilson, 2013). Wilson (2013) went on to state, "I have observed a disproportionate number of young African American males who are being referred to special education programs and are suspended or expelled from school" (p. 165). This set the stage for students to perform poorly due to the preconceived notion that African American males were troublemakers and unable to succeed in the education arena. Educators believed having positive African American role models who frequently interacted with African American students could lead to greater academic success (Wilson, 2013). Unfortunately, there was been a steady decline in the number of African American male instructors in the primary and secondary level. Within the last two decades, less than 3% of educators in the profession of teaching were African American males (NCES, 2010, p. 1).

Despite race, successful role models displayed enthusiasm, honesty, and persistence; and remained positive, loving, and encouraging when working with their students (Noguera, 2012). The development of an atmosphere that demanded high standards and expectations was reflective in the positive outcomes and plausible due to high demanding instructors from any race or gender. Educators understood that goals

should be adjustable and attainable while continually reflective of their own practices and supported by data (Wilson, 2013). With these characteristics established, barriers were broken for African American students and created a safe haven where mistakes and risks could occur (Noguera, 2012). According to Rampersad (2012), females fared better academically when compared to their African American male counter parts. This was the same when comparing low-income African American students to middle or upper-income White students (Rampersad, 2012).

This study also addressed teachers' attitudes towards single-gendered classrooms. In particular, the researcher investigated how teachers' attitudes might influence student achievement for students in an urban setting and analyzed single-gender and coeducational classrooms, grades K through eight within an urban school district. Furthermore, the researcher collected data from student academic achievement scores in single-gendered classrooms and compared their scores to students who were in the same grade-level within coeducational classrooms. The control group, coeducation, was compared to both of the experimental groups in this study. The experimental groups were single-gender boys and single-gender girls. For the comparisons of achievement scores, the researcher used data generated by Acuity Benchmarking, which was the district's assessment. The independent variables were the instructional settings of single-gendered classrooms and coeducational classrooms, and grade levels. An interceding variable were teachers' perceptions of single-gender instruction. The dependent variable was the outcome of student performance on the Standardized Benchmark Testing. The study included 18 single-gendered classrooms, two from each grade level for kindergarten through eight, within the same school, along with 18 coeducational

classrooms, from different schools within one urban school district. The superintendent and principals in the urban public school district supported this study by providing measurable assessment information on both single-gender and coeducational classrooms.

According to Ward (2012), the difference in the way boys and girls learned resulted in a gender achievement gap. For example, boys and girls both had an interest in reading; however, boys' interests were more dependent upon their personal interests (Noguera, 2012). The difference in the way boys and girls learned resulted in a gender achievement gap, evident in classrooms around the world (Ward, 2012).

These studies and observations made the research into single-gender education an important factor when determining alternate means to reach academic success within the researched school district. Discovering the perceptions of classroom teachers on gender-specific classrooms within an urban educational setting may provide a wealth of knowledge for other educators within similar environments. Using both gender specifications and the perceptions of educators played a critical role in determining the educational research questions for this study.

Research Questions

The following research questions guided the study:

RQ1. How do single-gendered classrooms compare to coeducational classrooms based on student achievement scores?

RQ2. What impact does teacher attitude have on the academic success of a gender specific classroom?

Hypotheses

In order to answer the research questions, the following hypotheses were addressed:

H_1: There is a difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms, as measured by Acuity scores in reading/language arts.

H_2: There is a difference in teacher perceptions of African American student behavior and performance in single-gender and coeducational classrooms as measured by teacher ratings.

Definition of Terms

Achievement Gap - the difference in performance within a specific group of students; the groups specified by race, gender, and socioeconomic status. This gap compares how well students do on standardized test (Noguera, 2012).

Acuity CCSS Test - a comprehensive assessment solution that delivers formative and interim assessment to help teachers target instruction that effectively impacts student achievement for grades two through eight in mathematics, reading/language arts, and science (CTB/McGraw-Hill, 2015). Acuity proposed a design to provide a complete perspective on student achievement and a view into the future through comprehensive alignment to the Common Core State Standards, (CCSS), as well as providing for comparison of each student's performance from test-to-test (CTB/McGraw-Hill, 2015).

Affirmative Action - equality in education and the improvement of opportunities for a certain group of students, used to improve standards and promote individual civil rights (Medley, 2013).

Boy Crisis - a perceived achievement gap between boys and girls, due to what Fergus and Noguera (2010) termed as academic neglect of boys by their teachers and the prevalence of an educator's teaching style more geared to girls in the classroom.

Common Core State Standards - is a state-led effort coordinated by the National Governors' Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers (CCSSO) (Common Core State Standards Initiative, 2013). The standards developed in collaboration with teachers, school administrators, and experts to provide a clear and consistent framework to prepare our children for college and the workforce (Common Core State Standards Initiative, 2013). The NGA Center and CCSSO received initial feedback on the draft standards from national organizations representing, but not limited to, teachers, post-secondary educators (including Community Colleges), civil rights groups, English Language Learners, and students with disabilities (Common Core State Standards Initiative, 2013). For the purpose of this study, CCSS standards were used when assessing students on the Acuity Assessment.

Discrimination - a negative act or to treat someone in a manner that is showing a difference based on race, religion, ethnicity, or gender (USDOE, 2014).

Gender-Based Education – Park et al. (2013) pointed to classrooms that separated by gender based on criteria, such as appropriate coursework, classroom management, and learning styles research. Single-gendered classrooms usually provided the same curriculum as coeducational classrooms. Single-gender education is another term used when referring to gender-based (Park et al., 2013).

No Child Left Behind Act - NCLB established specific achievement goals in the areas of communication arts and math, which stated that all students would exhibit proficiency in these areas, as measured by standardized testing, no later than 2014 (USDOE, 2014). The measuring of success for schools and districts was through testing with the expectation to attain Adequate Yearly Progress (AYP), as measured by comparing performance with those of other schools in the nation (USDOE, 2014).

Public Schools - These schools were state-funded with a grade range of kindergarten to 12th grade (Ibanez, 2011).

Race to the Top - incentives offered by the federal government to improve the educational system for K through 12 education. Race to the Top, developed by the Obama Administration invested over $400 million dollars to reform schools in America (MODESE, 2012, p. 3).

Remedial Action - small amount of change made to make-up for deficiencies in education (USDOE, 2014).

Senate Bill 319 - Established in 2001 for Missouri School Districts and was a revised statue for an early assessment of students reading skills and interventions when they are not reaching the desired reading level (MODESE, 2012, p. 2).

Socioeconomic Status -The way society viewed one based on their experience in the job field, education, and a combination of the economic status of the family (Mullins, 2013).

Standardized Test - Standardized testing was the administration of a test with the same settings for all test takers that had validity and reliability (NACE, 2011). The scoring of this test was the same and the test takers were administered the test with the

same conditions and in the same manner (USDOE, 2014). For the purposes of this study, standardized test refers to Acuity Benchmarking.

Title IX - provided specifications that required schools to make available to students equal services (NACE, 2011). Based on sex, no person shall face exclusion from participation in, deprived from the benefits of, or be exposed to discernment under any educational activity or program accepting federal funds. These services include but are not limited to the curriculum, admission, courses, programs, activities, and facilities (NACE, 2011).

Limitations

This study was limited to the realms of a single urban public school district in Missouri. Therefore, the findings may not be accurate for all public schools. The sole researcher of this study was a district employee where the research was collected and participants were sought. Data was not compromised by researcher bias.

This researched school district was the largest district in the city area at the time of this study; however, gathering information from various districts would have provided a more in-depth analysis into the perceptions of the teachers surveyed. When using this urban public school district, this study was limited to examining single-gendered classrooms and coeducational facilities for grades kindergarten through eight. This classroom design was new to the district and only two buildings offered single-gender education.

At the time of this study, the participants lacked detailed training on gender-specific instructional design or delivery methods. Various groups received limited professional development; however, the educators of these groups were not the pilot

group of the single-gendered classrooms. The team assigned to creating a basis for single-gender education lacked key stakeholders and the researched school district was in the first stages of learning the laws, procedures, and protocols related to single-gendered classrooms.

This district was 99% African American and the economic status for most families ranged within the poverty level (MODESE, 2012, p. 2). Another limitation was the utilization of a convenience sample for all observations. This occurred due to the variety of classroom times and the individuality of each school site. To overcome the limitations data was collected from every K through eight classroom, both single-gender and coeducational alike.

Summary

Historically the courts did away with separate but equal in education, given the notion that single-gender education may be beneficial to African Americans. With the passing of *Brown v. The Board of Education* ceased the concept of separate but equal within an educational context (Medley, 2013). Some perceived that single-gender education was a regression in time (Grant & Chapman, 2011), and if there was a weaker or less dominant sex in regards to single-gender education, the less dominant sex would be female (Jones, 2012). However, with the passing of Title IX legislation a means to assist with the equalities regarding single-gender education occurred (NACE, 2011).

Gender-based classrooms took on many forms within our educational system. Early models were founded in Catholic institutions, private and preparatory facilities (Grant & Chapman, 2011). Due to federal laws surrounding the No Child Left Behind Act of 2001, gender-based classrooms again began to re-emerge, and at the same time

parents began to reconsider this model when making education decisions for their children (Kehler, Martino, & Watson, 2010). It is within this historical context that this study analyzed single-gender and coeducational learning environments.

The dissertation included five chapters. Chapter Two reviews the then-current literature related to single-gender, coeducational learning environments, the history of educators' views on teaching both male and female students, best practices for learning styles of male and female students, and laws related to both single-gender and coeducational instruction were discussed. Chapter Three describes the methodology utilized to complete this study. Chapter Four includes the results and analysis, and Chapter Five discusses the results and recommendations for future studies.

Chapter Two: Review of the Literature

Introduction

As U.S. school districts faced challenges to increase student achievement, they remained open to new instructional strategies and best practices, specifically single-gendered classrooms. This review of the literature addresses the strengths and weaknesses of single-gendered classrooms and factors that influenced student outcomes, such as teacher perceptions of single-gender instruction, educators' views on instructing boys and girls, and organizational structure and teaching strategies.

At the beginning of the 20th century, the debate over coeducation resurfaced. High school student enrollment grew at a continuous rate and curriculums developed to fulfill traditional feminine and male roles (Gross-Loh, 2014). These courses provided the necessary skills for students to enter the labor market. While the students attended school at the same institution, prominent societal constraints of male and female-specific gender roles prevailed in course assignments and the amount of influence exerted by administrators (Chadwell, 2010, 2014). For example, women were in the traditional helping professions for years. These traditional professions included fields for nurses, homemakers, and teachers (Ardinger, 2012). In contrast, these fields did not meet high demands for males. Males generally pushed into the fields that made use of their hands, mathematics, and science skills (Tully & Jacobs, 2010).

The general thinking in regards to coeducational classes centered on the belief that, if the same instructors taught students the same ideas or concepts they would have equal access (Bradley, 2010). Stated differently, allowing all students to take the same subject should result in equal treatment and aspirations. Fields considered gender-

neutral, such as journalism, began to appear balanced, recent to the time of this writing (Ardinger, 2012). A good example of this appeared in news media and space travel.

Some ethnic or religious groups resisted coeducational classrooms, citing religious or moral grounds and believed the practice would lead to moral decay and unnecessary competition (Smyth, 2010). These same groups believed that joining boys and girls in the same classroom would spark interest deemed inappropriate, according to guidelines set forth by religious institutes, and would not allow for detailed explanations concerning ones' sex (Smyth, 2010). Many experts advocated for separate curriculum claiming that religion played a pivotal role in their own purpose in life (Concordia University, 2013).

History of Single-Gender Education

The notion of single-gendered classes started with the dawn of education, with gender studies by well-known theorists such as Freud and Lacan, as early as the turn of the 19th century (Kimmel, 2014). The concept of gender-based classrooms, like most history, repeated itself with many of the previous studies focused on the elementary and secondary aspect of education (Concordia University, 2013).

It was not until the late 1700s that the appearance of coeducational classrooms developed in North America (Ivinson & Jackson, 2013). Contributed to this change in educational thinking is the reforming stage of religion and the basic conditions of frontier life. Coeducation classrooms quickly grew in popularity throughout New England in the U.S., and schools curriculum and instruction formed around literacy and religion (Ivinson & Jackson, 2013). With the church expanding and enrolling a higher number of female members, it was impossible to continue to keep the same requirements for schools and

not allow female students to attend. Research on single-gender education showed greater benefits for male students (Bradley, 2010). Other studies revealed systematic advantages of both coeducational learning and single-gendered classrooms (Smyth, 2010). There were also studies that revealed little to no support of single-gender education in comparison to coeducational learning (Strauss, 2014).

How to educate boys and girls together had an unsteady history. Throughout history there were eras where educating boys and girls in a coeducational setting was the norm, as well as eras when educating them separately was socially expected (Ivinson & Jackson, 2013). Questions arose concerning children's socialization skills, equality between gender, as well as higher academic expectations between girls and boys. Ideally, conservatives advocated for separate schools for boys and girls, and gender-specific courses (Gross-Loh, 2014). This cultural change, along with moral and religious rationales, allowed for little resistance to coeducation schooling, due to the wide influence of the 1960s (Ivinson & Jackson, 2013). During this time, racial relations heightened and the demand for ending separate but equal took a pivotal turn (King & Carson, 2010). Civil rights concerns released strong views for both the single-gendered educational settings and coeducational settings (King & Carson, 2010). With the existence of little resistance, a new era took shape. This new era was a progression in coeducational practices, not only in America but also in other countries as well (Ivinson & Jackson, 2013). Coeducation in America spread slowly, and the civil rights movement brought on new developments and challenges. Social injustice and racial inequities in public education came to the forefront of the public's eye (Ardinger, 2012). Gender equity in education allowed activists to extend pressure to educational institutions

regarding racial and gender inequality (Ardinger, 2012). As the U.S. shifted, feminists and liberals supported the women's movement and wanted separate educational institutions to be successful. Considering the U.S. was a morally liberal society and had limits, there most likely will always be distinctions made between coeducation vs. single-gender institutions (Lewin, 2011). The women's movement came at the end of the approach to coeducation. This movement took place at both the secondary and postsecondary level. Widespread efforts allowed for gender equality movements that originally took shape in the U.S. (Gross-Loh, 2014). Throughout all developing countries, coeducation grew in popularity. In other countries where coeducation carried a perceived notion of being immoral and unethical, the rights of women were constrained due to the society's resistance (Ivinson & Jackson, 2013). Renewed interest in single-gendered schools indicated, at the time, that the controversy over coeducation was not likely to subside quickly (Ivinson & Jackson, 2013).

While single-gendered schooling was predominating, coeducational institutions grew in other countries around the world (Pahlke et al., 2014). Change took place with Catholic schools and colleges (Halpern et al., 2011). In many Catholic schools around the globe, coeducational classes and institutes carried a message of giving or providing opportunities for genders to work together and interact with each other appropriately (Halpern et al., 2011). The Catholic schools took on the approach that coeducational institutes provided practice to master the skills needed to have optimum success with secondary schooling and in the workforce (Ivinson & Jackson, 2013). The most astronomical change came in the form of admission policies (Catholic Schools Week, 2014). Keeping with the Catholic school rationale, private and public single-gendered

schools began creating classes that pertained to both genders and allowed for boys and girls to attend classes together (Catholic Schools Week, 2014). Students who wanted to attend expressed their concerns and desires regarding the strict and unfair policies. This had a trickled-down effect into high schools and colleges (Kaufmann, 2014). Surveys collected from students attending high schools and higher education institutions showed that the interest in single-gendered classes became less popular (Kaufmann, 2014). At this time, the acceptance of coeducation was considered remarkable, especially in the U.S. However, certain areas related to the labor force, kept single-gender separate in the education arena (Ardinger, 2012). Fields related to woodworking, automotive, secretarial work, and nursing remained separated by gender. The domination of males in certain domains, like law and the medical field changed as they increased with participation from women (American Association of University Women [AAUW], 2011). While these changes occurred in the U.S., some comparable occurrences took place in Europe. Due to the rarity of coeducation in European cities, this practice took flight and caught the attention of educators throughout Europe (Ivinson & Jackson, 2013). With the new thought of single-gendered schools, certain parts of Europe faced opposition. In large part, Germany resisted the change continuously. Coeducation became the norm in Great Britain and France (Tully & Jacobs, 2010). The term was coined as an American-Style of educating students. This allowed for greater equity in educational institutes throughout Europe (Salomone, 2013). Like in America, the easiest and fastest-paced change took place at the universities and colleges. With the allowance of women at higher education institutions, enrollment increased in colleges in Europe (Tully & Jacobs, 2010). In countries like Cuba and China coeducation efforts made improvements for women in the

field of education. However, adopting the idea of coeducation institutes was not widely accepted in every country (Salomone, 2013). In Japan the growing concept of women developing equal opportunities like their male counterpart, did not catch fire or encourage as easily (Kumar, 2011). The matriculation of women in Japan faced delay and segregation by gender continued and was widespread throughout primary and secondary education (Kumar, 2011). Single-gender education in Japan was a social norm. However, in areas like Africa and Arabic-speaking nations, coeducation had a place in society and continued to carry a dark undertone (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2011). The nation's laws that forbade coeducation institutions strictly enforced the laws regarding the mixing of genders. These acts were not only illegal, but also frowned upon due to religious beliefs and traditions that were practices and passed down from generations (UNESCO, 2011). These traditions stomped the growth of education for females and took a large toll on the enrollment of females at the secondary level, leading into colleges and universities (Kumar, 2011).

Reformers also explored the effect single-gendered schooling had on African American student achievement. Research detailed guidelines that allowed for successful interventions. Some of the criteria included the use of nonfiction text, suspenseful readings, science, transportation, animals, LEGOS, and technology (Wilson, 2013). The use of nonfiction text allowed for the comparison of text to self. Having more relatable or attainable stories kept the interest of males, especially African American males (Gurian Institute, 2015). The use of suspenseful readings allowed for the endings to create a surprise or an, 'ah ha' moment. Science allowed boys to use their critical thinking skills and mathematical sense (Gurian Institue, 2015). This concept transferred

to the use of LEGOS and technology, allowing boys to flourish (Belfi, Goos, De Fraine, & Van Damme, 2011). Transportation and animals created the need for thrills and chills and created a comforting feeling. Using specifics when attending to the needs of boys heightened academic, social, and behavioral success (Wilson, 2013). As a means of inspiration, biographies of other African Americans, like Ben Carson came to the minds of African American students (Fashola, 2013). Literacy rates for males were much higher than female literacy rates. Therefore, African American males tended to engage themselves in violent video games, music, and home entertainment (Wilson, 2013). If parents would enforce, or allow the brains of young males to have stimulation by buying or viewing appropriate literature; transitions to this concept in school would be smoother (Kimmel, 2014). Along with enlightenment, African American males sufferred from the use of a 'pity party' due to their socoeconomic status. With the use of pity, standards were lowered, along with the rigor and relevance (Wilson, 2013).

In school, boys had lessons on politics and war, while girls often faced classes that prepared them for the domestic life (Kaufmann, 2014). During the 1970s and 1980s, gender neutrality was the driving force toward coeducation institutions (Ivinson & Jackson, 2013). Legislation passed by Congress in 1972 heightened public awareness of issues relating to gender, although it still had its detractors (Salomone, 2013). Conservative politicians led by President Ronald Reagan, railed against the perils of sexual freedom and all things related to the promiscuity of females, who would be in the company of male-female environments (Salomone, 2013). As the practice of males and females in coeducational environments mainstreamed, feminists became increasingly concerned that the females were overlooked in male-traditional classes, such as

mathematics (Kaufmann, 2014). With the emergence of single-gender colleges, and in comparison to coeducational institutions, researchers noted the women achieved higher performance levels (Kaufmann, 2014). Large debate over educating women through various reform efforts sparked attention around the world. When looking into reform efforts for educating women, researchers like Ivinson and Jackson (2013) questioned best practices. The AAUW surmised that women would be ignored and constantly under the threat of sexual harassment and foster an influx in women's colleges (AAUW, 2011). Also causing concerns were the low academic performances of young urban African-American males. Would an all-male academic institution produce the same results as the female academia? These issues alone would rock the foundation of coeducation and pose a serious impediment to education modules during the postwar period (Gross-Loh, 2014).

Perceptions

A common response from educators when questioned on inequality between genders in their classrooms was that they treat all students the same (Strauss, 2014). Smyth (2010) stated that this response led to two assumptions: learning was different from student-to-student and the generalization of one way of thinking and learning did not provide an equal learning opportunity. Teachers may develop biases towards students, which supported the second assumption of only one way of thinking for students (Harjes, 2010). These biases stemmed from a number of reasons according to Cabezas (2011), which included but were not limited to the “risk-taking boys” and the “assertive girls” that “challenge authority” (p. 5). Formulating bias, including praising, risk-taking, and associating assertiveness with a negative connotation trickled down from educators to their teaching styles (Smyth, 2010).

Same-sex education had advocates as well as opponents, and each believed their points deemed essential to teaching children. While researchers like Solomon (1987) and Sax (2010) explored and defended gender-based education, simultaneously opposition placed a wide range of judgment on grouping each sex in larger pods (as cited by Adelman & Taylor, 2013). Suggesting, that each sex required different necessities and styles of teaching to learn for success to prevail, one might suggest that boys were more physical and worked alone, as girls liked to work in teams and lent more to critical thinkers (Kehler, Martino, & Watson, 2010). Individual and creative planning designed around each cluster and tailored, based on physical and mentally abilities of each gender, provided a better opportunity for success to occur (Ivinson & Jackson, 2013). This idea lent itself to beliefs or perceptions internally seen and externally eluded, as well as behaviors that fostered consequences rather positive or negative for each gender (Smyth, 2010).

According to Best, Pearson, and Webb (2010), teacher behavior was important. For example, girls needed immediate feedback on their work. Failure to provide this was detrimental to girls and deterred the development of deeper understanding of concepts (Kennedy, 2015). Teachers, generally viewed boys as being smarter when compared to their female peers in the content areas of mathematics and science (Ward, 2012). Halpern et al. (2011) responded to this with the idea that teachers would ask boys questions that were more challenging and included thought-provoking dialogue. Halpern et al. (2011) also stated that if boys failed at providing an accurate response to a question, the teacher was more inclined to rephrase or simplify the question. Teachers were more

likely to ignore the critical thinking of female students, undervalue their work, and create their own bias on standards or expectations (Kennedy, 2015).

Chudowsky and Chudowsky (2010) believed that the academic pay-off for girls was due to hard work and not in part to their natural intelligence. According to Simon and Goes (2013), boys calculated their educational success to the pure innate gift of just knowing the subject matter and "teachers overall had lower expectations for girls' academic success compared to boys, and their attitudes were shown through the type and quality of the student-teacher interaction" (p. 5). The attentions girls received from their teachers were far less than the attentions that their male peers received (Gross-Loh, 2014). Smyth (2010) further wrote, "The discussion of the influence of single-gender education on student outcomes has chiefly focused on academic performance, either using a summary measure of overall achievement or examining achievement in particular subject areas" (p. 47). Best et al. (2010) revealed that although teachers differed in teaching style and the way they chose to execute instruction, teachers leaned towards one gender over the other, and when doing so teachers perceived that this gender or type of student should perform better overall, creating a bias. According to Heath and Heath (2010), this behavior appeared as a subconscious way of thinking. Halpern et al. (2013) stated that teachers should note "that differences or deficiencies" (p. 4), and the differences in the learning style of a male and female did not make one sex more dominant over the other.

Expectations that a teacher set for her classroom took shape well before the school year began (Best et al., 2010). The tone of expectations set the tone regarding both classroom behavior and student performance, and they should be appropriate and

realistic (Heath & Heath, 2010). Halpern et al. (2013) in her research titled, *Sex Differences in Cognitive Abilities*, concluded that "males and females excel at different cognitive tasks," and "this does not identity a smarter sex (p. 4). According to Cabezas (2011) " Girls in single-sex school perform better academically than their counterparts in coeducational schools, after holding constant measures of selection, background, peers and school factors" (p. 227). Booth and two of her colleagues backed Cabeza's research when they completed an experiment on female students at Essex University in the United Kingdom (Booth, Cardona-Sosa, & Nolen, 2013). The findings eluded that girls assigned to all-female classes at random were more likely to pass introductory courses over girls in a coeducational class, by 7%, as well as scoring 8% higher on the final grade and 10% higher during their sophomore year (p. 3).

Stereotypes, myths, and gender expectations topped the charts of conversation among educators (Ibanez, 2011). A huge factor to the myths and stereotypes were that of brain-based research. This research included the developmental differences faced by boys and girls at the start of school, including their strengths and weakness (Pahlke et al., 2014). Research showed that girls and boys at an early age utilized these strengths and weaknesses differently (Halpern et al., 2013). Some of the gender-specific learning styles were biological. One example noted in the research by Heath and Heath (2010) explained girls' hearing developed faster and appeared to be keener and more accurate than boys'. Another biological factor noted in the literature was the emotional differences of girls and boys; seen by a girl's ability to please others, whereas boys involved their personal interests in a subject (Ardinger, 2012). Teachers were typically unfamiliar with gender-specific instructional strategies unless receiving extensive

professional development in the area of gender-specifics (Ibanez, 2011). This type of extensive professional development allowed teachers to better adapt to single-gendered classrooms, as well as incorporate the various teaching techniques throughout their lessons (Ardinger, 2012).

On A Global Market

An Australian study showed that single-gendered schools had a profound effect on standardized test scores. According to a 20-year Australian study of 270,000 students, both girls and boys performed between 15 and 22 percentile points higher on a standardized test when they went to single-gendered schools (Australian Bureau of Statistics, 2014). Another Australian study, detailed in the Australian Curriculum, Assessment, and Reporting Authority showed that students enrolled in single-gendered classrooms consistently earned scores 15% to 22% higher than their coeducational classroom peers (Australian Curriculum, Assessment, and Reporting Authority [ACARA], 2014). The same positive effect was documented in a 2001 British study that examined 2,954 high school students and 979 primary school students (Independent Schools Council, 2013). Holmgren (2014) reported on the National Coalition of Girls' Schools (NCGS) that females that attend NCGS "have higher aspirations," "greater motivation," and were "more challenged to achieve more than their female peers in a coeducational public school setting" (pp. 2-3). According to a three-year study by Stetson University, 57 % of girls and 37% of boys passed the state test while enrolled in coeducation classes, while students in single-gendered classrooms reported passing scores for 75% of girls and 86% of boys (Tully & Jacobs, 2010, p. 457). Overseas, in countries where single-gender education was more common, there was extensive research

on the pros and cons of single-gendered classrooms. In England, where they studied 3,000 high schools that offered gender segregated classrooms, the results of the study showed higher test scores on standardized tests (Institute of Physics, 2011, p. 7).

With the U.S. at the forefront of increasing the number of coeducational settings, eventually more countries decided to adopt this process. One of the early regions that joined the cause of a mixed-gender institute was Scandinavia (Smyth, 2010). Of the five countries in the Scandinavian region, Denmark, instituted mixed gender schools in the 18th century, followed by Norway in the 19th century, much sooner that other regions in Europe (Mullins, 2013). Other areas of Europe like Germany, Italy, and Great Britain had certain areas that allowed mixed-gender schooling; or tolerated the acceptance. Great Britain, Italy, and Germany deep in their traditions, took a more settled route (IOP, 2011). In these countries, coeducation was a subject of political and cultural desires ingrained into the history of the nation (IOP, 2011). Denmark and Norway found success in coeducational classrooms (Mullins, 2013). The women's suffrage movement tied in thoroughly with coeducation. Unfortunately, institutions synonymously tied women and the women's movement to coeducation, and it adversely affected advancement.

To society, the feminist movement carried a negative connotation in Europe and put constraints on efforts to increase coeducation classrooms or institutes (Booth, 2014). The highly populated cities of Europe had an abundance of male and female students that offered practicality (Salomone, 2013). In Europe, having single-gendered educational institutes was extremely logical due to the density in population (Booth, 2014). A look at secondary education in Europe revealed the vast majority was male, due to secondary

schooling offered mainly to the elite class. Following the U.S., admittance for women into higher education institutions came about in the late 19th century (Salomone, 2013).

Curriculum for Boys vs. Girls

An effect of single-gendered classrooms was that girls became more interested and achieved higher scores in math and science. In the same aspect, boys achieved at a higher level in literacy within a single-gendered classroom, when the setting was structured around their specific learning styles and personality traits (Patterson, 2012), while both sexes were able to focus on academics as opposed to the social environment. These benefits seen in single-gendered classrooms were causing a gap in education, especially since single-gendered classrooms and schools were not the norm (Kehler et al., 2010). Ibanez (2011) provided an example of a successful strategy to lessen the gap when teaching reading. For males, it was not the main concern of the educator to teach them how to read, but encourage them to want to read and how to read for "satisfaction" (Ibanez, 2011, p. 4). Girls tended to have the same problem in schools that boys had; when it came to reading, research showed that girls achieved better when the setting was structured to their unique learning styles (Sommers, 2013c). Some of the ways educators structured their curriculum, delivered their lesson, and assessed girls impeded on girls' learning styles (Ardinger, 2012). Girls typically matured much faster than boys with verbal- linguistics skills. Girls also had a much higher ability to hear than boys did. According to Sommers (2013c) who published in her findings, girls heard twice as well as boys in the area of speech frequencies. This information should help educators with the organization of their classrooms and how they group and place students throughout the classroom. In terms of girls, teachers could create lessons that were longer in length.

Due to girls staying focused for longer periods, teachers could incorporate longer lessons time, especially in math and science (Ardinger, 2012). Girls who attended all-girl schools tended to learn in ways that were in tune with how females learned (Bradley, 2010). "Girls in single-sex schools perform better academically than their counterparts in coeducational schools, after holding constant measures of selection, background, peers and school factors" (Cabezas, 2011, p. 227). All-girl schools used teaching materials and textbooks that did not have male influence or biases. This type of atmosphere caused girls to participate freely in discussion (Matthiessen, 2013). In a coeducational environment boys tended to dominate the discussion session (Ibanez, 2011). In an all-girl school, girls gained self-confidence in themselves as a student and tended to score higher on their College Board and Advanced Placement examinations (Jones, 2012). This also helped to allow girls change the expectation that girls must be nice, quiet, non-athletic, and passive (AAUW, 2011).

Another reported benefit of single-gender education was it appeared to broaden a student's horizon (Salomone, 2013). In single-gendered schools, students felt free to explore their own strengths and interests unconstrained by gender stereotypes present at coeducational institutions (Ogden, 2011). Secondly, the ability to explore their own strengths allowed students from single-gendered educational systems to continue their educations on a higher level (Ogden, 2011). According to the U.S. National Coalition of Girls' (NCGS) 95% of girls agreed that allowing them to explore and utilize their strengths encouraged and inspired their thinking (Holmgren, 2014, p. 4). Most of the high school graduates from single-gendered schools were more likely to go on to prestigious colleges, and more likely to aspire to graduate school or professional school,

while students from coeducational schools were less likely to pursue an advanced education (Park et al., 2013).

Taking into account the benefits of single-gendered classrooms, incorporating similar strategies into coeducational classrooms could produce similar results. Some researchers reported minor adaptations that included incorporating differentiated instruction into the classroom, which allowed students a variety of choices to help meet their diverse learning needs (Symth, 2010). According to Kehler et al. (2010), another adaptation was structuring the classroom where boys sat towards the front of the classroom and girls sat in the back of the classroom, for hearing adjustments. When adjusting to a student's hearing style or frequency level, teachers must practice tone and voice confrontation strategies for this concept to work in the classroom (Best et al., 2010).

The difference in boys and girls and the way that they learned regarding single-gender education played a significant role in the implementation of strategies (Wilson, 2013). Implementing instructional strategies centered on literacy choice provided a means to help educators become better acquainted with single-gendered instruction. Literacy choices that focused on non-fiction, fact oriented, or action-based stories presented better with boys (Kehler et al., 2010). On the other hand, girls should receive literary choices that allowed them to connect emotionally, so they could express their feelings throughout the stories (Patterson, 2012). Instructional strategies, such as questioning allowed girls the opportunity to associate their feelings and make personal connections. However, boys needed more fact-oriented or prediction-based questioning

in communication arts, because they needed a more tangible approach to learning (Kehler et al., 2010).

When implementing single-gender instruction, attention to detail could be the determining factor to the success rate of a particular classroom. Specifically, in regards to middle school, teachers should split-up into two-person teams with gender grouping (Ogden, 2011). The ideal class size was 18 to 20 students at a maximum, as well as having male and female teachers for each team (Patterson, 2012, p. 39). This would greatly reduce social and emotional issues middle school students experienced on a daily basis (Ogden, 2011). However, if teachers were not able to separate the classrooms into single-gendered classrooms, teachers should separate their reading groups into gender-specific reading groups (Best et al., 2010). This would promote the same environment and desired results as would a single-gendered setting (Best et al., 2010). Another instructional strategy was to set-up problem stations throughout the classroom or present instructions according to genders (Salomone, 2013). Keeping the classroom equipped with movement and incorporating small breaks seemed to help aide the gender-specific learning styles in the classroom, generally for male students (Salomone, 2013).

More educators focused on the needs of adolescent boys and the uniqueness of their learning styles (Wilson, 2013). This uniqueness caused researchers and educators to look at the direct correlation between gender-different learning styles and academic success. The retention of boys and their failure to perform successfully on state and standardized assessments was a direct link to their styles of learning and their specific behaviors (Patterson, 2012). Available literature seemed to rely heavily on the needs of gender-specific learning styles of boys in the classroom. Most of the studies conducted

also concluded there was alarming concern regarding girls and their reading proficiencies (Wilson, 2013).

A ‘war against boys’ was a notion that came into play within the two decades preceding this writing (Wilson, 2013). There was discussion regarding heavy emphasis on the lack of positive role models for male students (Schott Foundation for Public Education, 2010). In Kehler et al.’s (2010) view, this contributed to the underachievement in public classrooms around the world. Educators tended to overlook which boys were at the greatest risk and what those risk factors contained (Patterson, 2012). Chadwell (2014) stated, “In general, boys seem to be more successful with increased structure” (p. 512). This was in and out of the general classroom setting. “For instance, one of the best ways to provide instructions for boys is to list directions in bullet format on the board and provide a time frame for completing all steps, or even each step” (Chadwell, 2014, p. 512). Analyzing the results of boy’s literacy showed other factors contributed to the war that boys were fighting, and it was not just gender (Kehler et al., 2010). “Socio-economic status makes a larger difference than gender,” explained Eamon et al. (2012, p. 16). Gender worked as an intersection between other social and cultural factors (Sommers, 2013a). When combining racial and economic gaps in core areas, presented data showed low academic achievement mainly in those of males from the Hispanic race and poverty stricken African American boys (Education Week, 2011). One question emerged regarding whether African American and Hispanic males believed school was not masculine enough. This was when the understanding of masculinity and femininity came into play (Noguera, 2012). Patterson (2012) examined how schools acknowledged and explored different cultural backgrounds. Backgrounds, which boys

brought with them to the classroom, while paying particular attention to the way masculinity was an influence (Patterson, 2012). Researchers from Southern New Hampshire University concluded boys were slipping behind same-aged female peers in all academic areas (Schott Foundation for Public Education, 2010). According to NASSPE (2011), founded in 2002, only a dozen schools offered single-gendered classrooms. As of January 2011, there were 524 public schools in the U.S. offering single-gendered educational opportunities (Ibanez, 2011, p. 1). Most of these schools were coeducational schools, which offered single-gendered classrooms but kept some activities and classes coeducational. In some schools, the only coeducational activities that existed were lunch and one or two elective courses, which was very different from a single-gendered school (Klien & Rice, 2012). At the time of this writing, 103 of the 524 schools qualified as single-gendered schools (Ibanez, 2011, p. 2). A single-gendered school was a school where the students attending had all their school activities, including lunch and electives in settings that were all girls or all boys (Klien & Rice, 2012). Most of those 103 single-gendered schools were single campuses, such as Pro-Vision; which was an all-boy's school in Houston, Texas (Ibanez, 2011, p. 1).

According to Liben (2015), who wrote for *Business Media*, boys not only fell behind their female peers, they fell further behind the normal progression rate of males. They seemed to struggle with English Language Arts (Williams, 2012). When addressing the area of writing, NAEP reported boys scored 24 points lower than girls (NCES, 2011). The results also exposed in the baseline for students' educational success, the primary years of schooling were detrimental (NCES, 2011). NAEP utilized testing results from 4fourth grade students around the world, with reports in 2013 stating, "By

the fourth grade, the average boy is developmentally two years behind the average girl in reading and writing" (Wilson, 2013, p. 1). On the other hand, boys tended to have an advantage by being able to recall facts and rules, as well as to categorize (Ibanez, 2011). Their strengths encompassed visual-spatial learning (Kimmel, 2014). Boys had a keen sense when using visual-motor skills allowing them to excel in certain content and topics (Kaufmann, 2014), including, but not limited to geography, science, and math. For these reasons, boys in general tended to suffer and carry a definite disadvantage in the primary years of school, mainly with the early elementary school curriculum (Kimmel, 2014). Ivinson and Jackson (2013) noted that most schools emphasized cognitive skills of speaking, reading, and writing abilities that usually developed at a slower rate in boys. Another expectation was for boys to speak articulately, write legibly, work collaboratively in groups, stay in the lines when coloring, and be neat as well as organized, like most of their female same-aged peers (Belfi et al., 2012). This tendency began predominantly at the kindergarten and first-grade levels, where boys were expected to perform to standards considered more favorable for girls (Kaufmann, 2014). Expected to sit still for lengthy periods, boys found this task challenging. In other countries like Japan, the educational system provided boys 10 minutes of recess every hour, while in the U.S. many students were given 20 minutes a day (Belfi et al., 2012, p. 3).

Fergus and Noguera (2010) discovered in their research that African American male students had a higher and disproportionate number of behavior referrals and suspensions. The conclusion drawn by Fergus and Noguera (2010) was the African American culture had misunderstandings, or the actions of African American boys were misinterpreted. With this rationale, the number of out-of-school suspensions for African

American boys heightened by 120%, but the interventions and amount of African American instructors steadily declined (Noguera, 2012, p. 9). With the increase of suspensions, the consequences became more stern for African American males (Williams, 20012). An increase in discipline referrals coincided with an increase in medical diagnoses. Boys had four times the chance to receive a medical diagnose of Attention Deficit Hyperactivity Disorder than girls (Williams, 2012). This gap was increased in the college-aged population. Seventy percent of students in special education classes were males, and a high number of them were African American (NCES, 2011).

According to Ogden (2011), the emotional climate of the classroom leaned towards satisfaction of girls over boys. Ogden (2011) also argued that boys lost out when they were not encouraged to understand and accept their emotions. These learned skills typically existed in girls. Consequently, boys tended to appear less in-tune with their emotions, as well as needing able to cope with feelings that were associated with sadness, frustration, and anger (Patterson, 2012). The 'Boy Code' outlined the feelings and emotions common with boys, which was an unwritten list of expectations for boys and their behaviors according to society, derived by Pollack (as cited in Sommers, 2013c). This unspoken code was everywhere for boys to pick-up on, with expectations ranging from parents, teachers, sports, and clubs to name a few (Ladson Billings, 2011). These unspoken rules focused on ways for boys not to show their true feelings. Taught through learned behaviors to act tough, play rough, and at most to be cool (Sommers, 2013b). Sommers (2013b) also stated that this unspoken code could often be misleading. Teachers had a hard time understanding when boys were feeling frustrated or not

understanding the presented information (Crumpton & Gregory, 2011). Instead, many boys expressed themselves in ways deemed inappropriate. They may have expressed their feelings in the only way they knew how, by becoming fidgety, distracted, and eventually causing a disruption to get noticed (Crumpton & Gregory, 2011). All too often, boys who repeated difficulties in the classroom began to believe they were not measuring up either socially or academically (Boykin & Noguera, 2011). Boys tended to believe they had qualities that made them bad, and school was not fun anymore (Byrd & Chavous, 2011). Sommers (2013a) uncovered in her research that low self-esteem developed along with anxiety and depression, due to the demands placed on boys in their early years. Boys tended to get the short end of the stick in coeducational classrooms (Kehler et al., 2010). Teachers who did not incorporate a change in activity or break every 10 to 15 minutes in the classroom were doing their male students an injustice. This break would help due to their short attention spans (Kehler et al., 2010). Another aspect that would lend to the positive side for boys was the teachers' volume with voice and fluctuation in the classroom. This played a part in affecting the number of boys referred for special education services or prescribed medications (Kehler et al., 2010). Focusing more on gender-specific learning traits would help reduce the retention gap for boys, as well as decrease the number of referrals to special education (Klein & Rice, 2012). This could also contribute to elimination of the report card grade gap where boys generally receive Ds and Fs, accounting for 80% of high school dropouts.

There were a variety of ways to help with student engagement for boys (Kehler et al., 2010). Computer-based education helped with sustaining the attention span in boys. This included, but was not limited to computer learning games, internet research time,

and web quests (Kehler et al., 2010). According to the Independent Task Force (Klein & Rice, 2012) most of the early years of a boy's education had the surrounding influences of females. Klein and Rice (2012) stated that inviting fathers to the classroom, giving incentives to get the fathers in the building, and having a male career day helped with the parental involvement that trickled down to student involvement. Boykin and Noguera (2011) also suggested reaching out to community members, authors, and local representatives. Using high school students as mentors for struggling elementary and middle school students was another great tool (Kehler et al., 2010). These students could state the positive and the negative effects of misusing their time in school. Boys thrived in spelling bees, math competitions, and brainteasers (Sommers, 2013b). Sanford believed that boys tended to get more gratification from reading nonfiction text. They leaned towards books that were interesting and sparked questions in the range of: did that really happen, when did that happen and how did that happen? If this worked, educators should follow their interests (Ladson Billings, 2011). Teachers could put up a safe zone in their rooms (Kehler et al., 2010). Sanford suggested that teachers could make the classrom atmosphere plausible for boys. They needed to feel psychologically safe in school. In these rooms, students should feel safe and free of badgering (Ladson Billings, 2011). Teachers had the means to change the way students felt in their classrooms, especially boys. They could make them feel that it is okay to make a mistake and they could show their students how to learn at their own pace (Sommers, 2013b).

Many educators believed the problem for boys was how an educator structured his or her lesson, as well as delivered the curriculum to adolescent boys, and then assessed their learning from a more 'girl' style of learning (Patterson, 2012). Boys and girls had

fundamentally different learning styles and personality traits (Ladson Billings, 2011). Therefore, what generally worked for girls did not necessarily work for boys, and vice versa. Boys tended to have a higher ability level with visual and body kinesthetic tasks (Aud, Fox, & Kewal Ramani, 2010). This did not mean that girls would not be able to do some of the same tasks; it just demonstrated how the brain developed differently for boys and girls throughout the various stages of adolescents' development (Kaufmann, 2014). Girls tended to be more verbal-linguistic, interpersonal, and emotional task learners. Kaufmann (2014) detailed more that this enabled girls the availability to read and write more proficiently than boys at earlier stages in their adolescent lives, while boys tended to develop these skills later on during their adolescent development (Aud et al., 2010). Gender was the organizing schema that helped adolescents shape how they acted and thought. The power of gender also affected how we read and responded to text (Ladson Billings, 2011).

Secondly, research stated that boys' sense of hearing had a later developmental stage (Ward, 2012). Boys tended to respond better to educators whose tones were loud and distinct (Kimmel, 2014). Therefore, educators who spoke with a soft voice and a low tone did not usually grab the attention of boys in the classroom, especially if the adolescent boys were sitting in the back of the classroom (Chadwell, 2010, 2014). Whereas, the girls in the classroom would think the teacher was yelling, the boys in the classroom would respond to this distinct loud tone (Gross-Loh, 2014). Some educators often classified boys' lack of hearing in the classroom as laziness, when in fact it was a hearing issue. An additional problem with boys in the classroom was they tended to think they were smarter than what their data presented (Chadwell, 2010, 2014). Boys

were generally satisfied with receiving grades of Bs and Cs and thinking this proved to their peers, teachers, and family they were smart (Tully & Jacobs, 2010). Their female counter parts were still critical of themselves, even if they receive a grade of A. Boys tended to be more concerned with how the outside world viewed them more than how the academic world viewed their successes and failures (Lewin, 2011). Educators should try to give boys real-world problems that caused them to challenge themselves, as well as bringing about a sense of reality check. Sommers (2013c)also believed some adolescent boys attributed failure to outside sources or influences, instead of their own poor or negligent choices. Sommers (2013c) further reported that boys tended to blame the teacher if they failed a test, whereas girls would blame themselves and call themselves inappropriate names relating to their intellectual levels.

Lastly, boys need noise and movement in the classroom (Klein & Rice, 2012). Boys needed educators who were constantly moving around the classroom and would never be in the same spot. Classrooms that played quiet music and were equipped with cozy sofas and chairs would promote adolescent boys to sleep in the classroom, but was a good stimulus for girls in a classroom (Crumpton & Gregory, 2011). Boys enjoyed classrooms that were equipped with structure and responsibility, treating them like men so they could grow up and act like men. A more nurturing environment was a disadvantage for boys, causing them to take advantage of the situation at hand and lose interest (Heath & Heath, 2010). Different generalizations used throughout Sommers' (2013c) book, *The War Against Boys*, worked most of the time for each gender, but knowing the student and the individual learning style was the best approach to creating a more individualized or tailored style of instruction for the student.

History of Education for Girls vs. Boys

During the time of the American Revolution, interest peaked in female education, growing and expanding (Salomone, 2013). Perceptions grew, along with the population, that women played a vital role in the socialization readiness of children. With the growing popularity of educating females, introducing coeducation classrooms was easy and became popular during the start of the 19th century (Jones, 2012). In cities with heavier populations in the U.S., coeducation was less common. In these areas, traditional single-gendered European style education was the norm (Booth et al., 2013). Reformers faced backlash and opposition when auguring their points against single-gender (Lewin, 2011). Reformers argued that having students in the coeducational setting would allow them to be free and natural, as the same setting of church, and family (Strauss, 2014). Supporters of gender-based classrooms believed that many peer pressure concerns were addressed (Lewin, 2011). Students were focused and conversations were usually on topic and relevant to material being taught. A student's fashion was not the topic of discussion, discipline was low and academic success increased. All which made for a better learning environment (Strauss, 2014).

Girls differed from their adolescent peers of the opposite sex at an early age in regards to speaking, reading, and writing (Booth, 2014). This great strength came from how well the right hemisphere of the brain developed faster for girls. The right-hemisphere enabled girls to feel more empathy (Matthiessen, 2013). Allowing females to feel more empathy, made them able to understand better and reflect their feelings to their peers and their teachers. By changing this expectation, girls could take over various

positions of leadership throughout their school, whether it was in the drama department, sports, yearbook, student council, or the debate team (Matthiessen, 2013).

Girls who attend all-girls' school were also safe from outside social and emotional influence that could hinder their educational advancement and emotional growth (Belfi et al., 2012). Eisenkopf, Hessami, Fischbacher, and Ursrung (2011) stated, "Single-sex schooling strengthens female student's self-confidence and self-assessment of their mathematics skills" (p. 1). Stated by other researchers like Salomone (2013), the rationale for girls having more confidence in the classroom when gendered specific, was due to the lack of a male audience. Eisenkopf et al. (2011) concluded, "Single-sex schooling thus has a profound implication for human capital formation and the mind-set of female students" (p. 1). Another advantage was that girls were free from sexual harassment; this was a known factor that affected almost 90% of girls in coeducational high schools (Jones, 2012, p. 4). The above advantages helped girls express their satisfaction with their education whether they graduated from an all-girl high school or college (Paulsen, 2013). Of course, some would argue this point proved that women were inferior to men and attending single-gendered institutions did not teach them how to deal with the events or the world (Girls's Schools Association, 2014). This resulted in the decline of single-gendered educational institutions for both men and women, leaving fewer than 80 for men and only two for women (Ivinson & Jackson, 2013, p. 3). The two colleges that sustained the decline of single-gendered educational institutions in the 1970s had to make a transformation. The institutes went from women's colleges to "colleges for women" (Salomone, 2013, p. 974). This essential, but refined change contributed to the survival of all-women colleges. Unfortunately, matriculation into

universities on a global market became unrealistic, due to the severe nonexistence of women from secondary education. First seen in Russia, global matriculation of "colleges for women" vastly caught attention and the Bolshevik Revolution followed (Salomone, 2013, p. 974). Radical conceptions formed regarding equality of coeducation, and this allowed student enrollment to soar, especially in the Soviet Union where workers trained in various fields of the workforce. Women's colleges geared their attention to the needs of women and not so much to trying to operate the institution as if it was a coeducational institution, without men (Ornstein, Levine, Gutek, & Vocke, 2013). In 1972, the Women's College Coalition formed to help support all-women institutions and to help with the visibility of the acceptance of all-women institutions (Ivinson & Jackson, 2013).

History of Education of Boys and Girls

During the late 18th century a majority of the students enrolled in schools in America received schooling in a coeducational setting (Ivinson & Jackson, 2013). This was at a higher percentage than any other country. By the 1900s not only were children enrolling in coeducation primary schools, secondary schools were also allowing mixed-gender classrooms (Salomone, 2013). Out of the 628 cities, only 12 operated single-gendered schools (Salomone, 2013, p. 973). Around 70% of higher education institutes in America allowed both men and women, and even offered coeducational classrooms (Mezirow & Taylor, 2009, p. 19). An idea that once seemed foreign and unclear became the latest norm and standard for American education. The notion of coeducational institutes and classrooms made America stand-alone in the education arena (Ivinson, & Jackson, 2013).

Higher education had a long history of being single-gender. Going back to the original educational institutes, like Harvard, Yale, and Princeton, they only educated males (Gross-Loh, 2014). During this time, the option to formally educate women was not available. False accusations about the coeducation program included rumors that females developed serious illness. The idea formalized that men were intellectually superior to women, and health problems would form due to women being formally educated (Jones, 2012). Health problems like these geared themselves to "detrimental effects on the less robust sex" (Jones, 2012, p. 1). These health problems conveniently geared to women only (Salomone, 2013); the belief was that anorexia scolastica was "menstrual disability," according to medical professionals in the late 1800s (Jones, 2012, p. 1). Anorexia scolastica was the loss of weight and weakness due to mental strain (University of Maryland Medical Center, 2013). Another rationalization for only educating men aimed at preparing leadership positions for clergy (Salomone, 2013). However, there were many conversations about adopting coeducation in the late 1800s (Jones, 2012). The debate referenced secondary schooling. Several male medical personnel were concerned that by nature women physically could not compete with their male counterparts, therefore education subjected them to unsafe situations and obstacles (Jones, 2012). Arguments continued around coeducation that allowing both genders to work in the same environment would place a greater risk on religious beliefs and moral values (Gross-Loh, 2014). Supporters of coeducation protested negative conversation and fought with the idea that coeducation was imperative to our education system (AAUW, 2011). Without hesitation, parents enrolled their daughters in high school and university coeducation programs. Superintendents and administrators understood that in

order to be financially sound coeducation had to exist in colleges of small communities (Jones, 2012). The risk of supporting same-gender classrooms may only be profitable in communities with large populations.

By 1860, approximately only 100 colleges existed that provided education for women. This left over 67% of the universities for men only (Kaufmann, 2014). As the Civil War ended, women had the mindset that they should have the same opportunities as men (Ivinson & Jackson, 2013). Women wanted to express their desire of showing their capabilities of being equal to men in the educational arena. By doing so, colleges for women not only replicated the curriculum, they also replicated the admission requirements (Jones, 2012). When trying to reach the same standards that were in place for men, difficulties arose for women. Few women were fluent in Greek and Latin, therefore finding highly qualified staff to provide significant instruction created problems due to lessons presented in Greek and Latin (Delamont & Duffin, 2014). A solution to the growing problem of finding qualified instructors came with the notion of sharing faculty from all-men colleges, but the institutes would remain separate facilities. Many advocates of coeducation programs suggested that peer pressure motivated female students to reach their full potential and male students performed with controlled enthusiasm (Delamont & Duffin, 2014). According to Mezirow and Taylor (2009) taking in consideration the pros and cons of coeducation, the positive effects clearly outweighed the latter. Although the southern states persisted in their conservative traditions, the positive affirmations of single-gendered institutions began thriving nationwide by the late 1890s (Jones, 2012, p. 3).

One-third of all female members of Fortune 100 boards graduated from single-gendered colleges, and 24% of the female members of Congress graduated from single-gendered colleges (NCES, 2011). Even with the statistics regarding Fortune 100 boards and Congress, feminists and many outside political powers lobbied against single-gendered classrooms stating that they did not like the emphasis on sexual difference; even though both girls and boys benefited from single-gendered classrooms (Alliance for Board Diversity Census, 2010). Outside influences were just not accepting of the fact that both girls and boys learned better in single-gendered schools (Sax, 2010).

The research also showed that when girls were by themselves, they tended to excel in technology, science, and math, but when they were in a coeducational settings they fell behind their male peers (Tully & Jacobs, 2010). Boys who were isolated from girls improved in the areas of music, art, and foreign languages (Kehler et al., 2010). Single-gendered classrooms recognized that not all students were alike and that student differences, especially their gender-specific differences, held significant weight when incorporating instructional strategies (Ibanez, 2011).

Educators who were teaching in all-girl settings should incorporate cooperative learning groups as an instructional strategy into their lesson plans. Cooperative learning groups worked best for girls, because most girls were interpersonal and verbal linguistic (Chudowsky & Chudowsky, 2010). Girls needed a welcoming environment that was comfortable and cozy. Along with being inviting, the room should have an environment that allowed the feelings of girls to be a part of the lesson (Holmgren, 2014). They also needed to be able to connect to their teacher in an informal way. This was evident from early years of schooling to post-secondary education. When speaking on higher

education, in the southern part of the U.S., colleges that only educated women did not present a serious tone and were looked to as, "finishing schools" (Jones, 2012, p. 2). Finishing school was defined as "a private school for girls that emphasizes cultural studies and prepares students especially for social activities, or a school or college where young women from rich families learn how to behave in high-class society" (AAUW, 2011, p. 23), and did not carry the same prestigious weight as schools that educated only men. Due to this, the percent of women enrolling in single-gendered higher educational institutes dropped by the 1950s (Jones, 2012). The return of coeducational institutes came during the 1960s and 1970s. Many prestigious institutes that were male only, now began to allow the enrollment of women. In-turn, exclusively women colleges admitted men (Jones, 2012). For all-women institutes, accepting men helped lift the financial strain. Many schools that would not allow men had to close, due to not having the financial means to support an entire institute (AAUW, 2011). Closing single-gendered educational institutes did not give affirmation that women could not maintain this standard, it just fit the times and projected that coeducational institutes better served both sexes (Park et al., 2013).

A lingering problem for girls in school was the actual "gender specific personality" trait (Chadwell, 2014, p. 512). This gender specific personality trait made a difference in how students learned, lending itself to the fact that girls did better in school than boys, according to report card grade statistics, but they tended to have a lower self-esteem about their intellectual ability (NCES, 2011). Therefore, creating an environment where girls were critical and evaluative of their academic performances was applicable when it directly related self-esteem to learning. This was a rationale for why girls took

full responsibility if they were not successful on a task and viewed their teachers as a support system and not their enemy (Girls's Schools Association, 2014). With these "gender-specific personality traits" on the forefront of why researchers said girls and boys learned differently; educators should equip their classrooms with the right instructional strategies that support how girls gain understandings from the lessons (Chadwell, 2014, p. 513).

Bringing in the notion of coeducation schooling threatened the hierarchy that existed between males and females. One may wonder why the sex of a student matters, and whether gaps that exist between boys and girls were significant. These questions caused controversy between educators who were both for and against single-gendered classrooms (Ardinger, 2012). Researchers believed these questions arose for good reasons. When questioned, men responded that males were naturally stronger (Kluger, 2011). Men believed they were naturally smarter and could handle more stress. Sommers (2011) explained that men used these ideas to oppress women and keep them down. Men used this way of thinking to keep women from gaining powerful positions in the workforce and in politics. The hierarchy of power created by a man led many to think by some means of imaginary science that men were on top of the ranking order (Aud et al., 2010). The ideas that women were defective, insufficient, and replaceable were not just illusions in the heads of men, there were also studies completed in the name of science by medical doctors concluding that men were the dominant sex. These studies were biased and showed evidence of medical sexism (Boykin & Noguera, 2011). This was a dominant ideology during the feminist movement. With the mobilization of women's rights in the late 1860s, opposition followed the concept of women in their

natural state were submissive (Delamont & Duffin, 2014). Women's suffrage speakers and activists faced criticisms of being unwomanly.

As early as 1873, Harvard law professors were creating best-selling books discussing the reasons women should not attend college (Salomone, 2013). Clarke of Harvard Law published research that stated studying in large amounts would cause women to become infertile, due to being irritable and redirecting blood that should flow to the uterus to their brains (as cited in Matthiessen, 2013). Looking from the perspective of the time of this writing, Clarke's ideology and theory did not meet those of scientific study. Considered methodical in the early 19th century, Clarke's theory did not seem conceivable (Matthiessen, 2013). About 30 years following Clarke's statement of theory, from another part of the world, a neurologist from Germany performed a study comparing the brain size of women to those of their male counterparts (Halpern et al., 2011). Mobius was a neurologist who wanted to prove that men were the stronger sex and women were the weaker of the two. He did this by completing a study that measured skull volume (Halpern et al., 2011). In Mobius's study, he weighed the capacity of canals from deceased men and women. His subjects all passed at the age of 60. The study conducted used sand to fill the skull and calculate the mass (Cherney & Campbell, 2011). By doing so, Mobius was able to conclude that the human man by the age of 60 had about 8% more cranial space (Cherney & Campbell, 2011, p. 715). The scientific part of this study was correct; however, Mobius then concluded that women were weak-minded as a result. He was right in the methodology of the experiment; however, his conclusion was far from a valid truth (Halpern et al., 2011).

Comparing cognitive abilities between sexes continued to ponder researchers. Halpern et al. (2013) explained the male brain contained larger holes and stored more fluid. This fluid acted as a protector and provided a cushion for the brain in case of injury. This had nothing to do with height, weight, or age of a man (Cherney & Campbell, 2011). This was also true of children. Truthfully, the organization and development of a man and woman's brain was different in structure (Halpern et al., 2013). In a study conducted at the University of California, researchers compared high-IQ brains of both men and women to low-IQ brains (Cherney & Campbell, 2011). The comparison showed differences consistent in the organization of the same sex. However, when compared to the opposite sex, the organization was completely different. In saying, 'no order' on who was the 'smarter' sex and order could not be established, the researchers proved being smart had nothing to do with the fertility of women and the sex of a person did not cast a ranking between males and females (Halpern et al., 2013). There were some differences concluded from these studies on the way students would experience school or how they might experience arousal (Sax, 2010).

The views about single-gendered classrooms seemed skeptical and raised ethical questions throughout the world before the trun of the 20th century. This was partly due to new developments (Ibanez, 2011). Coeducation became large on a global market in the late 1900s (Ivinson & Jackson, 2013). In the mid-1940s the influence of World War II staged the platform for acceptance of women in the workforce and in education, not only in the U.S., but on a global spectrum as well (Jones, 2012). Although the war left a devastating effect on the world, it also allowed for a shift in the idea of gender roles. More opportunities became available for life outside the domestic arena for women,

while they slowly gained recognition as partners in the workforce (Gross-Loh, 2014). However, some researchers believed that single-gendered classes were illegal and immoral (Brown, 2013). Other researchers believed that single-gendered classes negated gender stereotypes (Ward, 2012). When a school operated as a single-gendered building, the school must also offer parents an opportunity to enroll their children in a traditional coeducational building, as well (Brown, 2013). Countries that exhibited a rise in female involvement in the workforce were the U.S. and Europe, not to say this was relevant in surrounding countries; but new social norms were set, especially in the labor force (Halpern et al., 2011). The blistering effects of women's acceptance brought on new arguments and conversations. One included that women wanted to have equality in various areas (Brown, 2013), including, but not limited to training, pay, and opportunity. Allowing for the advancement of coeducation was a successful conversion to allowing women to face these pressing issues (Fashola, 2013). Many studies indicated that when gender-specific classrooms existed, common misbehaviors disappeared (Ardinger, 2012; Brown, 2013;). These behaviors included bullying, harassment, biases, and gender stereotyping (Ward, 2012). A study in California, which at the time was the largest experiment done in the nation, provided insight regarding single-gendered classrooms in public education. The sample size included 12 schools, and these schools faced difficulties in the charge of successfully implementing single-gendered classes (National Education Association [NEA], 2015). These schools lacked enough support to fully carry out the idea of a single-gendered setting. The state only allocated $500,000 to all the schools for two years (NEA, 2015). There were no evaluations measuring the needs of the staff (State Education Resource Center [SERC], 2013). This study took place for a

period of three years from, 1998 through 2000. This pilot project devised to make 12 schools in the California school district single-gendered facilities (Sommers, 2013c). The pilot program encompassed six districts and over 300 high school and middle school students (Sommers, 2013c).

There were numerous factors and problems that made this study ineffective (NEA, 2015). One main problem that aided in the failure of the California School District was the focus of the district (SERC, 2013). It geared its effects towards low achieving and at-risk students; this focus would have worked if the overall objective focused on the same concept (Sommers, 2013a). However, the problem with the schools and the pilot program provided that gender inequity was the larger issue. The second problem was the timelines (NEA, 2015). These timelines were short and led to a host of other problems. Some of these problems were not including all key stakeholders or not having qualified and certified members to carry out the plan (SERC, 2013). The necessary resources were not available, advertising to recruit students did not generate the appropriate attention, and some of the same spaces in the building occupied both genders as a coeducational space (Sommers, 2013c). This study did show how male and female students benefited. For instance, distractions related to social acceptance became clear (SERC, 2013). Students were able to focus on their education and single-gendered classrooms allowed for expression on topics without feelings of embarrassment (Sommers, 2013c). Due to the lack of proper implementation of the program, the negatives outweighed the positives. In some aspects, stereotypical behaviors became more prevalent (SERC, 2013). Race and gender segregation started to reappear, which was creating tensions in the community (Chadwell, 2010, 2014).

California law made it difficult for single-gendered buildings in the public school district to survive. When two schools considered becoming single gendered, due to Title IX and ensuring gender equity both schools had to have identical curriculum (Education Week, 2011). This law gave credit for the failing of many single-gendered public schools. Some aspects of federal law made it difficult for creating the best environment for boys and girls (Salomone, 2013). The study on single-gendered facilities conducted before the passing of NCLB displayed that California had its own interpretation of what the law was regarding same-gender education (National Association for Single Sex Public Education [NASSPE], 2011). At the end of the study on the public school district of California, the research concluded that separating students by sex in education did not improve their academics. The research stated that it took much more than separating students to improve the quality of education (NASSPE, 2011). The real work would be in the creation of a workable curriculum that would benefit both girls and boys alike.

Smaller class sizes helped when implementing single-gendered classes (Ardinger, 2012). The curriculum had to be strong and the staff had to have a winning and can-do attitude to make successes happen (Bradley, 2010). Additional studies from various states, including, but not limited to Florida, Kentucky, and Connecticut conducted research on single-gendered classrooms, and their conclusions exhibited factors not expected (SERC, 2013). One factor included the enrollment of students in the single-gendered educational facilities; this option was entirely up to the parents (Blair, 2010). In most of the schools, students did not have to live in the area nor did they have to attend the school if this was their neighborhood school (SERC, 2013). Most of the students who did enroll in single-gendered facilities were mainly White, high-achieving students

(Connecticut State Department of Education, 2015). Research from these same studies also pointed out that some of the results showed that teachers of single-gender male classes taught with the traditional stereotypes (Blair, 2010). These stereotypes included that males must be strong and they were to grow up and take care of their spouses (Kennedy, 2015). In the classes, research showed that boys had conversations that led them to believe they were stronger than females (Sommers, 2013b). When teachers had classes of female students, conversations geared towards appearance, and the environment was more nurturing (Blair, 2010). However, creating a separate curriculum for boys and girls in the same facility led faculty to view girls as being the good students and boys as being the bad students (Sommers, 2013b). With the elimination of distractions by having single-gendered classrooms researches thought other factors would diminish (Kehler et al., 2010). This was not the case. The classes may have been single-gendered but some of the school buildings were coeducational. In these cases, students would still face harassment, unwanted touches and comments, and teasing (Garrett, 2011). The teasing ranged from verbal name-calling of students who enrolled in the single-gendered buildings, using phrases such as preppy and gay, to some even groping the same sex as a means of teasing (Slonje, Smith, & Frisen, 2012). In the 21st century, cyberbullying became popular. "Cyberbullies not only targeted their victims, but quite often showed bullying material to other people they knew (39% of cases) and uploaded it onto the internet for others to see (16%)" (Slonje et al., 2012, p. 1). Unfortunately, cyberbullying was more mainstreamed and easier to spread, as well as the bullies were less likely to feel remorse for their victims (Slonje et al., 2012).

An article written by Matthiessen (2013) discussed the various problems that occurred with single-gendered public schooling. The article discussed that the information surrounding the success of students in single-gendered schools were based on outdated gender stereotypes and not focused around the neuroscience research of the differences in the male and female brains (Matthiessen, 2013). The article supported using brain-based techniques more so in the classroom than gender-specific techniques. However, the study on brain research was also in its infancy stage and was a long way from applying to practical applications of life (Halpern et al., 2011). The article wanted teachers to explore other avenues to increase the deficiency in the then-current educational system (Halpern et al., 2011). Some of these variances worth exploring were customization of each child's educational plan and tailoring the need specifically to the child (Matthiessen, 2013). Another variation was multi-age grouping in early elementary schools where children who were developmentally similar regardless of age would progress at their own pace (Stanberry, n.d.). According to an article by Mathiessen (2013), the educational systems in the U.S. needed a makeover. Our country as a whole, according to an article by James (2010), did a lousy job of educating low income and minority students. The U.S. also did a meager job of educating poor and minority boys. Matthiessen (2013) mentioned the fact that the U.S. was trying to correct the plethora of disciplinary problems that were in the school systems in regards to young men. The need for the U.S. to explore corrective issues that reduced the number of young men that dropped out of high school was ever pressing (Noguera, 2012).

In districts where there were reports of high academic success and student performance was at a high as well, the districts were less inclined to try experimenting

with single-gendered classes (Patterson, 2012). This was due in part to not wanting to change the academic program or educational strategies deemed successful in the coeducational setting. However, in districts where the reports indicated low performing student achievement and a higher failing report; the district leaned toward an alternative for student improvement (Ogden, 2011). More commonly than not, the alternative was single-gendered classrooms (Gross-Loh, 2014). At a failing school district in the Boston area in 2009, change was necessary and actions were needed (Lewin, 2011). Upon the return from winter break, students walked into the organization of single-gendered classes instituted for math. The staff was on board with the new approach and thought it would decrease or eliminate the then-current low achievement of students' that existed in the schools (SERC, 2013). The Boston school decided that if the new change showed positive results, 10 more schools that were all middle schools would start implementing plans to support single-gendered classes (Lewin, 2011). Following behind this same approach, the Kansas City School District opted into the idea of single-gendered classes. One practicing principal for a school in Kansas City believed that her building was going to change the instructional strategies the teachers used and ways in which the students were learning (USDOE, 2014). When making this transformation the school took into account the development of students' social aspects.

Two years prior to this implementation, schools in Saint Louis Public School District tried single-gendered experimental classes (Associated Press, 2006). In an article by the *Public School Review* written by Chen (n.d.), many in the school district did not report their findings due to unavailability of substantial data to show progress and validity. However, the idea of having a choice in single-gendered education in an area

like St. Louis received high support from the students and their parents (Associated Press, 2006). This pilot program started with the high schools in many of the urban school districts (Chen, n.d). The feedback was so positive and there was support requesting this arrangement take place for the students in the primary grades as well as in the high schools (The Associated Press, 2010). School Districts in St. Louis went with this transformation to decipher why test scores reported that the boys were failing far worse than the girls were, and test scores were lower (Associated Press, 2006). The attendance rates for boys were lower, and participation in an activities or clubs was lower than the rates for girls (Chen, n.d.). This study did show to educators in the classroom that participation enhanced an all-male environment where the lessons and activities were more action based (Chen, n.d.). The staff implemented physical movement for the boys and attended to their needs (Associated Press, 2006). The understanding that gender-specific classrooms were more than just separation of the sexes was a start or effort to improve the educational system that was in place (Smyth, 2010). Student achievement was top priority. At times, when districts underwent change, they would lose focus of this (Associated Press, 2006).

The most efficient way to implement the separation of gender was to introduce students to single-gendered classes on a small scale (Blair, 2010). Schools should have a pilot group to test first. Considering outside variables when comparing single-gender education with coeducation plays a dynamic role in the outcome (Isensee & Vasquez, 2012). Many studies only focused on grades and test scores as their parameters without looking into the breadth of the educational opportunity. Generally, girls in all-girls' schools were more likely to study math, computer science, and physics (Harjes, 2010),

while boys who attend all-boys' schools were twice likely to study subjects in foreign languages, arts, music, and drama (James, 2010). This was not evident in a coeducational setting; in fact, it may have been the exact opposite. Studies focused only on grades and test scores did not detect differences in outcomes. Exploring variables when looking at test scores was a significant factor. The first evidence for investigation was the major nationwide studies in which single-gender public education was widely available (SERC, 2013).

Academic studies in which investigators researched coeducational and single-gendered schools while trying to control extraneous variables, reached different conclusions (Lewin, 2011). The various conclusions extended from coeducational classes showing higher achievement to single-gendered classroom settings providing the best educational outcome (Smyth, 2010). When the variable of student academic ability prolongs stability along with other background factors, both girls and boys performed better in single-gendered schools versus coeducational schools (Matthiessen, 2013). As far as age groups were concerned, high school students had the larger amount of benefits across the board. When controlled, girls at all levels of academic ability did better in single-gendered schools (Blair, 2010). Whereas for boys, the beneficial effect of single-gendered schools was only significant for those boys who were at the lower end of the ability scale, and no significant effects appeared on boys who had high achievement based on school type for academic performance, whether it was positive or negative (Noguera, 2012). Teachers needed professional development to ensure that the qualities of education for teaching in a single-gendered classroom were efficient (Stanberry, n.d.). James (2010) reported that there were huge differences in the teachings of single-

gendered classrooms in comparison to the teachings of coeducational classrooms. When not provided the option to teach in a single-gender educational setting, James (2010) believed the wanted results were not as likely. Teaches should understand general strategies to use when teaching in a single-gender environment (Smyth, 2010). Professional development for educators was one of the key contributors to successful implementation of gender-specific classrooms (James, 2010).

More results showed that girls at single-gendered schools were more likely to take non-traditional courses that were opposite the gender stereotypes, such as advanced math and physics (Booth, 2014). The research also showed that all-girl schools were "helping to counter rather than reinforce the distinction between female subjects' such as English and foreign languages and male subjects such as physic and computer science" (Chadwell, 2014, p. 513). The last result was that medium-sized schools with 180 students per grade seemed to do the best (NEA, 2015). At the smaller schools, there was a lack of courses offered, especially on the advanced level making the courses a little more controlled. This could also be why at the larger schools students' performance appeared to suffer, creating another variable open for research (NEA, 2015).

Summary

Gender-based classrooms in the 21st century were more common at the time of this writing than before. Schools across the country were trying to implement gender-based classrooms. In this type of environment, teachers were working closely with one sex in a classroom, either girls or boys (Smyth, 2010). While the research seemed promising, parents and researchers tended to be a little skeptical of such classroom dynamics. The challenge for the teacher was trying to reach all the children in the

classroom using instructional strategies normally considered gender-specific (Harjes, 2010). Looking at specific instructional strategies that helped boys learn in the classroom, especially relating to the subject area of math, a great strategy would be tying building in with LEGOS and using Lincoln Logs as a manipulative (Noguera, 2012). In the content area of Communication Arts, an instructional strategy would be to construct or create a three-dimensional diagram of the main idea, and teachers should allow boys frequent quick breaks that required the students to stretch, move around, and stand up (James, 2010). This was especially beneficial at the elementary and middle school level where boys learned best by moving and doing hands-on activities in the classroom.

A significant problem that schools faced at the time of this writing in regards to the gender was equity in curriculum, instruction, and assessment practice (Sommers, 2011). Another problem facing schools was how to deal with boys and girls in terms of future planning, as well as providing them the emotional support they needed to be successful in the classrooms (Salomone, 2013). The research said that teachers should look at how they viewed their own mental models, whether good or bad, because it was those models that shaped how students interacted with each other (James, 2010). Deeply rooted with educators and human beings was the mental model on student behavior and this caused altered perceptions about how boys and girls should act in the classroom.

Educators must stray away from the factory as their mental model (Boykin & Noguera, 2011). Their perceptions on education was that all children received the same information, at the same times in the same way. It was in these ideas that educators were creating an unfair and unjust educational system. Other outside variables that impeded the instructional progress of students were the formulation of biases by the educators

based on the socioeconomic and cultural background of the students (Crumpton & Gregory, 2011). Boys and girls framed or created the same perceptions regarding their own gender and capabilities, which derived from their knowledge of their social class (Boykin & Noguera, 2011). Other outside variables, such as self-esteem, motivation, value of education, and skills entering schools helped define the living environments (Sommers, 2013a). Even if students were genetically predisposed to strength in certain areas, their environments would unquestionably have a large effect on what they did with those strengths. Overall, society as a whole must change its mental model. This approach would create equity that did not give everyone the same treatment, no matter what his or her needs entailed, but give everyone what he or she needed to optimize success (Blair, 2010).

Single-gendered classrooms did not guarantee success (Lewin, 2011). When a teacher lacked proper training to teach according to their gender-specific personality traits, failure was an option and the students did not receive the overall benefit of a tailored learning environment geared towards their individual needs. If teachers had appropriate training and professional development, great things could happen and generally, they often happened quite rapidly (Salomone, 2013). The single-gendered classroom format offered opportunities that just did not exist in a coeducational classroom setting. This was partly due to teacher training programs like NASSPE that offered professional development opportunities as a means of practical gender-specific classroom strategies and best practices for the single-gendered classroom teachers (NASSPE, 2011).

The reasons behind the new approach to gender-based classrooms had much to do with the achievement gap between males and females (Patterson, 2012). According to past research, this was caused by the 'Boy Crisis' (Kehler et al., 2010). This crisis existed not only at the primary level but at the secondary level of education, as well. Some researchers believed that the general underperformance of boys only existed in the working class (Ogden, 2011). Researchers would argue that the insufficiencies in education mainly and most drastically occurred in areas overcome with poverty and low socioeconomic status. Naturally, these communities mainly housed minorities (Ogden, 2011).

Overcome with the rigors of life, paying for education was not among the top priority for those living in poverty. The socioeconomic disadvantaged wanted options when it came to educating their children (Ogden, 2011). Single-gendered education was one way of providing interventions to these low socioeconomic communities and urban areas. The boy crisis, according to the AAUW (2011), provided justification for mishandling of equalities among boys and girls in a publicly funded single-gender setting. Even in the 21st century, reports revealed gender inequalities that were in favor of boys and provided experiences females faced due to these gender inequalities.

An AAUW (2011) study found the following examples of gender inequalities specifically for females that existed in the 21st century.

> These examples included, but were not limited to: prevalent sexual harassment and bullying, underrepresentation in math, science, and technology programs, low scores on standardized test, sex-segregated vocational educational programs with females overwhelmingly directed into training programs that focused on

> traditional female-considered roles, low-wage-jobs, exclusion of female students from many athletic opportunities, including athletic scholarships worth hundreds of millions of dollars, and wage disparities. (p. 2)

To combat these inequalities, AAUW reported that single-gendered programs played a vital role in the performance of improvements within the laws (AAUW, 2011). Some of these improvements included finding remedies for persistent discrimination. Including, but not limited to federal, state, local, and private individuals developing and networking to create gender-based scholarships and financial assistance programs (AAUW, 2011). Entities also created outreach programs or programs geared to bridging the gap between male and female students in the social sciences or nontraditional college and career readiness paths. When developing the organizational setting for single-gendered classes most of the inferences relied heavily on students' ideas and approaches. Past studies mentioned or geared their data more towards the students; however, very few included the thoughts or effects single-gendered classrooms played on the teacher. In Chapter Three, a detailed description of the methodology used in this study addressed the effectiveness of single-gendered education as a possible solution for the improvement of African American student academic achievement and the effects this approach had on teacher perceptions.

Chapter Three: Methodology

Due to the ever-prevalent challenge of improving student achievement, school districts used various instructional strategies and best practices. An institutional strategy that received considerable attention in dealing with student achievement was single-gendered classrooms. Several districts adopted the strategy of single-gendered classrooms because of its promise of closing the educational achievement gap without lowering the educational standards for minority students. Another reason for adoption of single-gendered classrooms was that it helped districts optimize interventions without straining their budgets (Cafferty, 2012; Chadwell, 2010). As discussed in Chapter Two, some critics of single-gendered education argued there was no significant benefit in having these types of classrooms. Specific reasons were that single-gendered classrooms did not help with the educational achievement gap, as well as social skills lacked developmentally when separating the sexes (Chadwell, 2010; Sax, 2010). The empirical claims found in these two competing concepts on the influence of single-gendered classrooms on educational achievement needed further evaluation. Specifically, this study focused on comparing single-gendered classrooms to coeducational classrooms in an urban setting. The researcher selected a mixed-methods approach to address the hypothetical questions raised in the study. A mixed-methods approach addressed quantitatively, how samples may be different in numbers and quantitatively why coeducational classrooms may be implemented (Creswell, 2013). There were several advantages in using a mixed-methods approach. One advantage of incorporating both quantitative and qualitative information was it allowed the elements of each type of research to complement each other. Using the quantitative approach the researcher was

able to collect in-depth information to answer the first research question using numerical data. Using the qualitative approach the researcher collected in-depth information to answer the second research question raised in this study. Another advantage of the mixed-methods approach was it allowed for collection of efficient data that provided context related to the study design (Creswell, 2013). In order to compare the effectiveness of single-gendered classrooms to coeducational classrooms the following questions were considered.

Research Questions

The following predominant questions guided the study. Are there differences in academic performances between a single-gender and coeducational classroom? If so, what specifically are the differences? Secondarily, this study addressed various aspects of teacher attitudes towards single-gendered classrooms. Specifically, how do teachers' perceptions influence student achievement in an urban setting? The research questions this study sought to answer were:

RQ1. How do single-gendered classrooms compare to coeducational classrooms based on student achievement scores?

RQ2. What impact does teacher attitude have on the academic success of a gender specific classroom?

Hypotheses

The research questions led to the following null hypotheses:

Ho_1: There is no significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms as measured by Acuity scores, the standardized testing in

reading/language arts.

Ho_2: There is no significant difference in teacher perceptions of African American student behavior and performance in both single-gender and coeducational classrooms as measured by teacher ratings on a researcher prepared questionnaire. Due to the small sample sizes of educators (10 out of 36) who returned surveys, Null hypothesis 2 was not statistically analyzed, and so not addressed

Method

Quantitative component. The quantitative component of this study relied upon the ex-post facto causal, comparative method used to test null hypothesis, Ho_1. The researcher used this design because it required the investigation of a question when the effects already occurred. A second key characteristic for the completion of a causal-comparative study was that manipulation of the variables was not plausible for ethical or practical reasons. A third key characteristic of a causal-comparative research design was that randomly assigning individuals to groups did not occur. Specifically, as part of a study involving an event or situation that occurred with groups that were previously formed (Pollock, 2012a).

Student Acuity data were used to compare how the instructional setting influenced student achievement data in reading and mathematics. The instructional settings compared in this study were single-gendered classrooms and coeducational classrooms. For the purpose of this study, single-gendered classrooms existed in a coeducational building. For the instructional setting of coeducation, all students received instruction in a coeducational building with coeducational classrooms.

The setting to support the research design. Two middle schools and four elementary schools, all coeducational institutes were used for this study. These organizational settings for these schools were located in traditional public schools. This study was based on Acuity achievement data generated by grades two through eight, and teacher survey results allowed for a comparative analysis of the two instructional settings. These two approaches fostered the comparison between inferential statics and survey analysis techniques. Used as an effective tool of measure, inferential statistics compared student achievement in the two different instructional settings observed. According to Pollock (2012a), statistical inference was a set of mathematical procedures used for probabilities and relied upon information about a sample to draw conclusions from the population from which the sample was drawn. This study was an attempt to examine if there was a significant difference in student achievement among African American students in different instructional settings, specifically single-gender vs. coeducational. Therefore, for this study the use of inferential statistics existed for examination.

The variables. The independent variables were the instructional settings, which included single-gendered classrooms, coeducational classrooms, and grade levels. The dependent variable was the outcome of student performance on the Standardized Benchmark Test, student Acuity data. Variables in this study were limited avoid biased or unfair relationships, ranging from the availability of time for the researcher, financial and manual resources, and materials. The researcher selected data based on the classes at the six schools for the academic school year of 2012-2013. The researcher for the study did not manipulate any of the variables. The results reflected the possible relationship between instructional setting and Acuity scores. Furthermore, the researcher identified

another possible variable that may have influenced the relationship between single-gendered classrooms and academic achievement. An interceding variable was the perceptions of teachers regarding single-gender instruction. To determine the impact of teacher perception the researcher used a qualitative approach.

Qualitative component. The qualitative component of this study relied on survey technique to collect data on teacher perceptions of African American student behavior and performance in both single-gender and coeducational classrooms. The survey was designed to determine if teachers' perceptions created biases that may have influenced students' academic achievement in a single-gender or coeducational setting. Using this technique allowed for the compiling of pertinent data into systematic graphs and charts. The survey research in this study also referred to the experiences teachers provided through their own perspective (James, 2010). The survey consisted of ten questions for the teachers of single-gender and coeducational classrooms included in this study (Appendix A; Appendix B).

Instruments

The Acuity test only assessed the content standards outlined in the Missouri Learning Standards (MODESE, 2012). The Acuity test measured how well students acquired the skills and knowledge described by the Missouri standards (CTB/McGraw-Hill, 2015). Acuity A, B, and C assessments covered a certain percentage of information that students should have acquired during the current assessment year. Acuity A is 70% of information acquired from the previous grade level, Acuity B is 50% of information acquired from the current grade level, and Acuity C is 70% of information acquired from the current grade level (CTB/McGraw-Hill, 2015). Additionally, the Acuity test provided

a range of multiple choice, short answer, fill-in-the-blank, and performance event questions on the assessment. Most of the responses consisted of generated and scored answers by the online system, however within the last two years the performance event questions were scored by the teacher (CTB/McGraw-Hill, 2015). For purposes of this study, data collected yielded information only from the content area of English Language Arts, specifically in the area of reading. The assessments yielded information on academic achievement at the student, class, school, district, and state levels. This information gave educators the ability to diagnose individual student strengths and weaknesses as related to the instruction of the Missouri Learning Standards, and to gauge the quality of education throughout Missouri (MODESE, 2010). To ensure accurate validity and reliability a multistep process was performed on each test design prior to implementation. This included creating and systematically "defining the construct to be measured, developing a test blueprint aligned with the purpose of the assessment, thoughtful application of the art and science of item writing, and empirical data collection to support item and test validity" (CTB/McGraw-Hill, 2015, p. 1). Therefore, the Acuity served as a reliable instrument for data collected for this study.

During the 2012 -2013 school year, all students in grades two through eight took the Acuity Benchmark Assessment. Grades three through eight took the Acuity Assessment three times a year (Acuity A, Acuity B, and Acuity C), with second grade taking the Acuity Assessment twice a year (Acuity B and Acuity C).

Data

The quantitative data were gathered from K-8 schools within an urban public school district in Missouri during the 2011-2013 academic school years. Six schools

were included in this study, two middle and four elementary schools. The research included secondary data generated by students from ages five through 15. The schools were within the same school district, but were located in different geographical areas of the district. All of the schools were coeducational, with four single-gendered classrooms within their building.

All schools in this study were Title I schools. In order to qualify as a Title I school at least 35% of the student body must be from low-income families; determined by the free and reduced lunch status of the attending students (MODESE, 2012). The demographics of the schools where the three types of instructional approaches were used are described in Table 1 and Figure 1. The average size of the classes was 24 students. The vast majority of the students in the schools were African American, and less than 1% represented other nationalities. The majority of the African American males received special education services, and 95% of the students were receiving free or reduced lunch (MODESE, 2012).

Table 1 contains a description of the number of students in the instructional setting by gender. The sample contained a distribution of male and female students in both single-gender and coeducational classrooms.

Table 1

Frequencies for Independent Variable by Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Coed	131	33.1	33.1	33.1
Single Female	136	34.3	34.3	67.4
Single Male	129	32.6	32.6	100.0
Total	396	100.0	100.0	

Figure 1 illustrates the make-up of the population of students who took the Acuity Test, which provided secondary data for this research study. The data used to analyze the research questions derived from the number of school students assigned to the various classes and that took the Acuity test. There were 396 students in grades two through eight. The researcher obtained Acuity test data for this study form the school district's database, PULSE. Missouri law required school districts to use a tool to assess the benchmark of student in English Language Arts, Mathematics, and Science (CTB/McGraw-Hill, 2015). Acuity benchmarks were the choice of the study district to meet these requirements.

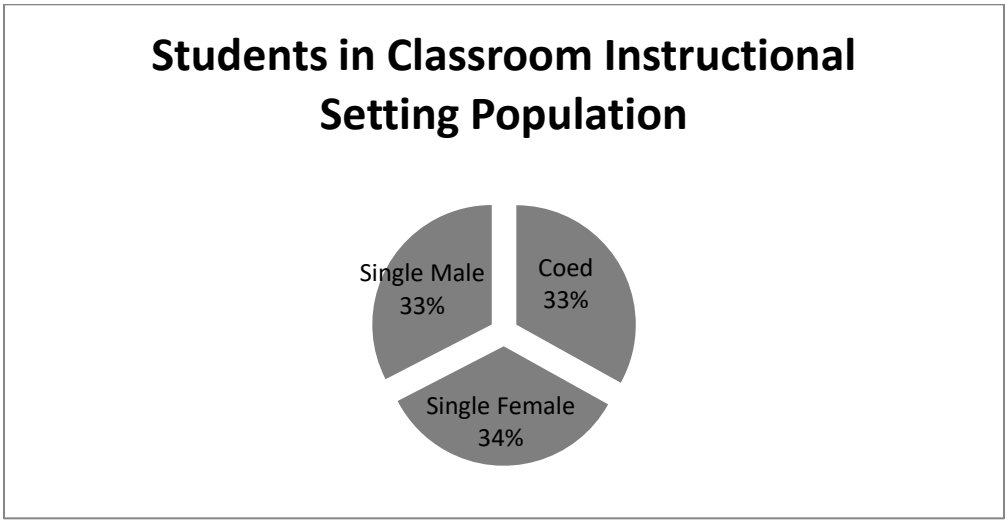


Figure 1. Students in classroom instructional setting population. Scale of pie chart displays populations of the students who were in the instructional setting of gender. Pie chart is a representative of male and female students in both single-gender and coeducational classrooms.

The Acuity data source provided a convenience sample used specifically for this study. A convenience sample occurred when the researcher selected a sample that suited the purposes of the study. The sample can be convenient based on the researcher's accessibility to the sample or if the collection of the data that the researcher deemed

necessary previously existed (Pollock, 2012b). When determining a sample size for a quantitative research study, Pollock (2012b) suggested using the largest sample size possible and to follow the norm for determining the minimum number of participants needed for different research methods. For this study, the pre-existing data were convenient. Sampling was chosen from the schools that conveniently were already operating single-gendered classrooms, while both single-gender and coeducational classrooms in the district participated in Acuity benchmarking.

Table 2 contains information about the number of students in each type of class in each grade level included in this study.

Table 2

Frequency of Independent Variable by Grade

	Frequency	Percent	Valid Percent	Cumulative Percent
Grade 2	62	15.7	15.7	15.7
Grade 3	68	17.2	17.2	32.8
Grade 4	58	14.6	14.6	47.5
Grade 5	55	13.9	13.9	61.4
Grade 6	49	12.4	12.4	73.7
Grade 7	49	12.4	12.4	86.1
Grade 8	54	13.6	13.6	99.7
	1	.3	.3	100.0
Total	396	100.0	100.0	

Figure 2 displays the percentage of student population in each of the grade levels accessed, grades 2, 3, 4, 5, 6, 7, and 8. Additionally, the researcher gathered data from the teachers of the students. The data gathered over a six-month period started in August and concluded at the end of February, during the targeted academic year, 2012-2013. Every

educator teaching in single-gendered classrooms in the study school's sites had opportunity to complete the researcher survey that provided data for this study.

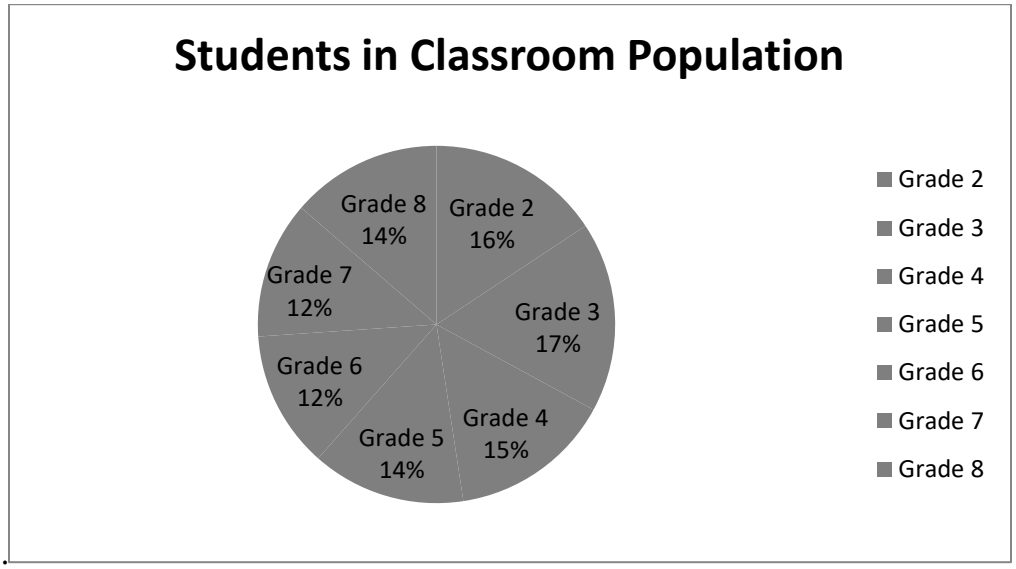


Figure 2. Students in classroom population. Acuity test scores for 396 students were collected across the two middle schools and four elementary schools in the study district for grades K through eighth grades, during the 2012-2013 academic school year.

The researcher divided the survey participants into six sample groups (Table 3). Each group consisted of six subjects. Two groups taught single-gendered classes of the same sex. Another two groups taught single-gendered classes of the opposite sex, and the last two groups taught coeducational classes. Group 1 was comprised of six male educators who taught single-gendered classes to male students. Group 2 contained a structure that included six male educators who taught single-gendered classes to female students. In Group 3, six female educators taught to single-gender female students. Group 4 consisted of six female educators who taught to male gender students. Group 5 encompassed six male educators who taught to a coeducational students, and Group 6 consisted of six female educators who taught to a group of coeducational students. This

made total sample size of 36 educators. The systematic sampling of teachers who taught in a single-gender educational setting created a more unbiased population. The study included and acknowledged all members of the sample along with purposeful sampling of teachers who taught in single-gendered classrooms. This type of sampling gave the best information for the study, in the view of the researcher.

Table 3

Six Sample Groups

Gender of Educators	Gender of Students in the Classroom
Male	Male
Male	Female
Female	Female
Female	Male
Male	Coeducational
Female	Coeducational

Note: Six samples; six educators in each sample. n = 36.

Each participant educator underwent two observations, giving a total of 72 observations from the samples. During these observations a the progress monitoring tool that encompassed a checklist to monitor any changes in the teaching style of one participant to the next, as well as to record any visible effects the educator may experience during the time of the observation. Obtained data became available through participants providing their course schedules. From there a master schedule of times and dates for observations was created. Upon the completion of the 72 observations, the data was expressed in a workable spreadsheet. After tallying all surveys and compiling responses to interview questions, a data chart explaining the results, along with bar charts and line-graphs showing any correlations between data. Appendix A and Appendix B

listed the interview questions asked to the participants in the study. From these questions, the researcher collected and disaggregated the data.

The Study Setting

The researcher chose this school district due to the problems that surfaced in this particular urban school district in Missouri during the 2011-2013 academic school years. In 2012, the district was comprised of 74 schools that encompassed 15 high schools, nine middle schools, one junior high, and 49 elementary schools (MODESE , 2012, "Study-Site Quick Facts"). There were 25,200 students enrolled and 2,344 certified staff members employed with the school district at the time of this study (MODESE , 2012, "Study-Site Quick Facts"). This research described the largest urban school district in the area (MODESE , 2012).

Due to low performance on the Missouri Assessment Program (MAP), a standardized assessment test, the public school district was under the control and guidance of the state. A special administrative board comprised of three members became the liaison to the state (MODESE , 2012). The public school district was located in a city and 80.6% of the student bodies self- identified as Black, 13.7% White, 2.9% Hispanic, 2.5% Asian, and less than 1% were other: Bosnian, Indian, Arab, and Muslim (MODESE , 2012, "Study-Site Demographics"). From these demographics, 88.5% received free and reduced lunch and held a poverty rate over 75% (MODESE , 2012, "Study-site Demographics"). The public school district had a graduation rate of 60.1%, which was 20% lower than the state graduation rate (MODESE , 2012, "Study-Site Demographics"). The district had not met AYP (Adequate Yearly Progress) in

Communication Arts and Mathematics in 2009, 2010, 2011, which categorized the district as a Level 3, identified as needing corrective action (MODESE, 2012).

Analysis

The analysis for the quantitative method used two types of statistical techniques, descriptive and inferential. A descriptive analysis determined and summarized any patterns that may have existed in the data. For the inferential techniques, a comparison of the two means and two proportions determined the impact of single-gender education on academic achievement. Pollock (2012b) stated, "The Chi-Square test of significance determines whether the observed dispersal of cases departs significantly from what we would expect to find if the null hypothesis were correct" (p. 164). The statistical test evaluated at an alpha level of $p < .05$ (Pollock, 2012b).

The analysis for the qualitative method used was a simple survey data structure. Using this method allowed the researcher to count, measure, and code in a structured way the participants' responses. This data provided an environment that allowed for inferences that were proper and relevant to the study. Survey data were recorded on spreadsheets, which allowed detailed descriptions for any visible and stated effects of teaching in gender-based classrooms verses teaching in coeducational classrooms. Using the same data set, bar graphs provided visual indication of the numerical facts. Data, presented in an easy-to-read format allowed for grasping and fully understanding the relationships presented in this study.

Summary

This mixed-method study used both a quantitative and qualitative approach to determine if there was a significant difference in student academic achievement between

single-gender and coeducational classrooms, as well as provided data on the impact of teachers' perceptions on the outcome of academic achievement. The quantitative method involved an ex-post facto causal-comparative design that analyzed single-gendered classrooms and the outcomes they may have had on educating students in an urban setting. The control group, coeducation was compared to both of the experimental groups in this study, single-gender male classrooms and single-gender female classrooms. The independent variables were the instructional settings; single gender classrooms, coeducational classrooms, grade levels, and teachers' perceptions of single-gender instruction. The dependent variable was the outcome of student performance on the Acuity test benchmarks. The qualitative method involved surveying of the teachers to determine their perceptions towards single-gender and coeducational classrooms. More so, to determine whether the instructor played a role in the outcome. Through researching, data collection, interviewing, and observing this research materialized. Educators will formulate their own ideas concerning relationship of achievement and gender mixture of the classroom setting.

This study supported the idea of finding a rationale for districts moving towards single-gender education. Recently, at the time of this writing, public schools realized the need for change to increase the academic success for students. When developing a change toward single-gendered classroom structure, districts should provide formal training to all staff involved in the transformation of mixed-gender classes to single-gendered classes. Districts should also note that change alone will bring about stress, and without the proper training, the idea cannot be fully effective or implemented (Heath & Heath, 2010). Often times, new ideas are 'dumped' on teachers, and they have no choice

or say in the matter. This study presented an idea on how and what the educators who are in the trenches view what they may have been forced to do in their classrooms. The result desired is always student success; nonetheless, teachers play a vital role in this success. Therefore, they should be involved in the framework of any new implementation that affects them first-hand. Districts should take into account the effects single-gendered classrooms have on the teacher, and with an in-depth look into this study; this research may provide a beginning point. The results of the analysis are presented in Chapter Four.

Chapter Four: Results

The purpose of this study was to determine if there was a difference in the academic achievement in mathematics and reading among students enrolled in single-gender and coeducational classes, as well as investigate the potential impact of teachers' perceptions on the outcome of academic achievement. To address the research questions a mix-methods approach included both quantitative and qualitative methods. Data collected from 396 students for one year provided a means for analysis to answer the quantitative research question. To answer the qualitative research question, the researcher collected data from 36 educators located in six educational facilities. This chapter presents the results of the analysis.

Research Questions

The research questions this study sought to answer were:

RQ1. How do single-gendered classrooms compare to coeducational classrooms based on student achievement scores?

RQ2. What impact does teacher attitude have on the academic success of a gender specific classroom?

Hypothesis

The research questions led to the following null hypothesis:

Ho_1: There is no significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms as measured by Acuity scores, the standardized testing in reading/language arts.

The data sample for the quantitative analysis consisted of reading scores generated from the Acuity test, to determine if there were achievement differences between single-gender and coeducational classrooms. Data generated by students in two middle schools and four elementary schools, all coeducational institutions, were included in the sample. The institutions were traditional public schools in an urban setting, where a majority of the students were African American. The demographic make-up included students from ages five through 15 and consisted of grades kindergarten through eight. The sample represented the majority of the districts population and was not unique. The qualitative sample used in this study consisted of three dozen educators, male and female, teaching single-gender and coeducational classrooms, who were interviewed and observed. The sample included six groups. Two groups taught single-gendered classes of the same sex. Another two groups taught single-gendered classes of the sex opposite the instructor, and the last two groups taught coeducational classes. Each participant underwent two observations, providing 72 observations for analysis. The remainder of this chapter presents results of data analysis.

Description of Sample

Table 4 contains a description of the numbers of male and females students enrolled in single-gender and coeducational classrooms at the study sites. All the students were African American and a majority of the male population received special educational services. The table provides a distribution of students in the various instructional settings. Those settings were coeducational, single-gender female and single-gender male classrooms.

Table 4

Frequencies for Independent Variable by Gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Coed	131	33.1	33.1	33.1
Single Female	136	34.3	34.3	67.4
Single Male	129	32.6	32.6	100.0
Total	396	100.0	100.0	

The frequency of students in the coeducational classroom setting differed from the single-gendered female classroom setting by -5 students, and by +2 students when compared to the number enrolled the single-gendered male classroom setting. Figure 3 provides the percentage of the student population attending each of the three instructional settings.

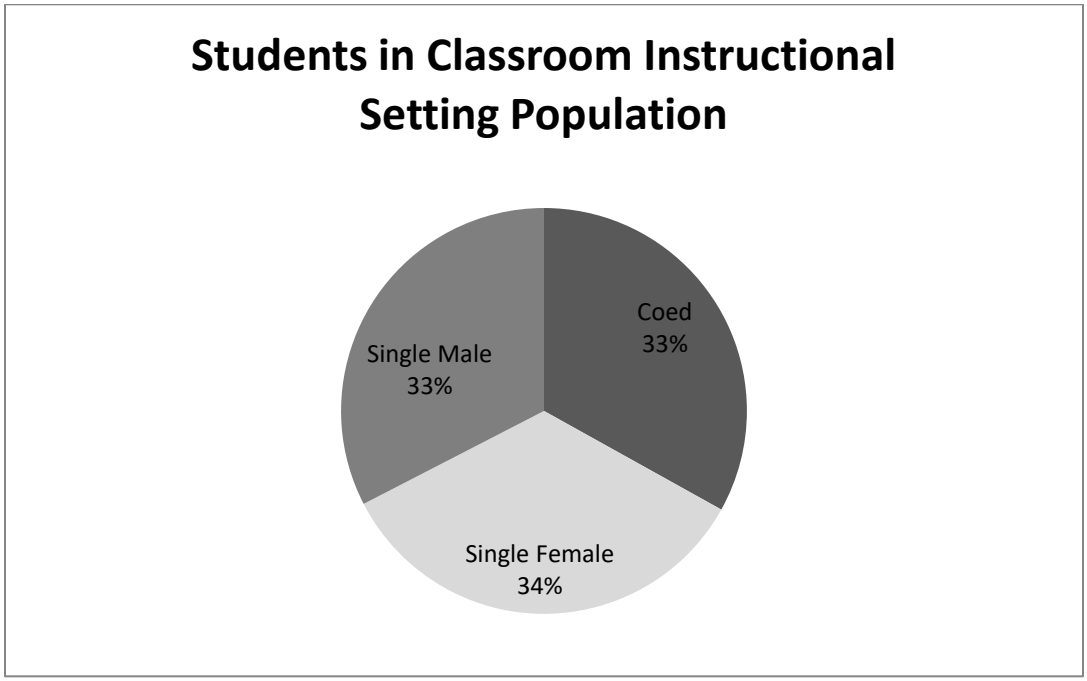


Figure 3. Students in classroom instructional setting population.
Scale of pie chart displays populations of the students that are in the instructional setting of gender. Pie chart is a representative of male and female students in both single-gender and coeducational classrooms.

Analysis of Research Question 1

Research question 1 asked, 'How do single-gendered classrooms compare to coeducational classrooms based on student achievement scores?' Quantitative analysis was intended to determine if there was a differences in academic achievement for single-gender and coeducational classes. The null hypothesis considered in this analysis was: Ho_1: There is no significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms as measured by Acuity scores, the standardized testing in reading/language arts.

When analyzing the quantitative data, the researcher compared Acuity test scores generated by students in 36 classrooms that were in either a single-gender and coeducational setting. Two single-gendered classrooms, one male and one female, were compared to one coeducational classroom within the same grade level. The researcher transferred all Acuity test data into an Excel spreadsheet and then transferred data responses from Excel into the Statistical Package for the Social Sciences (SPSS) version 20 (Pollock, 2012b). Data comparisons included an examination of frequency percentages, means, regression statistics, *p*-value calculation, ANOVA, Chi-Square, and directional measures to provide statistical data reports to help the researcher identify differences and similarities among the variables within the instructional setting.

Comparison of Acuity Mean Between Gender. In order to answer the first research question, an analysis was conducted to determine if a significant difference existed among the instructional groups by gender. The standard set for the Acuity

benchmarking articulated by CBT/McGraw-Hill (2012), as determined by the school district, was 50% on the reading scores. Table 5 displays results by gender.

Table 5

Comparison of Acuity Means Between Gender

Gender		Acuity# A	Acuity# B	Acuity# C
Female	Mean	27.8584	38.7813	39.4485
	N	113	128	136
Male	Mean	42.0684	44.9008	42.0667
	N	117	121	105
Co-ed	Mean	41.4737	50.1680	51.2672
	N	95	125	131
Total	Mean	36.9538	44.5668	44.3495
	N	325	374	372

Note. N=number of students that took each Acuity Test

Table 5 displays a comparison of the means for the instructional setting on Acuity A, B, and C. Acuity A had the lowest means, collectively, among the three standardized tests used in the sample data. Acuity B and C means for the three instructional settings were close in comparison. When comparing all three Acuity scores among the instructional settings, students in a coeducational setting had a higher mean than both single-gender female and single-gender male classes (Table 5).

Table 6 displays a comparison of the means by grade level on Acuity A, B, and C. With the exception of sixth grade, Acuity A had the lowest mean for each grade level. The grade levels with the highest or lowest mean fluctuated on both Acuity B and Acuity C (Table 6).

Table 6

Comparison of Acuity Means by Grade

Grade		Acuity# A	Acuity # B	Acuity# C
Grade 2	Mean	0	46.0806	43.9024
	N	0	62	41
Grade 3	Mean	29.1111	37.4286	36.5385
	N	63	63	65
Grade 4	Mean	33.4314	43.0000	44.0345
	N	51	52	58
Grade 5	Mean	43.5556	47.6296	51.4182
	N	54	54	55
Grade 6	Mean	48.2381	49.3111	45.1224
	N	42	45	49
Grade 7	Mean	29.6818	44.4348	44.9592
	N	44	46	49
Grade 8	Mean	33.6939	45.3333	45.4444
	N	49	51	54
	Mean	69.0000	70.0000	73.0000
	N	1	1	1
Total	Mean	36.9538	44.5668	44.3495
	N	325	374	372

When comparing all Acuity A, B, and C scores by grade level, Acuity C had the overall highest mean, with each individual grade, except for seventh grade, but only a slight variance among the grade levels was observed (Table 6).

Table 7 indicates the Pearson Product Moment Correlation Coefficient resulting from a regression analysis, which estimated the size of the effect the independent variable appeared to have on the dependent variable. The *r*-value allowed rejection of the null hypothesis, there is no relationship between classroom organization by gender and student achievement. The null hypothesis was rejected, and indicated a significant, mild relationship.

Table 7

Regression Analysis of Instructional Setting

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.335[a]	.112	.105	16.64359

Note. a= Predictors: (Constant), Instructional Setting and Grade

Looking at the Adjusted *R*-Square, and with a level of significance of 0.05, there was a 95% confidence that only .105 (10.5%) of the results may be explained due to the instructional setting. The other 89.5% percent remained influenced by variables not identified in this study. It was concluded that the instructional setting of single-gender and coeducational classes potentially explained 10.5% of the academic achievement in African American students (Table 7).

In Table 8, looking at the coefficients of the adjusted *R*-Square, the analysis provided information needed to isolate the partial effect of each independent variable on the dependent variable.

Table 8

Coefficients of Adjusted R-Square for the Independent Variables

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Model
	B	Std. Error	Beta	B	
(Constant)	35.780	4.439		8.061	.000
Single-Gender	4.789	1.197	.231	4.000	.000
Co-educational	-2.540	1.283	-.115	-1.980	.048
Grade	.965	.305	.156	3.168	.002

Note. Variable is Acuity# 3

The coefficients of the adjusted *R*-square of the independent variables of single-gendered classes, coeducational classes, and grade level represented a model of

prediction that proved not to be significant, which does not support a statistically significant relationship among the variables.

Table 9 contains the results of the analysis of variance, ANOVA, conducted to determine if a potential difference existed in achievement on Acuity A, B, and C among the schools for single-gendered classrooms in comparison to coeducational classrooms. The null hypothesis, there will be no difference in achievement between the two types of classroom settings, was rejected, indicating that there was potential contribution of single-gender vs. coeducational setting to differences in achievement, was rejected (*F*-test value, 15.479; *F*-critical, 3.182; *p*-value, .000; alpha-value, 0.05). There was a significant difference in scores, evidenced by coeducational grade five student scores on the Acuity benchmark.

Table 9

Analysis of Variance Results

Model		Sum of Squares	DF	Mean Square	F	Sig.
1	Regression	12863.264	3	4287.755	15.479	.000[b]
	Residual	101939.306	368	277.009		
	Total	114802.570	371			

Note. a. Dependent Variable = Acuity # 3; b. Predictors: (Constant), Instructional Setting, Grade, Gender; c. DF= Degrees of Freedom; d. F=F Test compares factors for total deviation

Performance on Acuity

A *Chi*-square analysis assisted in determining if a significant difference existed among the instructional groups. The analysis showed no significant difference. Looking at Tables 10 and 11, the results as the *Chi*-square support the explanation for the observed data and the possibility that achievement results occurred by chance decreased.

Table 10

Statistical Significance: p-value

	Value	DF	Asymp. Sig. (2-sided)
Pearson Chi-Square	185.982[a]	110	.000
Likelihood Ratio	216.385	110	.000
Linear-by-Linear Association	29.946	1	.000
N of Valid Cases	372		

Note. a. 151 cells (89.9%) have expected count less than 5. The minimum expected count is .28.

Looking at the *Chi*-square analysis displayed, the independent variables lacked a contribution to the explanation of the results recorded for the dependent variable Acuity test scores. The test results were not valid due to small frequencies throughout the data, as indicated in the table note (Table 10). Table 11 summarizes results of directional measures for Acuity C, the version with larger gains, compared to Acuity A and Acuity B.. The null hypothesis, there will be no difference, was rejected. Acuity C student achievement results were significantly larger than results on Acuity A and Acuity B, regardless of gender mixture in the classroom. Acuity C was administered to students later in the school year than Acuity A and Acuity B.

Table 11

Directional Measures for Acuity C

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Somers' d	.214	.038	5.671	.000
	Acuiry#3 Dependent	.263	.046	5.671	.000
	Gender Dependent	.180	.032	5.671	.000

Note. a= not assuming the null hypothesis; b= Using the asymptotic standard error assuming the null hypothesis

Analysis of Research Question 2

Research question 2, 'What impact does teacher attitude have on the academic success of a gender specific classroom?,' was developed to determine if teachers' attitudes towards single-gender or coeducational classrooms had an influence on student behavior, and in turn influenced the outcome of student academic achievement.

When analyzing the qualitative results, the researcher gathered data by surveying 36 educators who worked in either a single-gender or coeducational classroom setting. Out of the 36 educators, 10 submitted their responses and answered questions for the *Teacher Interview Survey*. Several survey questions allowed for open text or explanations to allow educators to hand-write additional responses and comments. The researcher transposed all qualitative responses into an Excel spreadsheet for sorting and filtering to allow further review and analysis for similarities, differences, and content matter. Due to the various forms of qualitative data, the researcher chose select content data, hand-written responses, and comments. The researcher omitted the use of subject names to allow for anonymity in reporting of interview question responses. Actual survey questions are included in Appendices A and B.

Tables 12 and 13 list the data regarding teachers' attitudes. In this study, teachers (n = 4) in the single-gender organizational setting, along with teachers (n = 6) in the coeducational organizational setting responded to the survey. The responses gave insight to the following statements: (a) the teachers' attitudes towards single-gender or coeducational classrooms, (b) the teachers' perceptions of the differences in the way males and females learned, and (c) the ways in which single-gender and coeducational instruction addressed the differences in how male and female students learned. In the sample, some teachers were new to single-gender instruction, while others previously

taught in this setting. Teachers in the single-gender education sector averaged three years teaching in a single-gendered classroom between them, with an overall average of nine years teaching experience. Teachers in the coeducational setting averaged eight years teaching experience. The sample represented less than 30% of the total teaching population in the study. Table 12 gives an analysis of teachers' perceptions regarding single-gender instruction.

Table 12

Survey Questions for Educators: Frequency of Response

Selected Statements (Single Gender)	Agree	Neutral	Disagree
1) 1. Have you previously taught in a coeducational classroom?	3	0	1
2) 2. Are there positive benefits to you as a teacher in a single gender classroom?	4	0	0
3) 3. Are there particular challenges to you as a teacher in single gender class?	2	0	2
4) 4. Are there differences in student involvement in class activities between single gender and in a coeducational setting?	2	0	2
5) 5. Are there differences in the level of focus of students in your single gender classrooms versus your past coeducational classes when working on activities?	2	0	2
6) 6. Do you believe there are differences between male and female students in how they grasp information and process their knowledge to gain understanding?	3	0	1

According to the sample, single-gender teachers believed female single-gendered classrooms experienced the distractions of gossiping, while the male-gender classrooms

experienced students trying to outdo one another. Teachers believed students addressed particular topics in detail in a single-gendered classroom that they may not otherwise state in a coeducational setting, and this would be without the students feeling a need to impress the opposite sex. Single-gender teachers also believed the successful performance of their students was partly associated with the support offered by parents wanting their children in a single-gendered classroom setting, along with the idea of single-gender education offered as voluntary by the schools. Table 13 gives a breakdown of the findings from selected interview questions.

Table 13

Survey Questions for Educators: Frequency of Response

Selected Statements (Coeducational)	Agree	Neutral	Disagree
1) 1. Have you previously taught in in single gender classroom?	1	0	5
2) 2. Are there positive benefits to you as a teacher in a coeducational classroom?	6	0	0
3) 3. Are there particular challenges to you as a teacher in coeducational class?	4	0	2
4) 4. Are there differences in the level of focus of students in your coeducational versus your past coeducational classes when working on activities?	4	2	0
5) 5. Do you believe there are differences between male and female students in how they grasp information and process their knowledge to gain understanding?	5	0	1

Coeducational teachers in the sample stated that some of the challenging aspects they dealt with were bullying and students being disrespectful to the opposite sex. They also stated that males and females either did not like or had a hard time working in groups with the opposite sex. Coeducational teachers believed that students grasped concepts from one another and offered a competitive learning environment. Although, in some coeducational classrooms the teacher favored one gender over the other. All respondents seemed to agree that, at times, females performed academically higher than males, and at other times, males performed higher than females. No one gender performed notably higher than the other, according the teachers in this sample.

Null Hypothesis 1: Based on the data analysis, there was no significant changes in student achievement when comparing Acuity Scores for the 2012-2013 school year. While this data provided the researcher with a base of information, the researcher ran the statistics again to remove all outlier data and the researcher found no significance.

Given this information, the researcher did not reject the Null Hypothesis 1: There is no significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms as measured by Acuity scores, the standardized testing in reading/language arts.

Qualitatively, given this data returned from surveys, the researcher did not support the expectation of differences in teachers' perceptions. There were no observable differences in teacher perceptions of African American student behavior and performance in both single-gender and coeducational classrooms, as measured by teacher ratings on a researcher prepared questionnaire.

Summary

The primary purpose for conducting this study was to determine if single-gendered classrooms were a successful strategy for educating African Americans. This study secondarily addressed teachers' attitudes towards single-gendered classrooms; in particular, this study sought to understand how teachers' attitudes influenced student achievement for students in an urban setting.

The results of this study provided specific information relating to the instructional groups observed. During the school year of 2012-2013, there were students who attended the schools in this study in both a single-gender and coeducational setting. To gather specific information on the impact the organizational setting may have on students, the study considered six sample groups. Each group consisted of six subjects; teachers of single-gender and coeducational classrooms. This provided a total sample size of 36 educators.

When examining the data on organizational settings in grades two through eight, coeducational students were more likely to outperform students in a female or male single-gendered classroom. While there were no significant differences in male and female single-gendered classrooms, coeducational classrooms tended to perform better on the Acuity Benchmark Test. Coeducational students provided the largest gains in achievement during this study timeline, more specifically students in grade five had the largest overall gains. There was a mild relationship between the independent variable and the dependent variable. Instructional setting did not notably affect student test data, though it may have provided a mild contribution. According to teachers' perception, a single-gendered classroom did not have an impact on student behavior. The results

indicated that single-gendered classrooms did not necessary alter student behavior. If student behavior was not altered, there was not an expectation that there would be an impact on student achievement. The original study design indicated that the researcher would complete interviews on all participants and their building administrators, Likert Scale Surveys, and a collapsed data sets for observations. The redesigned study did not allow for reporting the Likert Scale Survey Results or the reporting of the observations.

In Chapter Five, highlighted by the researcher will be the research questions and hypothesis that steered this study, and an overview of the methodology used to complete the study. Revisited are the study design, limitations, and data results. Recommendations for future studies and connections to then-current research, along with conclusions and the discussion of the results appear in Chapter Five. The researcher also presents personal reflections related to the content of the study.

Chapter Five: Discussion and Reflection

This study examined if any influence on organizational setting, single-gender versus coeducational classrooms, within an urban school district played a critical role on achievement, as measured by results on the Acuity benchmarking test. Secondarily, this study examined if teachers' attitudes contributed to student achievement for students in an urban setting. Specifically, this particular study examined single-gender female classrooms in a coeducational building, single-gender male classrooms in a coeducational building, and coeducational classrooms in a coeducational building. The researcher was motivated to conduct this study due to district budget cuts and the need to find a more cost-efficient way to improve academic success for African American students; thereby resulting in an a comparison of single-gender and coeducational classrooms on student engagement and achievement scores.

Despite the progress African Americans made in education, learning gaps were still visible between Caucasian and African American students (Williams, 2012). Nationally, less than 50% of African American males graduated from their secondary school (Schott Foundation for Public Education, 2010, p. 4). The national average was even lower for the number of African American males who continued to receive post-secondary schooling. African American students were underperforming on standardized testing across grade levels (NCES, 2011). African American students were last in reference to the number of high school students enrolled in AP courses. In general, African American students developed the stigma of lacking drive to extend themselves to challenges (Williams, 2012). These statics could reflect the effect of the presence of an African American father in the household (Williams, 2012). According to the National

Center for Education Statistics (2010), in 44% of African American homes where the mother was the head of household, there are no males spouses present (p. 2). In these same homes, the children were stricken with poverty (NEA, 2015 p. 3). Most of the ideas or ways of living created by this situation may filter into the classroom, which is an unfortunate cycle.

Several recommendations surfaced during the study that may attempt to correct the dilemma facing African American communities and the lack of students receiving a quality education. Some of these recommendations included reform efforts similar to No Child Left Behind, Race to the Top, and Senate Bill 319 (MODESE , 2012). School districts were looking at known factors that affected academic instruction in the urban community. These factors included parental involvement, teacher encouragement, school resources, discipline, and an advantageous environment (Patterson, 2012). To assist with the improvement of these factors, school districts looked into best practices and new concepts. One concept, single-gender education offered a cost efficient way to implement change (Liben, 2015).

Rulings and laws previous to this writing, such as *Plessy vs. Ferguson* created opposition for single-gender education advocates (Bishop, 1977; Medley, 2013). More recently, one law that became notable for single-gender education and assisted with equal opportunity was Title IX (NACE, 2011). Title IX put into law that school districts must make available comparable services, facilities, courses, programs, and clubs for both male and female students (USDOE, 2014). After this change in public education, the number of schools that offered single-gendered classes drastically increased (Tully & Jacobs, 2010).

School districts embraced the idea of single-gendered education as a method for creating academic success (James, 2010). Educational researchers Tully and Jacobs (2010) believed the separation of boys and girls removed barriers and allowed for higher levels of rigor in the classroom. On the other hand, Strauss (2014) indicated in his research that single-gendered schools were unhealthy and defined as not in the best interest of promoting positive social interactions with the opposite sex.

Research Questions

The research questions this study sought to answer were:

RQ1. How do single-gendered classrooms compare to coeducational classrooms based on student achievement scores?

RQ2. What impact does teacher attitude have on the academic success of a gender specific classroom?

Hypothesis

The research questions led to the following null hypothesis:

H_1: There is a significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms as measured by Acuity scores, the standardized testing in reading/language arts.

Analysis and Discussion of Research Findings

This study examined the research questions using a quantitative and qualitative design. The quantitative approach drew upon the use of analyzed data from single-gendered classrooms located in a Midwest urban school district and the outcomes on educating African Americans.

Data reflected the results of student achievement for African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms using Acuity scores as a benchmarking method for the school district. Test data were generated by students during the school year 2012-2013. The study allowed for the collection, coding, and disaggregation of data by the type of classroom attended, single-gender versus coeducational. The coded quantitative results for student scores of the Acuity Assessment ranged from 0 to 100%. Scoring categories were assigned to describe student achievement, such as: 0 to 25% was below basic, 26 to 50% was basic, 51 to 75% was proficient, and 76 to 100% was advanced. During the 2012 -2013 school year, all students in grades two through eight took the Acuity Benchmark Assessment. Grades -three through eight took the Acuity Assessment three times a year (Acuity A, Acuity B, and Acuity C), with second grade taking the Acuity Assessment twice a year (Acuity B and Acuity C). Acquired Acuity results became the basis for determining whether a relationship existed in scores, based on the gender-related organization of student-attended classrooms. The results were compiled to see if there was a significant relationship between the Acuity scores and student attendance in a single-gendered classroom in comparison to students who were in a coeducational classroom.

The qualitative approach focused on the use of analyzed responses to interview questions that addressed the various effects, if any, based on teachers' attitudes towards single gender classrooms. In particular, data provided an understanding to how teachers' attitudes influenced student achievement for students in an urban setting. Respondents coded their answers by using a choice of responses: agree, neutral, and disagree, on the survey. Obtained data from the study consisted of participation by six groups with the

make-up of 36 educators. The sample groups consisted of six teachers each; two groups of single-gendered males, two groups of single-gendered females, and two coeducational groups. The selection of mixed-gendered and single-gendered classrooms included like demographics in other respects.

The researcher compared students' Acuity results in a single-gendered classroom to students' Acuity results in a coeducational classroom. Conducted was a comparison of the means. The results indicated that there were no significant differences in students' test scores based on organizational setting of the classrooms. When examining the data on organizational setting in grades two through eight, coeducational students were more likely to outperform students in a female and male single-gendered classroom, observationally. Coeducational classrooms had the largest gains in this study. When looking at the individual grade levels, grade five had the largest overall gains.

According to teachers' perception, a single-gendered classroom did not have a significant impact on behavior; the data may interpret that a positive learning environment in a single-gendered classroom setting would not necessarily increase student academic success.

There were some plausible justifications to the various levels of academic achievement in the different organizational settings. One justification indicated that single-gender instruction was new to the instructor, student, and school. The new layout may have resulted in decreased student achievement scores. Other possible justifications pointed to single-gendered schools and districts may not have received or completed pertinent professional development on successful ways to implement single-gendered instruction (Adelman & Taylor, 2013). The willingness of the instructor also played a

vital role in the successful implementation of this teaching approach. According to Sax (2010), teachers needed professional development to ensure that education qualities for teaching in a single-gendered classroom were efficient. Educators that were motivated and eager to provide instruction to a single-gendered classroom may drive up academic success.

Conclusion and Implications

Based upon the analysis, it can be determined that in this particular study students in a single-gendered classroom did not show higher academic growth over students in a coeducational classroom. When examining the sample groups, the study implicated that coeducational classrooms performed slightly higher than single-gendered classrooms. This study may suggest that students in an urban setting tended to do better in a coeducational classroom, based on the Acuity assessment results. When examining the organizational settings, females performed the lowest on Acuity A, Acuity, B, and Acuity C assessments. The single-gendered male groups performed slightly better than the single-gendered female groups on Acuity A, Acuity B, and Acuity C. On Acuity B and Acuity C, coeducational groups outperformed both female and male single-gendered classes. When examining teachers' perceptions and what influence their attitudes may have had on the academic success of a gender-specific classroom, this study may suggest that their attitudes toward a certain gender did not notably affect student achievement. The study may also suggest that teachers' attitudes could influence students' behaviors, which in turn could promote academic success. A majority of educators in this study agreed that there were differences in the level of focus of students in a single-gendered classroom versus a coeducational classroom when working on activities. These same

educators in this study believed there were differences between male and female students in how they grasped information and processed their knowledge to gain understandings. Unique to this study were these findings, they did not suggest that similar experimental research had a discredited connotation. Outside variables in this study could have contributed to factors in the results.

There was no significant difference in student achievement between African American students, in each of the grades two through eight, enrolled in single-gender and coeducational classrooms, as measured by Acuity scores, the standardized testing in reading/language arts. There was no significant difference in teacher perceptions of African American student behavior and performance in both single-gender and coeducational classrooms, as measured by teacher ratings on a researcher prepared questionnaire.

Recommendations to the Program

The examination of student achievement between African American students in grades two through eight enrolled in single-gender and coeducational classrooms as measured by Acuity scores, along with teacher perceptions of African American student behavior and performance in both single-gender and coeducational classrooms, as measured by teacher ratings on a researcher prepared questionnaire, warrants further inquiry and has raised certain issues.

For example, more research conducted on results of measures by other standardized assessments, other than the Acuity Benchmark is necessary. To confirm findings, in a similar school environment, a close replication of the setting of this study is appropriate. Along with this research, conducting a study using single-gendered

buildings and not just single-gendered classrooms could provide a deeper understanding into success or failures (Chadwell, 2010). Making a comparison using single-gendered classrooms to the same sex students in coeducational classes should remain part of the research. All grade levels within the public or private school sector could provide populations for this study design. The findings could provide an inside look at students' academic success for districts, due to the impact of instructional practices and classroom organizational strategies. The implementation of additional funding and professional development for classroom organizational strategies could have an influence on these findings.

Recommendations for Future Research

Results from this study showed, for this study setting and this student population, that single-gendered classrooms did not perform better than a coeducational classroom, based on achievement measured by the Acuity assessment. More specifically, coeducational students seemed to perform better than single-gendered females and single-gendered males in this study based, on the Acuity assessment. Based on these findings the researcher has recommendations for future research.

One possible rationale for the trend found in this study is the implementation of instructional strategies by the teacher. Educators have a direct reflection on all key stakeholders, especially students and parents. They should promote this power for the good and ingrain in their minds the framework to mold the future of their students. There was an established direct correlation to an educator's teachings and student behavior found in the then-current literature (Williams, 2012). The platform laid out by educators should not only create a model for successful academics, but for sustaining a successful

life as well. According to Kaufmann(2014), the difference in the ways boys and girls learn regarding single-gender education plays a significant role in the implementation of instructional strategies.

Summary

Discussed in the literature review was the questioning of how gender arrangement of a classroom could affect a student's academic success. Factors that could strengthen this study would be to gather data from a larger sample. Along with a larger sample, surveys and interviews of students and parents, in combination with these results, could possibly strengthen this study.

School districts have a need to provide sufficient funding for effective implementation of single-gendered classrooms. Through funding, school districts can provide training and professional development for staff, students, and parents. Training would allow for new ways of delivering instruction. Along with funding, school districts need time for planning and preparing before successfully establishing a well-grounded single-gendered instructional program. Presented to local schools, districts, and key stakeholders within the researched school district are the findings and results of this study.

References

Adelman, H., & Taylor, L. (2013). *Single-sex education: Pros and cons.* UCLA School Mental Health Project. Retrieved from http://smhp.psych.ucla.edu/pdfdocs/singleeduc.pdf

Alliance for Board Diversity Census. (2010). *Missing pieces: Women and minorities on Forturne 500 boards. 2010 Alliance for board diversity census.* Retrieved from http://www.theabd.org/Missing_Pieces_Women_and_Minorities_on_Fortune_500_Boards.pdf

American Association of University Women. (2011, October). *Separated by sex: Title IX and single-sex education.* AAUW Public Policy and Government Relations Department. Retrieved from http://www.aauw.org/files/2013/02/position-on-single-sex-education-112.pdf

Ardinger, A. (2012, May). *Sex education: Defining gender roles during the sexual revolution and today*. Educ 300: Education Reform, Past and Present. Trinity College, Hartford, CT. Retrieved from http://commons.trincoll.edu/edreform/2012/05/sex-education-defining-gender-roles-during-the-sexual-revolution-and-today/

Associated Press. (2006, May). *More schools test single-sex classrooms.* Retrieved from http://www.singlesexschools.org/ap_june06.htm

Aud, S., Fox, M., & Kewal Ramani, A. (2010). *Status and trends in the education of racial and ethnic groups.* Washington, D.C: National Center for Education Statistics, Institue of Education Sciences, *2010*(015). Retrieved from http://nces.ed.gov/programs/coe/

Austin Independent School District. (2011). *Single gender education: A review of current issues and practices*. Retrieved from http://www.austinisd.org/sites/default/files/announcements/D-White%20Paper%20Final%209.12.11.pdf

Australian Bureau of Statistics. (2014). *Schools, Australia, 2013 (4221.0)*. Retrieved from http://www. abs.gov.au

Belfi, B., Goos, M., De Fraine, B., & Van Damme, J. (2012). The effect of class compostition by gender and ability on secondary school students' school well-being and academic self-concept: A literature review. *Educational Research Review, 7*(1), 62-74.

Best, S., Pearson, P., & Webb, P. (2010). Teachers perceptions of the effects of single-sex and coeducational classroom setting on the participation and performance of students in practical physical education, 1-5. Retrieved from http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1673&context=edupapers&sei-redir=1&referer=

Bishop, D. (1977, April). Plessy V. Ferguson: A reinterpretation. *The Journal of Negro History, 62*(2), 125-133.

Blair, R. (2010, August). The advantages of single-sex education. *Hartford Courant*. Retrieved from http://articles.courant.com/2010-01-13/news/hc-itowns-single-sex-0815-20100813_1_single-gender-schoo-public-schools-magnet-schools

Booth, A. (2014, October). Could girls be better off in single-sex schools? *Sydney Morning Herald.* Retrieved from http://www.smh.com.au/comment/could-girl-be-better-off-in-singlesex-schools-20141011-116ro.html

Booth, A., Cardona-Sosa, L., & Nolen, P. (2013). *Do single-sex classes affect exam scores?* An experiment in a coeducational university. *IZA Discussion Paper No. 7207*. Retrieved from: http://www.iza.org/en

Boykin, A. W. & Noguera, P. (2011). *Creating the opportunity to learn: Moving from research to practice to close the achievement gap.* Alexandria, VA: Association for Supervision & Curriculum Development.

Bradley, K. (2010, May). *Single gender education-why?* Retrieved from http://www.education.com/reference/article/Ref_Single_Gender/

Brown, C. S. (2013). Legal issues surrounding single-sex schools in schools in the U.S.: Trends, court cases, and conflicting laws. *Sex Roles, 69*(7), 356-362.

Byrd, C. M., & Chavous , T. (2011). Racial identity, school racial climate, and school intrinsic motivation among African Americn youth. The importance of person-context congruence. *Journal of Research on Adolescence, 21*(4), 849-860.

Cabezas, V. (2011, March). Gender peer effects in school: Does the gender of school peers affect students' achievement? [Doctoral Dissertation]. Ann Arbor, MI: ProQuest LLC.

Cafferty, J. (2012, July 11). What does race have to do with achieving the American Dream? Retrieved from http://caffertyfile.blogs.cnn.com/2012/07/11/what-does-race-have-to-do-with-achieving-the-american-dream/

Catholic Schools Week. (2014). Catholic schools: Places of faith and learning. *Catholic Schools Week, 6*(1), 1-36.

Chadwell, D. (2010). A *gendered choice: Designing and implementing single-sex programs and schools*. Thousand Oaks, CA: Corwin.

Chadwell, D. (2014). Single-gender classes can respond to the needs of boys and girls. *New Voices.* Retrieved from http://www.ascd.org/ascd-express/vol5/512-newvoices.aspx

Chen, G. (n.d.). Single-sex public schools. *Public School Review.* Retrived from http://www.publicschoolreview.com/

Cherney, I. D., & Campbell, K. L. (2011). A league of their own. Do single-sex schools increase girls' participation in the physical sciences? *Sex Roles, 65*(9), 712-724.

Chudowsky, N. & Chudowsky, V. (2010). *State test score trends through 2007-08, part 5: Are there differences in achievement between boys and girls?* Washington, DC: Center on Education Policy.

Coleman, J., & Others. (1966). *Equality of educational opportunity.* Washington, DC: National Center for Educational Statistics.

Common Core State Standards Initiative. (2013, May). Home. Retrieved from http://www.corestandards.org/

Concordia University. (2013, July 13). Gender identity, single-sex schools. *Science Daily.* Retrieved from www.sciencedaily.com/releases/2013/12/131211134231.htm

Connecticut State Department of Education. (2015). *Connecticut education data and research (CEDAR).* Retrevied from http://sdeportal.ct.gov

Creswell, J. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches.* (4th ed.). Thousand Oaks, CA: Sage.

Crumpton, H. E., & Gregory, A. (2011). "I'm not learning". The role of academic relevancy for law-achieving students. *Journal of Educational Research, 104*(1), 42-53.

CTB/McGraw-Hill. (2015, June 30). *Data recogntion corporation, CTB.* Retrieved from http://www.ctb.com: http://www.ctb.com/ctb.com/control/main#

Delamont, S., & Duffin, L. (2014). *The nineteenth century woman: Her cultural and physical world.* New York, NY: Routledge.

DeNavas-Walt, C., Proctor, B. D. & Smith, J. C. (2010). *Income, poverty, and health insurance coverage in the United States: 2009.* U.S. Census Bureau, Current Population Report. Retrieved from http://www.census.gov/prod/2010pubs/p60-238.pdf

Eamon, M. K., Wu, C., & Zhang, S. (2012). Reframing the benefits and beneficiaries of public benefits programs. *Children and Youth Services Review, 34(1),* 15-26.

Education Week. (2011, July). *Achievement gap*. Retrieved from http://www.edweek.org/ew/issues/achievement-gap/

Eisenkopf, G., Hessami, Z., Fischbacher, U., & Ursrung, H. (2011). *Academic performance and single-sex schooling; evidence from a natural experiment in Switzerland.* Retrived from http://www.cesifo.org

Fashola, O. (2013) Evaluation of an extended school day program for African American males in the context of single gender schooling and schoolwide reform: A case for extending the school day for African American males. *Peabody Journal of Education: Issues of Leadership, Policy, and Organizations, 88*(4), 1.

Fergus, E., & Noguera, P. (2010). *Theories of change among single-sex schools for Black and Latino boys: An intervention in search of theory.* New York, NY: Metropolitan Center for Urban Education.

Garrett, R. (2011). *Gender gap: Why boys can't keep up*. Retrieved from http://www.education.com/magazine/article/the-gender-gap

Girls's Schools Association. (2014, December 9). Girls can do well in maths and physics. *GSA News.* Retrieved from https://gsa.uk.com/2013/12/girls-can-well-maths-physics/

Grant, A. G., & Chapman, T. K. (2011). *History of multicultral education. Volume 2: Foundations and Stratifications.* New York, NY: Routledge.

Gross-Loh, C. (2014, March). The never-ending controversy over all-girls education. *The Atlantic.* Retrieved from http://www.theatlantic.com/education/archive2014/03/the-never-ending-controversy-over-all-girls-education/284508

Gurian Institute. (2015). Closing the gender achievement gap and turning around low achieving schools. *Gurian Institute: Learning Through A Gender Lens*, *1*(1), 1-3.

Halpern, D., Eliot, L., Bigler, R., Fabes, R., Hanish, L., Hyde, J., ... & Martin, C. (2011). The pseudoscience of single-sex schooling. *Science Magazine, 333*(6050), 1706-1707.

Harjes, R. (2010). Attitudes about gender and race. *Advances in Gender and Education*, *2*(2010), 2-12.

Heath, C. & Heath, D. (2010). *Switch: How to change things when change is hard.* New York, NY: Crown Business.

Holmgren, R. (2014). Steeped in learning:The student experience at all-girls's schools. *National Coalition of Girls's Schools, 1*(1), 1-5.

Ibanez, N. (2011). *Best practices in single gender education*. Austin, TX: Austin Independent School District, Department of Research and Evaluation. Retrived from http://www.austinisd.org/faq-single-gender

Independent Schools Council. (2013, November 20). *How good are girls?* Retrieved from http://www.isc.co.uk/press/press-releases/2013/how-good-are-girls

Institute of Physics. (2011). It's different for girls: The influence of schools. *Institute of Physics, 4*(1), 1-24.

Isensee, L. & Vasquez, M . (2012, October 17). Girls and boys: Separate but educated. *The Miami Herald*. Retrieved from http://www.miamiherald.com/2012/10/17/v-fullstory/3054740/girls-and-boys-sparate-but-educated.html

Ivinson, G. & Jackson, C. (2013). Single-sex and co-educational schooling. *Gender and Education Association: Changing the Future/Educating about Gender*. Retrevied from http://www.genderandeducation.com/resources/pedagogies/singlesex-coeducation/html

James, M. (2010). Never quit: The complexities of promoting social and academic excellence at a single-gender schools for urban American males. *Journal of African American Males in Education. 1*(3), 167-195.

Jones, C. (2012). Women's access to higher education: An overview (1860-1948). *HerStoria*, 1-5. Retrieved from http://herstoria.com/?p=535

Kaufmann, C. (2014). How boys and girls learn differently: Single gender education, single sex classrooms, education, high schools. Retrieved from http://www.rd.com/advice/how-boys-and-girls-learndifferently/

Kehler, M. Martino, W. & Watson, A. (2010). The problem of boys' literacy underachievement: Raising some questions. *Journal of Adolescent & Adult Literacy, 53*(5), 357-360.

Kennedy, R. (2015). How do girls benefit from single sex education. *Boarding School Review* , 1-3. Retrieved from http://www.boardingschoolreview.com/blog/how-do-girls-benefit-from-single-sex-education

Kimmel, M. (2014). *Don't segregate boys and girls in classrooms.* New York, NY: CNN.

King, M. L. (1963). *Martin Luther King Jr.: I have a dream speech.* Retrieved from http://www.vliv.us/amdocs/texts/mlkdream.html.

King, M. L., & Carson, C. (2010). *Stride toward freedom: The Montgomery story. Volume 1 of King Legacy.* Boston, MA: Beacon Press.

Klien, J., & Rice, C. (2012). *U.S. education reform and national security: Issue 68 of Independent Task Force Report.* New York, NY: Council on Foreign Relations. Retrieved from http://www.cfr.org/.../attachments/TFR68_Education_National_ Security.pdf

Kluger, R. (2011). *Simple justice:The history of Brown v. Board of Education. America's struggle for equality.* New York, NY: Knopf Doubleday Publishing Group.

Kumar, V. (2011, June 26). *Japanese views on gender roles*. Retrieved from http://espertsolumn.com/content/japanese-views-gender-roles

Ladson Billings, G. (2011). Boyz to Men? Teaching to restore black boys' childhood. *Race, Ethnicity, and Education*, *14*(1), 7-15.

Lewin, T. (2011, September 23). Single-sex education is assailed in report. *The Pittsburgh Post-Gazette.* Retrieved from http://www.post-gazette.com/news/education/ 2011/09/23/Single-Sex-Education-Is-Assailed-in-Report/stories/201109230274

Liben, L. (2015). Probability values and humanity values in evaluation single-sex education. *Springer Science and Business Media*, *72*(9), 1-3.

Lindo, E. (2014). Family background as a predictor of reading comprehension performance: An examination of the contributions of human, financial, and social capital. *Learning and Individual Differences*, *32*, 287-293.

Matthiessen, C. (2013). Girls's and boys' brains: How different are they? *Great Schools.* Retrieved from http://www.greatschools.org/students/academic-skills/1121-gender-differences-learning.gs

Medley, K. (2013, August 16). Plessy v. Ferguson (1896). In D. Johnson (Ed.), *KnowLA Encyclopedia of Louisiana*. Retrieved from http://www.knowla.org/entry/737/

Mezirow, J., & Taylor, E. (2009). *Transformative learning in practice.* New York, NY: John Wiley & Sons.

Missouri Department of Elementary and Education. (2012, July). *Data system management.* Retrieved from http://www.dese.mo.gov .

Mullins, D. (2013). Socioeconomic status big factor in low scores for U.S. on global exam; Increase inequality, segregation by class and ethnicity contribute to low test scores, according to a new report. *Aljazeera America.* Retrieved from http://

www.america.aljazeera.com/articles/2013/12/4/socio-economic-statusasignificant factorinuslowpisascores.html

National Assessments of Educational Progress. (2011). *Connecticut.* Retrieved from Connecticut Assessments: http://nces.ed.gov/nationsreportcard/states

National Association for Choice Education. (2011, Novemeber). *The National association for choice in education*. Retrieved from http://www.4schoolchoice. org/

National Association for Single Sex Public Education. (2011). *Single-sex schools/schools with single-sex classrooms. What's the difference?* Retrieved from http://www. singlesexschools.org/schools-schools.htm

Nation Center for Education Statistics. (2010). *Status and trends in education of racial and ethnic groups*. Washington, DC: U.S. Department of Education, Nation Center for Education Statistics.

National Center for Educational Statistics. (2011). *Condition of Education 2011*. Retrieved from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2011033

National Education Association. (2015). Research spotlight on best practices in education: Teaching strategies. *National Education Association,* 1-4. Retrived from http://www.nea.org/tools/17073.html

Noguera, P. (2012). Saving Black and Latino boys. *Phi Delta Kappan, 93*(3), 8-12.

Northouse, P. G. (2013). *Leadership: Theory and practice* (6th ed.) Thousand Oaks, CA: SAGE.

Obama, B. (2009). *Promoting innovation, reform, and excellence in American's public schools.* Washington, DC: The White House: Offfice of Press Secretary.

Ogden, C. (2011). *A comparison of student performance in single sex education and coeducational setting in urban middle schools.* Statesboro, GA: Georgia Southern Univesity, 1-115. Retrieved from http://digitalcommons.georgiasouthern.edu/cgi/viewcontent.cgi?article=1361&context=etd&sei-redir=1&referer=http

Ornstein, A. C., Levine, D. U., Gutek, G., & Vocke, D. E. (2013). *Foundations of education.* (12th ed.). Independence, KY: Cengage Learning.

Pahlke, E., Hyde J. S., & Allison C. M. (2014). The effects of single-sex compared with coeducational schooling on students' performance and attitudes: A meta-analysis. *Psychological Bulletin, 140*(4), 1042-1072.

Park, H., Behrman J., & Choi, J. (2013). Causal effects of single-sex schools on college entrance exams and college attendance: Random assignment in Seoul high schools. *Demography, 50*(2), 447-469.

Patterson, G. A. (2012). Separating the boys from the girls. *Phi Delta Kappan*, *93*(5), 37-41,. Retrieved from http://www.ejournals.ebsco.com.ezproxy.liberty.edu:2048/direct.asp?ArticleID=424D8

Paulsen, M. (2013). Higher education: Handbook in theory and research. *Higher Education.* Heidelburg, Germany: Springer.

Pollock III, P. (2012a). *The essentials of political analysis, fourth edition*. Washington, DC: CQ Press.

Pollock III, P. (2012b). *A SPSS companion to political analysis,* (4th ed.). Washington, DC: CQ Press.

Rampersad, A. (2012). *The art and imagination of W.E.B. Dubois.* Cambridge, MA: Harvard University Press.

Salomone, R. (2013). Rights and wrongs in the debate over single-sex schooling. *Boston University Law Review 93*(3), 971-1027.

Sax, L. (2010). Sex differences in hearing; Implications for best practices in the classroom . *Advances in Gender and Education*, *81*(2), 13-22.

Schott Foundation for Public Education. (2010). *Yes we can: The Schott 50 state report on public education and Black males, 2010.* Retrieved from http://www.schottfoundation.org/publications/schott-2010-black-male-report.pdf

Serrano, J. (2010). *The X factor: How Malcolm X internationalized the Civil Rights movement.* Retrieved from http://www.studentpulse.com

Simon, M., & Goes, J. (2013). *Ex-post facto research, dissertation and scholary research: Recipes for success.* Seattle, WA: Dissertation Success LLC. Retrieved from http://www.dissertationrecipes.com/wp-content/uploads/2011/04/Ex-Post-Facto-research.pdf

Slonje, R., Smith, P., & Frisen, A. (2012). Processes of cyberbullying, and feeling of remorse by bullies: A pilot study. *European Journal of Developmental Psychology*, *9(2)*, 224-259.

Smyth, E. (2010). Single sex education:The pros and cons. *Revue Francaise De Pedagogie*, *171*, 47-55.

Solomon, B. (1987). In the company of educated women: A history of women and higher education in America. *The Journal of Higher Education*, *58*(1), 110-113.

Sommers, C. (2011, October 12). Fight proprosed ban on single-sex schools. *USA Today.* Retrieved from http://www.usatoday30.usatoday.com/news/opinion/forum/story/2011-10-12/single-sex-school-education/50744974/1

Sommers, C. (2013a). The bizzarre, misguided campaign to get rid of single-sex classrooms. *The Atlantic.* Retrieved from http://www.theatlantic.com/education/archive/2013/10/the-bizarre-misguided-campaign-to-get-rid-of-single-sex-classrooms/280262/

Sommers, C. (2013b). The boys in the back. *The New York Times*. Retrieved from http://opinionator.blogs.nytimes.com/2013/02/02/the-boys-at-the-back/?_r=0

Sommers, C. (2013c). *The war against boys: How misguided policies are harming our young men.* New York, NY: Simon and Schuster.

Stanberry, K. (n.d). S*ingle-sex education: The pros and the cons.* Retrieved from http://www.greatschool.org/find-a-school/defining-your-ideal/1139-single-sex-education-the-pros-and-cons.gs

State Education Resource Center. (2013). *Race, Disparities, and the Connecticut Achievement Gaps*. Retrieved from http://www.ctserc.org/assets/documents/equity/equity-in-education.pdf

Strauss, V. (2014, February 11). Kid's don't learn better in single-sex classes: Meta analysis. *The Washington Post*. Retrived from https://www.washingtonpost.com/news/answer-sheet/wp/2014/02/11/kids-dont-learn-better-in-single-sex-classes-meta-analysis/

Tully D., & Jacobs, B. (2010). Effects of single-gender mathematics classroom on self-perception of mathematical ability and post secondary engineering paths:An Australian case study. *European Journal of Engineering Education, 35(4),* 455-467.

United Nations Educational, Scientific and Cultural Organization. (2011). *Global education digest: Comparing education statistics across the world.* Montreal, Canada: UNESCO Institute for Statistics.

United States Department of Education. (2014). *Questions and answers on Title IX and sexual violence.* Washington, DC: Author: Office of Civil Rights.

University of Maryland Medical Center. (2013). Eating disorders. Retrieved from http://www.umm.edu/health/medical/reports/articles/eating-disorders

Ward, S. (2012). Boys & girls together? Courts deal with a push to end co-ed classes. *American Bar Association Journal, 98(2*), 12.

Williams, H. C. (2009). *Self taught: African American education in slavery and freedom.* Chapel Hill, NC: University of North Carolina.

Williams, K. (2012). *A phenomenological study: African-American males in the educatioinal profession.* Retrieved from http://digitalcommons.liberty.edu

Wilson, G. (2013). *Breaking through barriers to boys' achievement: Developing a caring masculinity.* London, England: Bloomsbury Publishing.

Appendix A

Interview Questions - Teacher (Single-Gender Classroom)

1. How long have you been teaching in a single-gender classroom? Have you previously taught in a coeducational classroom?

2. Are there positive benefits to you as a teacher in a single-gender classroom?

3. Are there particular challenges to you as a teacher in a single-gender class?

4. How do students benefit instructionally from being in a single-gender classroom?

5. In your experience with teaching in a single-gender classroom what are some of the more challenging aspects you dealt with?

6. Are there differences in student involvement in class activities between single-gender and in a coeducational setting?

7. Are there differences in the level of focus of students in your single-gender classroom versus your past coeducational classes when working on activities?

8. Do you believe there are differences between male and female students in how they grasp information and process their knowledge to gain understanding?

9. How is the behavior of your students affected by being members of a single-gender classroom?

10. How is the performance of your students supported and enhanced by being in a single-gender classroom?

Appendix B

Interview Questions - Teacher (Coeducational Classroom)

1. How long have you been teaching in a coeducational classroom? Have you previously taught in a single-gender classroom?

2. Are there positive benefits to you as a teacher in a coeducational classroom?

3. Are there particular challenges to you as a teacher in a coeducational class?

4. How do students benefit instructionally from being in a coeducational classroom?

5. In your experience with teaching in a coeducational classroom what are some of the more challenging aspects you dealt with?

6. How is your coeducational classroom conducive to increasing student achievement in class activities?

7. Are there differences in the level of focus of students in your coeducational classroom versus your past coeducational classrooms when working on activities?

8. Do you believe there are differences between male and female students in how they grasp information and process their knowledge to gain understanding?

9. How is the behavior of your students affected by being members of a coeducational classroom?

10. How is the performance of your students supported by being in a coeducational classroom?

Vitae

Myra Pendleton

EDUCATION

Ed.D. - Education Administration, Lindenwood University 2015

Ed.S. - Education Administration, Lindenwood University 2009-2011

Masters of Arts-Education & Special Ed., Fontbonne University 2005-2008

Bachelor of Science- Criminal Justice, Lincoln University 2001-2005

PROFESSIONAL EXPERIENCE

ST. LOUIS PUBLIC SCHOOLS, ST. LOUIS, MISSOURI

Building Administrator-Principal, 06/12-Present

Administrative Intern, 8/11 to 06/12

Teaching and Learning Facilitator, 8/09 to 8/11

Special Education Team Leader, 7/06 to 8/09

General Education & Special Education Teacher, 08/05 to 08/09

LINDENWOOD UNIVERSITY, ST. CHARLES, MISSOURI

Adjunct Professor, 06/13-Present

PROFESSIONAL CREDENTIALS

Elementary Education K-6

Special Education K-12

School Leaders Licensure