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FACTORS TO CONSIDER BEFORE CHOOSING A SINGLE GENDER
CLASSROOM IN AN ELEMENTARY SCHOOL SETTING

by

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A capstone submitted in partial fulfillment of the
requirements for the degree in Master of Arts in Teaching

Hamline University

St Paul, Minnesota

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To my beautiful family, friends, and husband, thank you for your unwavering support.
Mom, thank you for reading this paper countless times. You are my inspiration, and
together we will educate the world!

TABLE OF CONTENTS

CHAPTER ONE: Introduction.....	7
Childhood Education.....	7
Becoming a Teacher.....	8
Teaching.....	9
Current School.....	11
Observations.....	12
CHAPTER TWO: Literature Review.....	14
Overview.....	14
History.....	14
Biological Differences and Learning.....	17
Girls.....	22
Boys.....	28
Socioeconomic Factors.....	32
Stereotypes and Gender Segregation.....	34
Conclusion.....	36
CHAPTER THREE: Methods.....	37
Setting.....	37
Quantitative.....	38
Overview.....	38
Participants.....	39
Logistics.....	39

Variables.....	40
Qualitative.....	40
Overview.....	40
Teacher Survey.....	41
Participants.....	41
Variables.....	41
Rationale.....	41
Student Survey.....	42
Participants.....	42
Variables.....	42
Rationale.....	42
Conclusion.....	43
CHAPTER FOUR: Results.....	44
Introduction.....	44
Qualitative Research Process.....	44
Student Survey.....	44
Teacher Survey.....	46
Results.....	46
Student Survey Results.....	47
Analysis of Student Results.....	48
Teacher Survey Results.....	49
Analysis of Teacher Results.....	50
Qualitative Research Conclusion.....	50
Quantitative Research Process.....	50
Quantitative Research Results.....	51
Analysis of Quantitative Research Results.....	52

CHAPTER FIVE: Conclusion.....	53
Introduction.....	53
Reflection.....	53
Implications.....	54
Limitations.....	55
Future Research	56
Communication Results.....	57
Conclusion.....	58
APPENDECIES:	
Appendix A: Student Survey.....	60
Appendix B: Teacher Survey.....	61
Appendix C: Quiz Tracker.....	62
Appendix D: Behavior Data.....	63
REFERENCES.....	64

LIST OF TABLES

TABLE ONE- Girls Usually Vs. Boys Usually.....	13
TABLE TWO- Behavior Indicators of Males in Single Gender Classrooms.....	25
TABLE THREE- Surveyed Student’s Previous and Current Classroom Settings.....	38
TABLE FOUR- Surveyed Teacher’s Previous and Current Classroom Settings.....	39
TABLE FIVE- Quantitative Research Results.....	44
TABLE SIX- Behavior Data.....	50

CHAPTER ONE

Introduction

Education in the 21st century is full of choices. From charter schools to independent learning schools, magnets to public, and private to homeschooling, there are endless options in creating and customizing a specific education plan that fits the need of a child. However, some options that are available to parents today might not be ideal and may do more harm than good if not executed correctly. I am going to research an option that I have seen offered to parents at both charter schools that I have worked in, and that is the option of single gender classroom in a K-5 setting.

Childhood Education

When I think back to my history of education, I remember a very simple and linear journey full of uncomplicated and uninformed decisions. With the exception of my time at a Montessori school instead of a more traditional route in the public system, the schools I attended were mainly a result of geography. When I lived in Chanhassen I went to school in Chanhassen. When we moved to Jonathan I transferred to a Jonathan school.

Within each school I attended, the way classrooms were decided followed the same sort of unassuming procedure. I was placed into one of four classrooms based on class size, male/female ratios, and if you were lucky, parents might request a teacher because it was a sibling favorite.

Overall, my perception of education as a child was that it was just something that happened. I knew it was required and I knew that it would always be available to me, and most importantly, I knew I liked it. My lack of choice was a result of not needing more than just 'average'. Public systems benefited me because I was taken care of by so many external forces; good family, safe home, and the ability to learn. My parents were not forced to look into other solutions in the educational system, because I was not facing any problems that the system I was in couldn't fix.

The years I spent in the public school system were seamless and successful. They set me up for the ability to go to college and then on to graduate school. My journey was not negatively affected by my family's choice to enroll me in the neighborhood school rather than looking into alternative programs that may have fit a more specific need.

Becoming a Teacher

I come from a long line of teachers. Grandparents, parents, and aunts all found themselves teaching a wide variety of learners. My grandparents both worked in elementary schools, my mother works in a community college, and my father in an alternative high school. In the back of my mind, education was always an option that I was willing to explore.

However, like so many graduates know, I had lacked a concrete idea of what I wanted to do after college. From the moment I pulled into the parking lot of my dorm at the University of Kansas in 2004 to the day I received my diploma on the stage at the University of Minnesota, I was unsure as to what career I would go into. My degree was communications but that title meant nothing to me. Rather than exploring what it meant, I

spent my time working 50 hours a week as a bartender in the town I went to college. I was not willing to quit a pointless job just to find another.

After many conversations with friends and family regarding what makes me happy, and what I am passionate in, I realized my interests were in social justice and equity. As a Minneapolis resident who was raised by a fairly liberal and open minded family, I knew that there had to be a way I could get involved and make some sort of difference for an underserved population. I saw the work my dad was doing with Native Americans in an alternative setting and the work my mom was doing in a community college with non-traditional students and it intrigued me. In 2012, I made the decision to enroll in graduate school to get my elementary teaching license in urban education from Hamline University.

Teaching

In 2013 I began looking for teaching jobs. I had no idea the level of competition there was in terms of getting placed in a public school. The process of entering candidate pools and attending mass interviews was all very new to me. I knew I wanted to work in the city, and I was alarmed that it wasn't easier to get a job. A friend of mine had attended a job fair and had met some of the principals of Harvest Prep in North Minneapolis. My friend of mine is one of the reasons my interest in urban education became stronger, as she is one of the strongest advocates I know. After an intense interview process where she answered questions on white privilege and 'at what point is it ok to give up' (hint: the right answer was 'never') she was offered a job at this well-known charter school. She advised me to apply, and I did. I answered the same intense

questions and I faced some very intimidating and intelligent administrators. Days later I was offered a job teaching 2nd grade, all boys.

Harvest Prep is a school with a lot of history, and with a lot of success. This charter school opened in 1992 after running SEED daycare for a few years, and realizing they needed a place for their students to go after graduating preschool. Their mission is to ensure all students go to college and they work hard to embrace an afro-centric culture as 99% of their student body is African American. They teach teachers all of the words to 'Lift Every Voice and Sing' and each day we recite the mission statement of the school.

Years after operating as simply Harvest Prep, school administrators saw a need to cater to the large Somali population we have in Minnesota and added on another school called Best. This new school offered services (ELL and religious) to the Somali families in North Minneapolis and Best became quite successful as they now offered something that was missing before. Best was able to offer breaks around holidays that their population celebrated, like Eid, and prayer was allowed amongst students and staff without fear of judgment.

When I was offered a job in 2013, Harvest had added on it's third school; Mastery. Mastery's purpose was to offer a single gender setting to families in the community. Similar to opening Best based on unmet needs within the community, Mastery opened to give families another option to explore; the new fad of single gender classrooms. Mastery started out as a k-3 school, and added on fourth grade in their second year. I was offered a position at Mastery teaching second grade all-boys. I accepted this position and worked in this classroom for two years.

Upon my third year of teaching, I decided that I wanted more variety in the classroom. I was no longer interested in teaching in an all-boys classroom, at least for a little while, and felt I needed to expand my horizons. Harvest was unable to offer me a different classroom, so I interviewed at a nearby charter school and was offered a job teaching mixed gender in a fifth grade classroom.

Current School

I was thrilled to learn I had been hired at my current School. Teaching fifth grade scared me a little bit, but I was excited to take on this challenge and I was excited to work with boys and girls. This school opened in 2011 and, similar to Harvest, offers single-gender options to parents. However, single-gender at this school is only offered in grades where there are three classrooms; this way they can offer mixed, all-boys, and all-girls. When I accepted the fifth grade position it was the first year fifth grade was offered, which meant it would be mixed gender.

The upcoming school year I would be teaching fourth grade. When accepting this position I sat down with my principal to request the mixed-gender classroom and I found myself in the exact same predicament that I had at Harvest. Between myself and two other teachers, only one of us could have mixed-gender, and all three of us wanted it. Conversations were had about single-gender, and it was interesting for me to learn that all three of us felt the exact same way. Due to my maternity leave for a few months in the fall, my principal decided to keep the two full time teachers in the single-gender settings, and I was granted the mixed-gender classroom. This decision solidified what I already knew: single gender requires more from teachers. Single gender is harder.

Observations

After being exposed to single-gender settings in both school, I have heard the same concerns and the same questions being answered for three years. It boils down to teachers wondering: *Why are we doing this?* Teachers are concerned that single gender environments are doing more harm than good to their students, and could possibly be setting students up for failure in the future.

As an all-boys teacher for two years I broke up countless fights between my students. I observed young children fighting for the role of ‘alpha-male’ and I witnessed sensitive students feel like they did not fit in. I fought for more exposure to social-emotional curriculum as I learned that many of these boys had no idea how to be friends with each other. When I reached out for advice I was often told to use the single gender to my advantage, meaning, find something that “all boys” respond well to and do that. What people meant was that all boys love competition, so make academics competitive, or all boys love sports, so incorporate sports. Without compromising my moral code (we are so much more than our gender!) I took some of this advice into consideration: I bought a basketball hoop, I put them into teams for competitions, and I worked toward their strengths! Although it helped, this was not enough to convince me that single gender was the answer.

Colleagues who taught all-girls had similar concerns. Why are all of my girls unable to just get along? What sort of stereotypes are we instilling when we ‘teach to a gender’? I developed an interest in this topic because I saw first-hand the struggles both teachers and students faced daily, and I felt an overwhelming sense of failure when I

couldn't get a through a lesson because of external forces that, in my opinion, were a result of single gender classrooms.

In my research I intend to find why out why schools are adopting this setting and why it is becoming more popular for parents to select it. I hope to learn what benefits there may be in single-gender settings, as well as what consequences parents and educators need to be aware of. Parents today have access to so many choices when customizing their child's ideal education, and I applaud these options. The linear path my parents chose for me does not work for everyone, and as educators we need to find what works for every student. With this in mind, I will continue to explore: What factors should be considered before choosing a single gender setting in an elementary setting?

CHAPTER TWO

Literature Review

Overview

In this chapter I will review and analyze information that will help answer the question: What factors contribute to the decision of whether or not to choose a single gender classroom? The purpose of this research is to understand what benefits and drawbacks experts have found when separating boys and girls, as well as provide a review of trends in history which have created certain stigmas and stereotypes about gender and learning. This chapter will first examine the history of single gender education. I will examine how changes in policy now offer choices that were once not available in a public school setting. Secondly, I will review why these choices are supported by scientists and experts who believe boys and girls have biological differences that contribute to their learning. Lastly, I will examine three separate groups: girls, boys, and minorities, to find out what perceptions and results are observed by both educators and the students themselves while participating in a single gender classroom.

History

This section will look at the recent history of single gender classrooms in the United States. It will offer insight on what education looked like before single gender

classrooms became widespread, how the No Child Left Behind Act of 2001(www2.ed.gov) changed educational settings from mixed gender to single gender, and why parents and scientists found this option to be necessary and purposeful for children.

According to Brown (2011), prior to the year 2000, single gender education was primarily seen in private and parochial schools and as of 1995 there were only two single gender schools in the United States. Forcing students to attend single gender classrooms or even offering it as a choice in a public setting was considered a violation of Constitutional rights as expressed in the Equal Protection clause of the Fourteenth amendment:

All persons born or naturalized in the United States and subject to the jurisdiction thereof, are citizens of the United States and of the state wherein they reside. No state shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any state deprive any person of life, liberty, or property, without due process of the law, nor deny to any within its jurisdiction the equal protection of the laws. (The Fourteenth Amendment as cited in Brown, 2011)

In 1972, Title IX was created as another amendment to the Civil Rights Act of 1964 (www.justice.gov). The Civil Rights Act of 1964 protected against discrimination in education, housing and employment. When Title IX was added to this act, it functioned as another level of protection to those attending a federally funded public school (among other areas). In regards to single gender education, Title IX can “eradicate gender

discrimination in our schools and to the extent possible in society at large” (Alexander and Alexander, 1984). Title IX says “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance” (www.justice.gov).

With these amendments and laws in place to protect discrimination and provide equal educational opportunities, single gender education was not available in public school settings. Students were protected by laws that ensured everyone would have the same education regardless of gender. However, the availability of single gender options and other educational choices came into existence in 2001 when George W. Bush created the No Child Left Behind Act.

The No Child Left Behind Act (NCLBA) was created “To close the achievement gap with accountability, flexibility, and choice, so that no child is left behind” (www2.ed.gov). As stated, with this act came more choices, and as a response to NCLBA, the U.S Department of Education created new regulations in 2006 that would allow single gender classrooms to be legal as long as students volunteered themselves to learn in this setting and as long as they are given equal education and opportunities as those in a mixed gender setting. Single gender settings were to focus on an objective if the outcome was greater than any segregation students in those settings may experience (Brown, 2011). In other words, the 2006 regulation made available a choice, as long as it is a voluntary decision and meets the NCLBA objectives; parents now had many more public school options.

After the revisions created by the Department of Education in 2006, single gender classrooms were made available in 540 public schools. Brown (2011) reported that in 103 of these schools, single gender is the only option available, but the remaining schools offer single gender classrooms as well as mixed gender classrooms (Brown). This transition from one system of solely mixed gender settings to an option of single gender settings happened quickly and with few regulations. Senators Hilary Rodham Clinton and Kay Bailey Hutchinson saw this lack of guidance and “sponsored a provision for the purpose of providing direction to schools that wish to establish, under NCLB, single-sex classes or schools” (Hughes, 2006, pg.6).

The history of single gender education has changed drastically in the last decade. Once offered to those in a private or religious setting, single gender education is now available to everyone. Although there are many schools that will never adopt this concept, there are many that have, including both that I have worked at. I will continue to explore whether or not there is enough research to make a compelling argument as to whether or not segregating the genders is beneficial. I will now look at how science plays a role in the argument for separating boys and girls.

Biological Differences and Learning

The option of single gender classrooms and schools was a result of NCLBA proponents deciding that more choice would lead to better outcomes for students who were not succeeding in traditional mixed gender settings. Concerned parents and educators look to experts to provide answers. Much research supports the belief that biological differences between boys and girls affect the way they learn. Leonard Sax,

author of *Why Gender Matters* and *Boys Adrift* believes that there are brain based differences between boys and girls that determine how they learn best. As the leading proponent of single gender education, Sax states:

Still, many educators and policymakers stubbornly cling to the dogma of ‘social constructivism,’ the belief that differences between girls and boys derive exclusively from social expectations with no input from biology. Stuck in a mentality that refuses to recognize innate, biologically programmed differences between boys and girls, many administrators and teachers don’t fully appreciate that girls and boys enter the classroom with different needs, different abilities and different goals. (pg. 9)

Sax noticed that some research aims to prove boys are overlooked, yet other research shows it is the girls we need to worry about. In *Why Gender Matters* he addresses Myra and David Sadker’s research on the unfair treatment of girls in classrooms (*Failing at Fairness*) while Christina Hoff is worried about the boys (“The War Against Boys”). While both arguments are relevant, Sax explains “Co-ed schools do shortchange both boys and girls, but not primarily because teachers are sexist or because the textbooks are biased. Coed schools will always shortchange both girls and boys to some degree, for the simple reason that girls and boys do indeed learn differently” (pg. 242).

Another leading expert in studying how biology affects how each gender learns, Michael Gurian agrees with Sax. Gurian trains teachers across the country on strategies that will cater to each gender’s needs. On his website, www.gurianinstitute.com, Gurian

explains that “While environment and culture play a large part in socializing children into gender roles, the very nature of a child—including the gender—requires us to look at boys and girls differently at home as well as in the classroom (retrieved 8/8/2016). Absolutely equal—but different.” Gurian illustrates behaviors he has observed in boys and girls that make them different from one another, behaviors that are usually seen in a classroom. For example, boys are visibly less engaged in learning and are distracted which can be seen in tapping pencils and feet. Boys also have a hard time looking teachers in the eye and boys might not be intrinsically motivated to turn in their homework. Conversely, Gurian describes girls as being worried about impressing boys and he mentions their strengths in subject like reading but not in science. Gurian also noted that may not deal with stress well and feel ill when confronted. In *Boys and Girls Learn Differently: A Guide for Teachers and Parents*, Gurian and Henley look at brain based genetic differences, in addition to behavioral differences as listed above, in boys and girls. The table below highlights ways that differentiated classroom instruction can affect each gender:

Girls Usually	Boys Usually
Hear better than boys	Have 35 percent less hearing than girls due to the cochlea length in the ear.
Can discriminate between objects better than boys.	Locate objects better than girls.
Focus on faces and warm colors.	Focus on movement and cold colors.
Use the advanced portion of the brain.	Use more of the primitive parts of their brains.
Can explain and describe their feelings.	Find it difficult to talk about their feelings.
Develop language and fine motor skills about six years earlier than boys.	Develop targeting and spatial memory about four years earlier than girls.
Multi task well and make easy transitions.	Focus on task and transition more slowly.
Friendships are focused on other girls.	Friendships are focused on a shared activity.
Find conversations important.	Find conversations unnecessary.
Self-revelation and sharing are precious parts of a friendship.	Self-revelation is to be avoided if possible.
Enjoy a close relationship with a teacher.	May not ask for help to avoid being perceived as “sucking up” to a teacher.
Like to be faced, looked in the eye, and smiled at.	Avoid eye contact and prefer you sit beside them.

Retain sensory memory details well.	Don't retain sensory details.
Do not deal with moderate stress well.	Deal with moderate stress well.
Want to be with friends when under stress.	Wants to be alone when under stress.
Feel sick or nauseated when faced with threat and confrontation.	Feel excited when faced with threat and confrontation.
Prefer to read fiction.	Prefer nonfiction.

(Gurian and Henley, 2013)

Another proponent of single gender, Ilana Debare, author of *Where Girls Come First: The Rise Fall and Surprising Revival of Girls' Schools* believes that boys and girls learn as differently as students in different grades learn. Debare, as cited in Crawford-Ferre and Wiest (2013) writes:

No one would seriously propose putting second-graders and fifth-graders in the same English class with the same curriculum and the same assignments. But when we put a typical eleven-year –old boy and a typical eleven-year-old girl in a fifth grade English class together, we are essentially doing just that” putting together two children who are at very different maturation levels. (pg. 302)

While experts such as Sax and Gurian argue that boys and girls physical and biological differences contribute to the need for single gender classrooms, not everyone agrees. Lise Eliot, an opponent of single gender education, agrees that there may be some neurological differences between boys and girls, but these differences are not hardwired or fixed. In her article “Single –Sex Education and the Brain”, Eliot (2011) expresses her concern for educators who naively decide that boys and girls are unable to coexist in a classroom because of their biological differences. She thinks much of the science backing single gender education is a common misunderstanding and that this idea “promotes the view that boys and girls differ in fixed, categorical ways that can only be managed

through separate educational methods” (pg. 365). Eliot argues further that while Sax and Gurian have done research on how boys and girls differ in terms of “hearing, vision, and autonomic nervous function” she believes their findings are “modest” and there is a “large overlap between boys’ and girls’ measures” (pg. 366).

While they are not proponents of single-gender education, Crawford-Ferre and Wiest (2013) offer the understanding that nurture vs. nature may play a factor in the findings of Sax and Gurian. In their article “Single-Sex Education in Public School Settings”, the authors propose that all of the brain differences experts are using to explain why single gender education is most effective could be argued because our experiences throughout life may have an effect on our biological makeup. Crawford-Ferre and Wiest believe that differentiated curriculum and effective teachers may be the solution to biological differences, rather than separated classrooms.

It is clear that boys and girls have biological and brain based differences. The argument, it seems, is whether or not you agree that these differences are distinct enough to require separate classrooms for girls and boys to ensure they are each learning at their greatest capacity.

After examining the history of education from required mixed gender settings to the choice of single gender, as well as observing some of the science-based research that supports advocating for separating boys and girls, I will now look at how girls and boys are treated separately and how trends in academic subjects have shaped their attitudes, perceptions and success.

Girls

While not everyone agrees that single gender education is best practice, various proponents have researched how each gender responds to single sex education in terms of academic success and student perception.

In her book *Same, Different, Equal: Re-thinking Single Sex-Schooling*, Rosemary Salomono (2003) believes that students in single gender settings might feel safer and more comfortable participating in class without the fear or embarrassment of answering incorrectly or looking vulnerable toward the other sex. This idea suggests that certain topics pose different challenges depending on the students comfort level within that subject, which many experts attribute to gender.

While nobody is saying “if you’re a girl you *can’t* perform well at math and science” experts have found that there is a pattern of girls *not* performing well in these areas. Some experts believe this pattern of women not succeeding in math and science stems from a long history of less exposure to these subjects than men. Historically, women have had a minority or nonexistent voice; from voting rights to educational rights, and have fought to be treated equally. From early colonial times, education was made available to children. Education has been available to boys as long as education as existed. In the 17th century, Lawrence Cremin wrote *American Education: The Colonial Experience 1607-1783* (Liben, 2015) in which he spoke about the availability of education for children. However it was later discovered that when he spoke about “children” he was referring to boys, and “girls were not the focus of education during this era” (Liben, 2015). Later in the 19th century as Ivy League colleges came into existence,

all schools except Cornell were open to men only (Liben, 2015). As time went on and more colleges began admitting women as well as men, there were still inequalities as many colleges did not offer women the same classes as they offered men. For example, in the first four years of opening, Oberlin College allowed women to attend as long as they enrolled in the “Ladies Course”. Even after policy changed at Oberlin, and women had more choices, 229 women were still enrolled in the “Ladies Course” compared to 20 enrolled in degree courses (Liben, 2015).

Rather than being supported in areas like math, women have been supported more often in areas like homemaking and motherhood. In her article “Probability Values and Human Values in Evaluating Single-Sex Education”, Lynn Liben (2015) reminisces about earning the highest score on a test used to identify the “Betty Crocker Homemaker of Tomorrow”. In discussing her own experience, Liben mentions the letter she received from Mrs. Crocker which illustrates the message that was given to female youth during this time, it reads “The qualities you have shown are the best possible foundation for a happy and successful future as a real homemaker- the most important career a woman can have” (pg. 406).

In his book *Debating Single Sex Education: Separate but Equal?*, Frances Spielhagen (2007) discovers that prior to the 20th century, women’s education was “limited to basic skills courses and did not include academic subjects that would lead to higher education . Spielhagen goes on to explain how feminist groups urged to get women access to important subjects like science and math, which would in turn give them better chances at getting into post-secondary programs. However, this would not be easy. As recently as the 20th century, a belief that some subjects are more difficult for

females was captured in the voice of an iconic child's toy. In 1992, Mattell, famous for making Barbie, released a teen talk Barbie that said four phrases at the push of a button. One of the phrases uttered by Barbie expressed how hard math classes were (Salomono, 2003). As commonly understood, popular culture both creates and reflects perceptions and attitudes in various and subtle ways.

Now in the 21st century and with policies ensuring that everyone has access to the same educational opportunities, experts are studying what factors are still contributing to girls' perceptions that they are not good at math and science. Janice Streitmatter, author of *For Girls Only* (1999) researched three different single gender settings to find out what common themes were heard amongst girls in each program. Each school she looked at was a co-educational school with single gender options; Elgen High, where girls had the option to enroll in an all-girls -physics class, Williams High, which had an involuntary single gender remedial math class, and Eastside Middle School, a math and science magnet school with optional single-gender classes. Girls in these programs seemed to share the feeling that as students, they did a better job when in a class with only girls and they felt their confidence was greater as a result of having more experience feeling successful in a classroom (Streitmatter, 1999). Streitmatter interviewed the girls to get a better idea of how, individually, they felt these programs benefited them. One student described how the all-girls setting changed the way she viewed her own abilities in physics:

“I think this class makes me feel like girls can do science. I know the teacher told us after the first test that we [the girls' class] had the best score out of everyone [compared to the mixed-sex physics class]. That turns around the stereotype that girls are

stupid and that we don't know anything about science, 'cause in this society we feel like we don't know very much, but we do" (Streitmatter, 1999). The same sentiments were shared amongst girls who previously felt that they were unable to perform well in math.

Streitmatter (1999) learned from these girls that it wasn't only the presence of an all-girls setting that helped them become successful in areas that girls have been known to struggle with historically, but it was also the absence of boys that is responsible for their shift in perceptions. Many of the girls found that in other science classes they had been in, boys spent their time being intolerable and disrupting and would squirt water while the girls got the work done. Some of the girls felt that when working with other girls, they were able to multi-task, but when boys were present they found themselves giving the boys most of their attention. One of the students interviewed, Terri, expressed that when boys are present, girls feel at risk to ask questions or to show confusion just as much as they feel worried to show knowledge in the subject. She states "It's easier to learn when you can just turn around, and you don't have to worry that there this boy who's going to turn around and say 'you don't know that'" (Streitmatter, 1999).

In his most recent book, *Girls on the Edge*, Sax discusses another reason girls are not performing well in math and science. While at Penn, Sax's professor Justin Aronfreed explained that there is an ongoing message girls receive telling them that rather than playing with trucks, they should focus on playing with dolls (Sax, 2010). From an early age girls are told who they are supposed to be, so when they grow up and start developing an interest for certain subject, experts are finding that they are resistant to classes that cater towards "boy things" (Sax, 2010). And, as discussed previously, the dolls girls play with also reflect this message. As we have seen, perception matters.

In another study done by Laura Hart (2015), a researcher from the University of North Carolina at Charlotte, an all-girls sixth grade class was studied over a three year span. Her research examined girls' perception of a single gender classroom in comparison to a mixed gender classroom. When the study concluded in 2013, the results showed that 77% of the girls reported that that being in the girls-only class helped them learn better, 62% of girls agreed that they wanted to be in an all-girls class for all of their classes the following year, and 86% of girls answered that they enjoyed their time in an all-girls class (Hart, 2015).

While girls self-report positive attitudes in some subjects taught in single-gender environments, many experts believe it is the manner in which the instructor approaches the classroom that has the greatest impact in girls' perceptions of their experience. In another study, Sax reports on a successful physics class in Melbourne, Australia, where girls unanimously express their love for physics. As a subject usually catered to boys, Sax believes it was the way the professor was teaching it that enabled girls to feel connected to it. Based on research done by Gerianne Alexander (2002) who broke down interests of learners visual system into two categories- the "what" and the "where", Sax (2010) attributes the Melbourne success of girls interest in physics to the professor's ability to teach to the "what" system, which is where Alexander (2002) believes girls have more resources. Rather than using the traditional method of teaching physics with fast car analogies or football collisions, she focused on "what" questions such as "what is light made of?" or "what is matter made of?" (Sax, 2010).

As the foremost proponent of single-gender classrooms, Sax (2010) believes that because teachers and schools have a limited understanding about how girls and boys

learn differently, especially in terms of visual systems as mentioned above, boys and girls are at a disadvantage and are encouraged to only like certain subjects, rather than being taught in a way that caters towards their individual learning styles. Jenn Alabaster, the physics professor in Melbourne, discovered that girls enjoy science (in her study, physics) if a teacher has learned how to teach it to them. In other words, it is not the content that girls do not enjoy, it is the way it is presented to them (Sax, 2010).

Further research explores the relationship between instruction and girls' attitudes about the learning environment. David and Myra Sadker, authors of *Failing at Fairness: How American Schools Cheat Girls* (1994), offer another rationale as to why girls might not be getting as much out of their time in the classroom as boys. After observing several schools in several different settings, they have found that teachers unintentionally give boys a different amount of attention than girls. They found that teachers ask boys more questions, call on boys more often, give boys greater feedback, and overall choose to interact with males over females (Sadker and Sadker, 1986). With this in mind, the Sadker's believe that since the most valuable resource in a classroom is the attention of the teacher, the group receiving most of that resource will undoubtedly surpass the group that is lacking that resource.

The research mentioned above offers insight as to why it is girls are failing, as well as what happens to their academics and perceptions of school when placed in a single gender setting. I will now change gears and focus on a different group of students; the boys.

Boys

While many believe it is the girls who have been historically disadvantaged by education which has led to negative perceptions, many experts think it is the boys who are fighting an uphill battle.

As discussed previously, historically, research has shown that boys and men) have always had access to education, however today 60% of college students are women (Garland, 2010). In addition to the previously mentioned college statistic, Salomono (2015) offers insight on the other end of the spectrum; infancy and early childhood. She found that 61% of infants and toddlers that receive early intervention services are boys. Experts are exploring what trends in early education are leading to a statistically higher female rate in colleges, as well as how single gender settings can assist in closing this gender gap. Females have seem to have ‘won’ the educational “battle” and society is left wondering if it is at the expense of educating males.

In *Boys Adrift*, Sax (2007) explores what five factors contribute to the issue of unmotivated and underachieving boys. He found that from 1949 to 2006, the percentage of men in college went from 70% to 42%. Sax and other experts believe that the problem of boys’ lack of drive is a result of what goes on inside the walls of their classrooms, starting with kindergarten.

The push to educate both genders to accelerate their learning takes place much earlier, in fact, kindergarten today looks far different than it thirty years ago. Although kindergarten initially was a place for students to begin school by exploring things like coloring and singing, today it looks more like first grade with an emphasis on reading and

writing (Sax, 2007). Sax and others are finding that this concept of reading and writing in kindergarten proves to be problematic for boys, as their brains are developing slower than girls. Sax (2007) illustrates that research has found that the language area of a boy's brain at five years old looks the same that a girl's language area of the brain looks at three and a half years old. Sax believes that the idea of teaching five year old boys reading and writing skills would be comparable in difficulty and developmental inappropriateness as teaching these same skills to a three year old girl (2007). Perhaps by waiting a year to enroll boys in kindergarten, their lack of engagement and motivation could be avoided. The idea of delaying kindergarten for boys is also known as "academic redshirting" (Salomono, 2003), and many parents are making the decision to do just that.

Patricia Hunsader, author of "Why Boys Fail: Unlearned Literacy" (2002), also emphasizes that becoming literate later in life contributes to many challenges of boys in school today. Hunsader (2002) states that boys' "reluctance to read contribute to their underachievement, which is magnified by current standards". She found that 70% of D's and F's on report cards belong to boys, boys are 50% more likely to be retained, or held back, than girls, boys are five times as likely to be referred to for special education services than girls and finally boys are responsible for 71% of suspensions. These results show that boys are also reporting a dislike for school in terms of curriculum, teacher responsiveness and overall enjoyment (Hunsader 2002).

Experts are also looking at what happens beyond kindergarten that contributes to negative perceptions of school as well as failing grades or a disinterest in post-secondary opportunities. One option that Hunsader (2002) considered when evaluating why boys are failing in school was by understanding that the areas they excel in are not embraced in

schools. She states that boys' strength in "gross motor skills, visual and spatial skills, and exuberance" are not always useful in classrooms. Furthermore, she noticed the areas that boys struggle with are the inability to process questions as quickly as girls, as well as access to a strong vocabulary to help express themselves due to problems with literacy at an early age. Hunsader (2002) believes that these issues are not addressed in mixed gender classrooms, considering girls do not generally experience the same problems.

In an interview, author Richard Whitmire of "Why Boys Fail" (2010), states that since boys are not kindergarten ready at the same age as girls, the damage that is done by beginning too soon leads to a large education gap by the end of elementary school. The reason that this gap is hard to close is due to the fact that when moving on into middle and high school, students are taught how to understand literature, but there is no longer a focus on literacy skills (Education Next, 2010).

Gurian, Stevens and Daniels (2009) found that in high school, the only extracurricular area that boys outnumber girls is in sports participation. They also found that more than one third of male students in high school report that their work in school rarely feels meaningful, with the idea that the content they are learning will not be important later in life.

Researchers find something different when looking at boys' attitudes and perceptions in single gender classrooms. Similar to what the girls reported, the boys questioned said they felt safer and confident in single gender settings, and could push themselves further. An 11 year old from Spielagen's research (2007) said one thing he appreciated about his all boys class was his ability to compete with them; he states "I

want to try to beat them. I didn't try to beat the girls [when he was in mixed classes] because I didn't think I could beat the top girls, so why bother (pg. 261)?".

As reported in "The Boy Factor: Can Single-Gender Classes Reduce the Over-Representation of Boys in Special Education", a study was conducted to see what happens to special education numbers when boys were separated by gender. The table below illustrates the boys' perceptions and attitudes after being in a single gender class.

Table 2. Behavior Indicators of Male in Single-Gender Classrooms

By being in the single-gender program, I have increased or improved my...	Percent of students who responded Strongly Agreed, Agree, or Somewhat Agree	Percent of students who responded Neutral	Percent of students who responded Strongly Disagree, Disagree, or Somewhat Disagree
Behavior in school	59%	19%	22%
Participation during class	70%	15%	14%
Attitude in school	57%	19%	24%
Complete homework	59%	21%	20%
Complete class work	70%	18%	20%

(Piechura-Couture, Heins, Tichenor 2011).

Overall, over half of the boys interviewed found the single gender setting to be helpful in terms of behavior, participation, and academic success.

As seen above in Table 2, research found that the positive responses from the boys were a result of classroom instruction meeting their needs. Single gender classrooms allow for "boy friendly lessons greater physical movement, elevated noise levels, and direct teacher talk" (Piechura-Couture, Heins, Tichenor 2011).

Teachers in single gender settings have reported that strategies they are able to use, when teaching one gender, are more effective as well. Roger Chaney, a sixth grade all-boys teacher in Nevada, journaled about his experience after piloting an all-boys class.

He notes that the language he uses with them is “short, succinct and without discussion or much explanation”. He also mentions teaching math and reading in the morning, when boys are most able to concentrate, and after-recess lessons need to be group based projects due to the high amount of energy and the inability to expect desk work at this hour (Gurian, Stevens, Daniels 2009).

Although the history, biology, instructor attitudes and student perceptions provide some indication of the outcomes and experiences of single-gender education, there is another factor to explore; education and the economically disadvantaged. What happens in inner-city classrooms when a single gender setting is offered? I will look at how this setting affects a particular group, and if this option within higher poverty populations is beneficial.

Socioeconomic Factors

While many experts are looking at how history and mixed gender settings have led to negative perceptions of school as well as less than ideal academic achievements as seen in boys and girls, other research is looking at these same themes but in those who experience education as a minority and/or someone living in poverty.

Marlon James, author of “Never Quit: The Complexities of Promoting Social and Academic Excellence at Single Gender School for Urban American Males” (2010), expresses that African American males are the most failed group in the United States. He states “The total failure of the American education system, particularly for African American males, is best illustrated in the following finding. The average African American male has performed below basic in every grade level and every subject on the

National Assessment of Education Progress for at least the past 20 years” (NEAP 1990-2010, as cited in James 2010).

Again, Sax (2007) looks at what happens specifically to those in low-income neighborhoods starting in kindergarten. Since many families in these neighborhoods are not financially able to keep their children home any longer than necessary, only 3% of these children will be held back and the other 97%, ready or not, will enroll in kindergarten. The flip side of this is that those in affluent neighborhoods, who’ve made the choice to “red-shirt” their boys are starting later, and this is where the gap begins.

In her research, Salomono (2003) also discussed the rationale for inner-city schools turning to single gender settings to fix a broken system. “Urban school reformers”, she says, “place special emphasis on overcoming and preventing the social and education disadvantages that confront inner city minority youth, both males and females”(p. 25). Those in favor of single gender settings for children in poverty believe that since all other options have so far failed them, single gender classrooms are a strategy to explore to put an end to “drug abuse, violence, dropping out and teen pregnancy, and for increasing academic achievement among this population” (Salomono, 2003). In other words, single gender classrooms attempt to try and eliminate the negative influences that are plaguing these children and give better odds to succeed academically.

In their research on boys and special education, Piechura-Couture, Heins and Tichenor (2011) surveyed African American and Caucasian males to find what perceptions they had about single gender classrooms. Overall, African American males reported more positive feelings about single gender settings than their Caucasian peers.

For example, seventy- five percent of African American males reportedly agreed that a single gender setting helped them complete their classwork, compared to 61% of Caucasians reporting the same thing. Seventy-Five percent of African American males reported that a single gender setting helped them participate more in class compared to 64% of Caucasian males.

Not only are the perceptions⁷ of minority students more positive in a single gender setting, so are the test scores. Cornelious Riordan, as cited in Cable and Spralding (2008), finds that African-American and Hispanic students are performing higher on all tests by almost a year's worth of growth in single gender settings compared to mixed settings.

Although much research supports the choice for single gender education based on perceptions and statistics from boys, girls, and minorities, it is important to examine what research says about negative stereotypes that occur when students are separated based on their gender.

Stereotypes and Gender Segregation

While much of the aforementioned research supports the possibility that teachers can teach better and students can learn better when they are separated by gender, some experts agree that the idea of separating by gender will create problems. For years, laws were established to protect students from being taught a certain way and in a certain setting based on their biology; they protected against sex- discrimination.

Even if we accept these disputed biological claims to be true, gender essentialism is precisely what the Supreme Court has historically rejected in its sex

discrimination jurisprudence. Rather, the court has insisted, first, that the accident of birth should not be permitted to determine or limit one's abilities, talents, or capacities, and second that average differences between men and women- even if objectively verifiable- do not justify different treatment. (Galen Sherwin, 2015)

As previously discussed, teachers have reported that teaching to one gender may be easier because, for example, they can use boys' competitive sides to their advantage or they can teach in a way that caters to girls' communication styles. However, what happens to boys and girls that don't fit in to these stereotypes of "boy behavior" or "girl behavior"?

While teaching under the assumptions that one group of students all respond the same way to the same things, this can mean that people who don't fit this mold or act in a way other than what is expected of them based on their gender are a problem (Jackson, 2008). Since many single gender classes are taught towards what the teacher believes the groups' strength is, this can be problematic when a boy or a girl does not fit the stereotypical activities assigned to their gender. Jackson states that those who support the idea that men and women have different interests is divisive to those who may not identify as male or female regardless of their physical makeup (Jackson, 2008).

One major example of students feeling like "the other" because they do not fit in is seen in sexual orientation, and how it fits in to a homogeneous classroom. Jackson believes that single gender classrooms support heteronormativity and homophobia. Single gender classrooms are heterosexualising children and are making it more difficult for students to explore a world that does not define them by their gender (Jackson, 2008).

Another problematic area found is how separating students by gender may lead to biases and prejudices of certain groups. Lynn Liben found, by using the developmental intergroup theory (Bigler and Liben 2007, as cited in Liben 2015) students' prejudices increase when social groups are made more salient. Similar results can be found in studies where students are separated by shirt color, and when studied have been found to feel a certain way about the group they are in based on their shirt as well as a feel a certain, negative way, about those not wearing their shirt color (Liben 2015).

In a time where our nation is working diligently to become more aware of consequences that arise when we attempt to put all "women" in one category or all "men" in one category, Liben (2015) worries that subjecting students in single gender classrooms to repeated gender labeling may be harmful. Consistent exposure to gendered language in terms of "ladies" or "gentleman", gendered-bathroom signs, clothing etc. has been argued to be counterproductive to those students in single gender settings (Liben, 2015).

Conclusion

Research has shown that single gender education has become a popular choice for parents and for schools to consider. The research throughout this chapter has looked at history, biology, and three separate groups in order to evaluate the question: what factors contribute to the decision of choosing a single gender classroom setting? Next I will discuss what kinds of research I will conduct in order to find whether or not separating students by gender is effective or if it is simply another failed attempt at closing the achievement gaps that exist across several settings.

CHAPTER THREE

Methods

In Chapter Two I examined literature that supports the reason schools and parents might decide to choose single gender education. I first looked at the history of education as well as brain based research, followed by trends, attitudes and perceptions of students who have experienced single gender settings. I also looked at what research has found in terms of negative stereotypes that may result from separating classrooms by gender.

In this chapter I will discuss the methods I will use to further answer my question: What factors should a parent or school consider before choosing a single gender classroom? I used quantitative research to explore data found in single gender as well as mixed gender classrooms, as well as qualitative research to further understand perceptions and attitudes of students and teachers who have been exposed both single gender and mixed gender settings.

Setting

The research took place was conducted at a charter school in Minneapolis, Minnesota. The charter school opened in 2012 and currently offers grades kindergarten through fifth grade. Around 425 students will attend this school in the 2016-2017 school year in one of seventeen classrooms.

The demographics of the school are 90% Somali, 15% Latino, and 5% other (Caucasian and African American). A majority of the Somali students are new to the country, with an English language learner population of around 95%. This school also has a majority of students who receive free or reduced lunch, and the percentage of those students is 95%. Since the school is extended day (school hours are 8:45-4:15) students not only receive free and reduced lunch, but also breakfast and snack.

I was able to do my research at this school because there has always been both single gender and mixed gender classroom options for parents since it opened in 2012. Initially, the school offered Kindergarten through second grade. There were three classes in each grade level, which allowed for one mixed class, one boys class, and one girls class. As the school grew by a grade each year, some grades only had two classes, which meant both classes had to be mixed gender under Title IX restrictions (parents had to have the choice between mixed or single, and with only two classes in some new grades there weren't enough classrooms to offer both choices which meant it had to be mixed gender). However, the majority of students that have attended this school have experienced the option of single gender classrooms, and those are the students I surveyed.

Quantitative

Overview

For my research I did both a quantitative and qualitative analysis. I will be conducting quantitative research to explore measurable differences between a single gender setting and a mixed gender setting.

The school I studied takes bi-weekly quizzes in both math and reading. The quizzes are made by the teaching staff, and the exact same quiz is proctored by each teacher in each grade level. Once the quiz is taken and graded, the teacher enters it into a 'tracker' (See Appendix A) which provides percentages that illustrate who is proficient overall and which questions are proficient overall.

Participants

For my quantitative research, I reviewed the results from a math quiz and a language arts quiz in three fourth grade classrooms; an all-boys setting, an all-girls setting, and a mixed gender setting. A majority of the students in each class were in the same type of setting in third grade, but some students were by recommendation by their third grade teacher.

Logistics

To prepare the students at this school for state and standardized testing, students take bi-weekly language arts quizzes in the computer lab. The students will read one-two reading passages on the computer and will then answer ten-twenty multiple choice questions. The math test is taken in class on paper, and consists of ten to twenty questions.

Variables

Although all students will be tested on the same content, there are variables that attribute to possible shortcomings. First, the teachers in each classroom have different levels of experience. One teacher has taught for three years and the other two teachers are first year teachers. Second, two of the teachers have worked at this school for one year and one of the teachers is brand new to the school. These variables must be taken into consideration when evaluating the results.

I have chosen this form of quantitative research to analyze what is happening at an academic level in single gender classrooms. Much of the literature in chapter two mentioned the reading and math success that boys and girls have when they are separated by gender, so by analyzing both subject across both settings I can better answer my question.

Qualitative

Overview

I did qualitative research as well as quantitative research in order to understand another side of this research. The quantitative research helped understand academic success, but the qualitative research will helped understand more in terms of attitudes and perceptions of students and teachers who have chosen single gender settings, which was a large focus of the literature in chapter two.

For the qualitative analysis, I conducted two different surveys to two different groups of people. The first group I surveyed were teachers who have taught in single

gender classes and the second group I surveyed were students who have attended a full school year or more in a single gender setting .

Teacher Survey

Participants

I surveyed five teachers from the same school. All of the teachers surveyed have taught in a single gender and mixed gender setting. The grade levels vary from kindergarten to fourth grade.

Variables

Some of the teachers surveyed have chosen to teach in a single gender setting while others were placed in these settings based on need of the school or vision of the principal, and did not have a choice. These factors must be taken into consideration when analyzing the surveys. The teacher survey can be found in Appendix B.

Rational

I conducted teacher interviews to better understand what perspectives teachers have in terms of single gender settings. As found in my literature review, some teachers felt they were better able to teach their students when their students were all one gender. The literature review found that teachers were able to offer specific strategies to help their students become more successful in single gender settings.

Student Survey

Participants

I surveyed students who have experienced both mixed and single gender settings. The students will be in fourth grade for the 2017-2018 school year and have all attended a single gender setting and a mixed gender setting at some point throughout their elementary education. The years that they were in each setting varies from student to student

Variables

I interviewed students who chose to attend a single gender setting for fourth grade, students who requested switching back to a single gender setting, and also students who did not have a preference so were placed in a classroom based on class size needs. These variables are important to consider when analyzing the student surveys. The student survey can be found in Appendix C.

Rationale

Interviewing students as a part of my qualitative data helped me better understand student perceptions and attitudes of those in a single gender setting or of those who have experienced single gender settings in the past. The literature review examined how boys, girls and minorities responded to single gender settings, and in many cases found that students' attitudes and perceptions were very positive in comparison to how they felt in a mixed gender setting.

Conclusion

By using both quantitative and qualitative forms of research, I am able to better answer the question: What factors to consider before choosing single gender settings? I will evaluate testing data found across three classrooms in two subjects, as well as administer and evaluate two surveys given to two different groups of people who are involved in single gender setting classrooms.

CHAPTER FOUR

Results

Introduction

In order to better understand what factors should be considered when choosing between a single gender versus a mixed gender elementary classroom setting, I conducted two different types of research. First, for my qualitative research, I interviewed those most impacted by a specific classroom setting; the students and the teachers. I distributed a ten question survey to each group to learn more about the perspectives of those who have experienced both settings. The questions ranged from academic to social perceptions that one might experience in each setting. The second type of research I conducted was quantitative research. For my quantitative research, I looked at test scores in three different classrooms: a single gender setting (third grade girls), another single gender setting (third grade boys) and a mixed gender setting (third grade boys and girls). I will evaluate end of term test percentages to better understand if there is a correlation with success in math for girls when they are segregated, as well as if there is success for boys in a reading class when segregated, as previous research has conjectured.

Qualitative Research Process

Student Survey

For the qualitative research I needed to find students at my elementary school that had experienced both a single gender and a mixed gender setting. At my school, *most* grades offer a single gender and a mixed gender setting. Remember, a single gender option can only be offered if there is a mixed classroom too, and in the highest grades (fifth and sixth) there are only enough students to fill two classrooms, which means both must be mixed. The students that participated in the survey had a variety of past experiences; see table below.

Student	Previous Classroom Setting	Current Classroom Setting
1	Single Gender/ Boys	Mixed Gender
2	Single Gender/ Boys	Mixed Gender
3	Single Gender/ Boys	Mixed Gender
4	Single Gender/ Girls	Mixed Gender
5	Single Gender/ Girls	Mixed Gender
6	Mixed Gender	Single Gender/ Girls
7	Single Gender/ Boys	Mixed Gender
8	Single Gender/ Girls	Mixed Gender

Once I found my focus group, I administered the surveys during the school day. To ensure all students understood the questions they would be answering, I read the survey aloud in a small group setting. Students had the opportunity to ask any clarifying questions before answering each question. Another benefit of administering the survey face to face was the opportunity to hear comments the students made about the questions that I was asking; it became almost like an interview. Later you will read direct

comments made by the students regarding their perceptions of single gender and mixed gender classroom settings.

Teacher Survey

The process for selecting teachers to complete this survey was similar to how I selected students. The teachers who filled out the survey had to have taught in both settings throughout their career. I was able to survey five teachers who had taught in each setting. See table below for past and current positions:

Teacher	Previous Classroom Setting	Current Classroom Setting
1	Mixed Gender	Single Gender/ Girls
2	Mixed Gender	Single Gender/ Boys
3	Mixed Gender	Single Gender/ Girls
4	Single Gender/ Boys	Mixed Gender
5	Single Gender/ Girls	Mixed Gender

Unlike the students, the teachers answered these questions on their own time and submitted them to me within the week.

Results

The purpose of my qualitative research was to gain a better understanding regarding the perceptions and opinions that students and teachers who have experienced both a single gender and mixed gender setting have in terms of social and academic successes and deterrents.

I will first go over the results found in the student survey, followed by the results of the teacher survey. To see the student survey in full, please refer to Appendix A. For ease of understanding, I have abbreviated and paraphrased the questions in the table

below. You will also notice the survey found in Appendix A has five answer options: Strongly Disagree, Disagree, Agree, Strongly Agree and Not Applicable, however, the table below displays the results as agree or disagree

Student Survey Results

Question	Disagree/ Strongly Disagree	Agree/Strongly Agree
1. I believe that single gender classrooms are better than mixed.	100%	0%
2. I am able to learn better in a single gender classroom.	100%	0%
3. My test scores are better in a single gender classroom.	100%	0%
4. I feel safer in a single gender setting	75%	25%
5. The other students are happier in a single gender setting.	75%	25%
6. I believe that boys and girls learn differently.	25%	75%
7. As a girl I can do better in a single gender setting.	100%	0%
8. As a boy I can do better in a single gender setting.	80%	20%
9. I worry that people think I can only like "girl" or "boy" things in a single gender setting.	80%	20%
10. I like being in a single gender setting better.	100%	0%

Analysis of Student Results

As you can see in the table above, the students surveyed overwhelmingly agree that a mixed gender setting is preferred over a single gender setting. There are however, a few things that stood out to me. In question six, 75% of students agreed that girls and boys learn differently. Another area that stood out was in question number eight in which 20% of the boys agreed they could do better in a single gender setting, but still prefer a mixed gender setting.

All students surveyed, except one, chose to be in a mixed gender classroom in fourth grade because of their dislike of single gender classrooms in their past. The student who was currently in a single gender setting told me “I really think an all-girls class is not worth it because they are forcing you to like something when you have nothing to do with it”. This student was in an all-girls class as a result of her mom requesting it. The rest of the students, however, no longer chose that setting when enrolling at the beginning of the year.

Students surveyed were also eager to tell me their opinions of single gender and mixed gender classrooms. They felt strongly about it, and they felt empowered that they had a choice. One boy said to me, “The reason I was afraid of girls is that I didn’t know what was in their head right off that bat, but then I asked them things and got used to it.”

One student made it clear that there were pros and cons to both settings, he said “I put agree and disagree because I like both single gender and mixed gender classes. I like single gender classes because there is probably going to be people who like the same

things as me but I also like mixed gender classes because it is kind of nice to be around the other gender, too”.

Teacher Survey Results

Next I will analyze the results I found amongst the teachers. Similar to the student survey, the complete teacher survey can be found in Appendix B.

Question	Disagree/ Strongly Disagree	Agree/Strongly Agree
1. I believe that single gender classrooms are better than mixed.	100%	0%
2. I am able to teach better in a single gender classroom.	100%	0%
3. Test scores are better in a single gender classroom.	100%	0%
4. Students feel safer in a single gender setting	100%	0%
5. Students are happier in a single gender setting.	75%	25%
6. I believe that boys and girls learn differently.	50%	50%
7. Girls can do better in math and science in a single gender setting.	100%	0%
8. Boys can do better in reading and arts in a single gender setting.	50%	50%
9. I worry about negative stereotypes in single gender settings.	100%	0%
10. I believe that minorities are more successful in single gender settings.	100%	0%

Analysis of Teacher Survey Results

Similar to the student survey, teachers unanimously agree that mixed gender settings are far more favorable than single gender. One result that stuck out to me was that 50% of teachers surveyed think that boys and girls do in fact learn differently, while 50% did not find this to be true. In both charter schools that I have taught, in which single and mixed gender settings are available, I have not heard of or attended any professional development in which teachers are trained in how to teach to boys and girls differently.

Qualitative Research Conclusion

Teachers and students surveyed agree that overall, a single gender classroom is not ideal. The questions ranged from how both groups felt in terms of academic and social success in each setting, and the results are clear: teachers would rather teach in and students would rather learn in mixed gender settings at an elementary level.

Quantitative Research Process

While surveying students and teachers gave me insight on the perspectives and attitudes of those who have experienced both settings, I also wanted to focus closely on academic results, in this case, test scores.

For the charter school assessments, students quiz biweekly in two subjects: reading and math. Quizzes in both subjects are taken every other Friday, and are followed by a rigorous evaluation by teachers.

Once the quizzes have been graded, teachers enter scores for each student and each question into a tracker. Trackers are created by teachers in advance, and contain a roster of students name in rows, and each question on the test in columns. Once the data is entered, percentages are calculated across each student's name (what percent did they get on the test) and percentages are also calculated for each question (what percent of students got each question correct). Once the tests have been tracked, teachers find out what percent of their class is proficient on the standards tested (students who got 80% or higher divided by total amount who took the test). Finally, once this information has been calculated, the teachers meet with their teams and a team leader to discuss the highs and lows of the test, and what steps they will take to ensure all of their students have the opportunity to be proficient.

For my research, I sought out information from the third grade team. I was given access to each teacher's term three comprehensives assessment trackers, in each subject. Third grade is one of four grades at the school which offers a single gender class for girls, a single gender class for boys, and a mixed gender class.

Quantitative Research Results

I looked at results in both reading and math, across three classrooms. Below is a table that illustrates each class average:

	Math	Reading
Single Gender/ Girls	83%	79%
Single Gender/ Boys	84%	72%
Mixed Gender	87%	79%

Analysis of Quantitative Research Results

An argument made by proponents of single gender classrooms is that academically, boys do better when they are alone and so do girls. In this data, you can see that across each classroom, the scores are fairly similar. The single gender boy's classroom scored lowest in reading, and the single gender girl's scores lowest in math, but only by a margin. Overall, each class scored within just a few percentage points of each other.

CHAPTER FIVE

Conclusions

Introduction

In this chapter I share my final thoughts and conclusions regarding my research on the topic of single and mixed gender classrooms. I will look at similarities and differences in my research and research done by others, I will address the limitations of my research as well as discuss what I will do next.

Reflection

Before beginning this project, I had a fairly strong opinion about single gender classrooms in an elementary setting. As someone who started off their teaching career working at a high needs school in North Minneapolis, teaching an all-boys class, I had a strong belief that single gender was not working. The class I taught had incredibly challenging behavioral concerns, and they were not performing at their grade level academically. I am aware of the achievement gap and choose to be an urban teacher for the purpose of doing what I can to close this gap; however, I do not feel that segregating classrooms by gender is the answer.

When I changed schools, I found that the behaviors were not as severe but I was still observing that there was something different about the students in single gender

classrooms. Although not teaching in one myself, I witnessed things and heard teacher testimonies that continued me to question the purpose of separating classrooms by gender.

The principal at my school agrees with my concerns, however it is the board who decided that we would operate as a charter school that offered both settings, and until we can prove that it *isn't* working, this school will function as is. I am not sure if time is what they need, or if further research needs to be presented to the board, but I am hopeful that if single gender is not the best for our students, a change will be made.

The results from the research conducted at my school validated my opinions, and it became clear via the surveys that teachers and students are not proponents of single gender settings at an elementary level. It also became clear, after analyzing the trackers in my quantitative data, that the test score discrepancies were not great enough to show that a single gender classroom was performing better than a mixed gender classroom.

Implications

Although my research found that students and teachers both agree that single gender settings are not ideal, there are many more people involved in making decisions on single gender versus mixed gender classes who are not as convinced.

As previously stated, my school offers both choices due to a rule placed by the board. While legally all schools have to offer a mixed gender setting, public and charter schools now have the choice to offer single gender settings as well.

Another group to determine whether or not a student might be in a single gender classroom against their request is the parents. Although there is plenty of research that shows there is no benefit to learning in a single gender classroom, many parents disagree and feel that their child is better suited to learn in a setting with ‘less distractions’ (remember the student I interviewed who felt like she was being forced to like something after her mom requested her be in a single gender setting?). Religious beliefs, like those that exist within the population at my school, also play a factor in parents preferring their child not interact with the other sex.

The research shows that single gender settings may not have any benefits for students at an elementary setting, both socially and academically, however there are more implications that effect where and how a student learns other than just the opinions of those inside the classroom. In chapter two, the literature review saw both pros and cons on both sides of the spectrum. Leonard Sax has done extensive work to prove that boys and girls are built differently therefor need to be taught differently, which my students did agree with (although their understanding of biology is much different than that of Sax). However, similar to Liben’s research, students who I surveyed expressed their concern in being expected to like certain things because of their gender when in reality their interests are more vast than that.

Limitations

Although the research findings matched conclusions by others, there are considerations when examining my results.

First, the sample size for teachers and students surveyed in my qualitative research was rather small. Due to the fact that I had to find both teachers and students who had been in each setting throughout their school careers, I was only able to survey five teachers and eight students. I also chose to conduct my research at one school rather than several different schools. This limits my understanding of how more people (different ages, ethnicities, and populations) might feel on the topic.

Next, I am limited in my quantitative research because I only looked at test scores from one grade, one term, in one year. Perhaps the data would have been more complete if the data spanned across grade levels and was over a longer time span.

Future Research

One of the biggest concerns that I have with the single gender option is due to personal observations of student behaviors in these settings. Whether it was my firsthand observations, or hearing stories from teachers in a single gender setting, there is a strong opinion about how students behave when they are surrounded by only one gender. To sum it up: the boys are more aggressive and the girls are meaner.

Although it will be a challenge to prove this, another teacher at my school began doing some research on how many behavior referrals (a sheet in which the teacher ‘writes up’ a student for undesirable behavior) single gender classroom teachers were writing on a daily basis in comparison to the mixed gender classroom teachers. Allison Richards, a colleague of mine and a member of the behavior and discipline committee at my school, hopes that by collecting this data and presenting it to our school board they might reverse their decision on single gender classrooms being mandatory.

Below is a table with the conclusion of her results, as seen on the spreadsheet in Appendix C. Disclaimer: the data is separated into percent of referrals written by teachers in single gender (two classrooms per grade) and mixed gender classrooms (one classroom per grade).

Grade	Single Gender Referrals	Mixed Gender Referrals
1	79%	21%
2	71%	29%
3	83%	17%
4	74%	26%

What this data shows is that the single gender classrooms at my school have a much greater amount of behaviors that are causing teachers to write referrals (referrals lead to suspension).

The idea that single gender classrooms set students up for less ideal behavior is not just a teacher observation. While conducting my student surveys, one boy who had spent much of his past in a single gender classroom said to me, “I thought single gender class was too wild and crazy and mixed gender was calm”.

Communicating Results

Working at charter schools has given me an appreciation for the ways in which these types of schools can change and move to best suit their students. Unlike a public school, or a district, charter schools have the authority (with board approval) to adapt whenever and however they desire. My school, for example, has already made some changes in regard to single gender settings.

For the first three years of operation, all grades with three classrooms offered a single gender option. Last year, the 2016-2017 school year, the board agreed to offer *only* mixed gender for kindergarten classes. The kindergarten teachers felt that their students were negatively impacted when their students were separated by gender, and the board agreed to let them try a year with only mixed gender classrooms. The result? Students were learning more and teachers were teaching more; everyone (with the exception of a few parents) was satisfied.

I have learned throughout this research that overall, students and teachers are happier and more successful in mixed gender settings although further research is necessary. I will share these findings with members of the board, my principal and future educators who have interest in the topic of single gender and mixed gender classrooms. Perhaps after sharing the research that I have done, our board will allow more grade levels to make the switch.

Conclusion

Before beginning this project, I was aware of how I felt, as an educator, on the topic of single gender classrooms. Throughout the journey of studying literature on this topic, interviewing students and staff, and analyzing trackers and behavior analyses, I believe that there are very important factors that must be considered before choosing a single gender setting.

I understand why schools, parents, and students may be intrigued and curious about what benefits they might experience if they eliminate an entire gender from a

classroom. The possibility of growing academically and socially, in a safe environment, is something that every human interested in education would desire.

However, this project allowed me to see that students perceptions, feelings, and even academic successes did not benefit from a single gender setting, and in many cases, it had the reverse effect. Behavioral issues in single gender classrooms have overpowered the chance for students to focus only on their academics, and as a student of mine articulated, mixed gender is much more “calm”.

I commend change makers for experimenting with new educational settings with the goal of making learning more successful for all students. As our world changes, schools need to change with it and try to figure out how we are going to reach students. However, like we have seen with single gender educations, there are many factors that have proved this is a change that has not worked as well, and a change that I believe we could eliminate from elementary settings.

Appendix A

Student Survey

	Strongly disagree	Disagree	Agree	Strongly Agree	Not Applicable
1. I believe that single-gender classrooms are better than mixed gender classrooms.					
2. I am able to learn better when I have all of one gender in my classroom.					
3. My test scores are better when the students in my class are all one gender.					
4. I feel safer and more comfortable in a single gender classroom.					
5. The other students in my class are happier in a single gender setting.					
6. I believe that boys and girls learn differently because we like different things.					
7. As a girl, I can do better in math and science when they are in a single gender classroom.					
8. As a boy, I can do better in reading and arts when they are in a single gender classroom.					
9. I am worried that people think I can only like "girl things" or "boy things" because I am in a single gender class.					
10. I like being in a single gender class better than a mixed-gender class.					

Appendix B

Teacher Survey

	Strongly disagree	Disagree	Agree	Strongly Agree	Not Applicable
1. I believe that single-gender classrooms are more successful than mixed gender classrooms.					
2. I am able to teach better when I have all of one gender in my classroom.					
3. Test scores are better when students are in single gender classrooms.					
4. My students feel safer more comfortable in a single gender classroom.					
5. I notice that my students are happier in a single gender setting.					
6. I believe that boys and girls have brain based differences that affect the way they learn.					
7. I believe that girls can do better in math and science when they are in a single gender classroom.					
8. I believe that boys can do better in reading and arts when they are in a single gender classroom.					
9. I am worried that negative stereotypes can occur when boys and girls are separated by gender.					
10. I believe that minorities have a better chance of succeeding in a single gender setting.					

Appendix C

ALL BOYS		T3 ELAComp							Language Arts							Total Students Tested:	Total Points Possible:																			
Hennepin Elementary School		3.1.1.1	3.10.5.5	3.1.1.1	3.1.3.3	3.1.3.3	3.1.6.6	3.1.6.6	3.1.3.3	3.1.3.3	3.1.2.2	3.1.2.2	3.10.4.4	3.1.4.4	3.1.4.4	3.1.2.2	3.1.2.2	3.1.2.2	3.1.4.4	3.1.4.4	3.2.2.2	3.2.2.2	3.2.4.4	3.2.1.1	3.2.1.1	3.2.6.6	3.2.3.3	3.2.1.1	3.2.1.1	3.2.2.2	Total Points Possible:					
3rd Grade		B	A	A	A	C	D	B	B	C	C	A	A	B	A	C	C	A	A	B	C	B	A	D	A	B	D	A	D	B	B	34				
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	28	0.82			
2	0	1	1	1	1	1	0	0	0	1	1	0	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	24	0.71			
3	0	1	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	16	0.47			
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	32	0.94			
5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	24	0.71			
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	33	0.97			
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	33	0.97			
8	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	21	0.62			
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	30	0.88			
10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0.79			
11	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	0.76			
12	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	20	0.59			
13	0	1	1	0	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	0.53		
14	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0.79		
15	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0.79		
16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0.79		
17	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18	0.53		
18	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	0.35		
19	0	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0.59		
20	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25	0.74		
Total Answers Correct		13	20	20	17	13	14	9	20	18	10	17	21	20	18	15	15	16	17	16	14	10	20	12	10	17	17	5	15	10	10	13	15	18	20	AVG
Total Class AVG / Benchmark		0.62	0.95	0.95	0.81	0.62	0.67	0.43	0.95	0.86	0.48	0.81	1.00	0.95	0.86	0.71	0.71	0.76	0.81	0.76	0.67	0.48	0.95	0.57	0.48	0.81	0.81	0	1	0	1	1	1	1	0.72	

Appendix D

Grade	Girls		Boys		Mixed		Grade Total (minus sped)
1	8%		71%		20%	1%	101
2	24%		47%		8%	22%	139
3	10%		73%		3%	14%	93
4	19%		55%		1%	25%	163
K	6%	21%	29%	21%	6%	18%	72
5	29%	71%					28

Gender total	Female		Male	
	26%		74%	

Total for school		596
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