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The Emotional Effect of Same Sex Grouping

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THE EMOTIONAL EFFECT OF SAME SEX GROUPING

by

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

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To my parents, for being such amazing role models and the reason why I am so proud to have completed this journey.

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The research question addressed in this project was, how do gender roles affect the achievement of school-aged children? It documents one teachers research in her fifth grade classroom by creating a curriculum related challenge that students worked on in mixed gender groups and same gender groups. The author documents the details of the research literature review in order to analyze and validate the study. The action research portion included surveys that students responded to, asking them to reflect over their experience. In conclusion, the author describes both successes and struggles of working with mixed and same gender groups and concludes that: males and females rated their experience significantly higher when working with their same gender peers.

CHAPTER ONE

Introduction

My Experience

Growing up in a diverse Chicago-land suburb I learned a lot about myself at an early age. By no means was my upbringing challenging, but I knew that personally I needed to challenge myself to get where I wanted to be. My father, who immigrated to the United States from Poland at ten years old, has always been a role model of mine. While learning a new language in school, a new culture, a new set of rules, and how to navigate an entirely new learning experience, he was able to achieve a great deal. I received the passion and fire to learn from seeing him obtain all of his degrees while working full time. Both my parents worked full time, went to school to continue their education, and raised my brother and me. This led me to my initial wondering of what gender roles play in our life and how they help shape our path early on.

I can still remember back to my very first day of sixth grade. I had moved to a new school and was terrified to begin a new life where I would once again have to re-identify myself and figure out where I belonged. While this may not seem traumatic to many, to an emotional fun-loving sixth grader this was a big deal. I found myself wondering: what role will I play in my classes? And did I identify with the typical female role? I always had a love and passion for reading and writing and lacked confidence in other areas such as math and science. I walked into my first period math class on the

very first day and felt a sense of nervousness come over me, as I was about to learn more, complex math. Soon after beginning this class, I started to notice a change in my feelings around math. For the first time, math was enjoyable and that was a surprise. I did, however, quickly learn that if you wanted to take the math path you had to really prove yourself as there were many others who were interested in pursuing the math course in school as well. I felt shy and timid by the fact that I enjoyed going to this class and I was concerned that I would look too smart and not fit in. Looking back on this experience I know that I had some preconceived ideas of how females should look and act in their schooling career. I saw the males dominate my math and science class and while I, too, had a strong personality I often wonder if that played a role in where I am today.

After middle school I went on to continue my education in high school while maintaining fair grades and staying active in extracurricular activities. When it came time to choose my major for my undergraduate degree at Iowa State University I had a difficult decision to make. I always had a passion for learning and loved school so I was inclined to think teaching would be a great profession so I decided to go with that. Prior to my experience at Iowa State University I pondered all of the common first year college student questions: who would be in my classes, what type of professors would I have, and would I meet any friends? Upon entering my very first English class at Iowa State I noticed a theme as I looked around the room. The professors who were either in the program or helped to create/ run the program were predominately female, my counselor in the Education Department was a female, and roughly all of my peers were females except a few males. Once again I was faced with the realization that our gender roles play a factor in the majors we choose and roles we take on in life.

Gender Grouping in the Classroom

As a fifth grade teacher I feel as though it is my duty to ensure the love of learning to each and every one of my students. This may mean teaching a love of reading and writing, while for others it may mean teaching a love of being at school. Either way, I take personal responsibility for this happening in my classroom every single day. When I began teaching four years ago I knew I had the power to make a difference and really think about the gender roles we see and prescribe in the cultures of our schools.

At my school I knew I wanted to ensure that all female students felt as though they could participate and excel in the content areas of math and science just as much as the male students. For the past four years, I have taught upper elementary students ranging from fifth to sixth grade and I have managed to see and learn about preconceived ideas that are imprinted into our student's brains at a very early age. About two years ago, I had the most amazing opportunity to work amongst some veteran teachers who were also willing to learn and try new things in our efforts to discuss our findings related to gender. We were all having similar feelings that possibly our male and female students tended to act certain ways when working in groups with the opposite gender so we decided to dive into the gender role discussion and see what we could find. We pondered over what to focus on particularly and came up with: what roles do males and females play when working on a task in small groups with each other? We conducted a series of scientific and mathematical experiments and decided to group our students differently per experiment.

Grouping: A Success Story

We started with introducing the experiment: the students were to design and build a bridge that could hold the heaviest freestanding structure. Students were given a background lesson, asked questions and were then to begin the design process. The design process is something that we had been working on at great lengths in our classroom. Ultimately it allowed each student to follow a series of steps that involved planning, designing, testing, and modifying. Each teacher stayed with her homeroom students to discuss the initial responsibilities of the assignment and go over any concerns regarding their jobs. I could see the excitement and anticipation setting into their faces as they mapped out their strategies individually. In typical fifth grade fashion their initial response was, “who are we going to work with?” to which I informed them they were going to be split up: girls in one room and boys in the other. After setting the guidelines, we decided to get started and see what we could uncover.

Our Findings

During this experimental time of grouping our students by gender I was able to learn firsthand about the social and academic roles we take on in our society. For example, the females often felt like they had to listen to what the males were suggesting because their ideas weren't necessarily strong enough or they felt as though the dominating male figure took over the group and they were unable to share many of their opinions. The males, on the other hand, struggled with executing what they wanted to do. They were able to come up with an idea by talking amongst each other but the taking action portion seemed to fall by the wayside. I also noticed a distinct behavioral

difference. The boys' room was way louder than the girls as they were discussing what to do. The boys goofed off a little, talked about the assignment, and then continued to work while chatting amongst each other. At a couple points I had to ask the boys to quiet down and get back to work. In the girls' room there was constant chatter, but none that got loud enough we had to ask them to stop. As their teacher and facilitator during these activities I found myself reflecting over the questions: *what preconceived ideas of gender roles do we come into school with? And what roles are acquired throughout our educational experience?* In subjects such as math and science which are typically male dominated areas, what role do females see themselves playing and how does this affect their overall learning experience in school? For this particular group of fifth grade students I saw an immediate change when we decided to split up the classrooms by genders and have them conduct the same experiment. Their attitudes, work ethics, and intentions all changed from this simple maneuver. I noticed that no longer did either gender feel the need to over or under compensate for the other; they were simply working on the task with one goal in mind. Our intentions were good and what we got out of it was a deeper understanding of how boys and girls interact with each other when they are with like genders versus different. This allowed us to think about the roles we typically place on females and males in our classrooms, the groupings we typically make throughout the day, and the interaction we as teachers have with our males and female students.

What's Next

Over the course of my personal educational experience and my professional career I have learned a lot about gender roles and what they play in our day-to-day lives.

I remember growing up and feeling like my family wasn't the norm because my mother and father both worked full time and shared the duties around the home. I remember being in middle school and feeling timid and shy about the fact that I started to enjoy math and science in my middle school years, and I remember beginning my undergraduate degree and noticing the main gender present in all my classes. All these experiences have led me to understand and accept a status norm for females and males in our educational system.

As a teacher and leader in our community I hope to gain more educational research and discover more insights about gender roles and the what they play in our educational experience. I hope to gain insight into the early years of schooling and how our gender roles change throughout our experiences; particularly, what happens to shape our gender identity. In the following chapters my literature review and research plan will focus on the answering the following question: *how do gender roles affect achievement in school-aged children?* Throughout my research I hope to identify what practices play a part in shaping our gender roles in our classrooms and how we as teachers can help to break down gender role barriers.

CHAPTER TWO

Literature Review

The following literature review seeks to answer the question: *how do gender roles affect achievement in school-aged children?* The research will explore the history of gender roles in our society and what part they have played in education. It will also discuss the effect gender roles have on achievement, including motivations in the early years and beyond. Furthermore, the research will explain the impact gender roles have on the overall achievement of boys and girls in math and reading at an elementary level. The review will incorporate information from field experts that explain gender roles and the overall effect they have on our lives and achievement.

The History of Gender Roles

For many years, gender roles have played an important part in our everyday lives. They shape who we are and help us identify how we fit in the classroom and society. In 2013, of the 64,421,000 women 25 years or older who work in the labor force, 37.8% had a bachelor's degree or higher. This has not always been the case. Dating back to the 1970's, men were more likely to obtain a college degree than women (Meece, Glienke, Burg, 2006). Since 2003, for the first time in U.S. history, women are earning more college degrees than men and are excelling in particular fields such as psychology, accounting, and health related professions (Meece, Glienke, Burg, 2006). Considerable progress has been made; however, gender differences in achievement and employment

still remain prevalent. It was reported that more females at the high school level are enrolled in advanced math and science courses but they are also less likely to enjoy these courses (National Center for Education Statistics, 2004). Also, women continue to be underrepresented in certain areas of study such as engineering, computer and information science, physical science, as well as chemistry. Women are also earning less than half of the degrees in male dominated areas such as business, law, dentistry, and medicine (Meece, Glienke, Burg, 2006). As for reading and writing, we have seen little progress in changing the gender gaps that have existed for over 30 years. Based on the National Assessment of Education Progress, it was noted that girls outperform boys in reading (NCES, 2004) and furthermore, when we examine achievement patterns by socioeconomic status, ethnicity, and geographic location you can observe significant disparities in students' over all achievement and participation across different groups (Meece, Glienke, Burg, 2006). From birth, children and their parents are instructed to act a certain way towards the child based on their gender. From the moment a mother finds out the sex of her child, certain norms and expectations are placed on that relationship which often contributes to the gender roles we take on.

Even before a child is born, gender roles and gender socialization are being acknowledged and put into effect. When a mother chooses to confirm the sex of the child before they are born, she already modifies how she feels and acts around the unborn child, simply based on the reveal of its gender (Zosuls, Miller, Ruber, Martin & Fabes, 2011). The concern is often that, without realizing it, we modify the questions we ask, tone we use, and ways we react to our children possibly based on their gender at an early age. "How early do children learn to identify themselves and others as males or females,

and what are the consequences of learning to discriminate and label gender. At what point in development do girls and boys begin to diverge in their behaviors and interests, and why do these gender differences emerge? When do children develop a sense of male privileged status and when do they form negative attitudes about the other sex?" (Zosuls, Miller, Ruber, Martin & Fabes, 2011, p. 826).

Development scientists have reviewed the how and why behind behaviors as they emerge and change over time. They took a look at how early children learn to identify as females or males and what the repercussions are of learning to discriminate and label by gender. Also, they studied the time in development that boys and girls begin to understand and reveal their interests and behaviors and why these gender differences then emerge to the surface (Zosuls, Miller, Ruber, Martin & Fabes, 2011). According to Meece, Glienke & Burg, gender differences exist with ways that children and adults interpret their failures and successes in life (2006). Leibham, Alexander & Johnson found that by the age of four children have developed a sense of individual interest (2013). This is the case because it is the age when they display attention and memory capabilities in order to sustain and stay focused in an activity for a period of time, therefore retaining knowledge about the object of interest (Leibham, Alexander & Johnson, 2013). Furthermore, children begin to develop an understanding of their attributes, abilities, and values early on in childhood (Leibham, Alexander, Johnson, 2013). According to Leibham, Alexander, and Johnson, self- concept is a multidimensional concept that reflects your own perceptions all relative to different domains such as social, cognitive, and physical activities. It is not tied to a child's specific task, where self-efficacy can often be. A child might enjoy and have a positive math self-concept, but have low self-

efficacy for a recently learned math task. Clearly, the role we play based on our gender is formed at a very early age (2013). All of these questions serve as reminders of all of the influence and complex occurrences in life that help to shape our gender identities and create our gender differences with the opposite sex.

Previous research shares the idea of motivations amongst different genders and how that affects their success in the life. Motivation often pertains to the idea behind why we act a certain way and a general desire to do or not do something. In 2006, Meece, Glienke, and Burg took a look at the achievement motivations of men and women and how they play into success for the individual. A thematic apperception test, which is a projective test designed to reveal a person's social drives or need by their interpretation of a series of pictures, was used to obtain information of achievement motives in college men and women. The test depicted men and women in different situations and the participant was asked to then describe the picture. The male students were shown pictures of two different men. One picture depicted a man at a machine and the other picture of a man at a drafting table. The female students were shown two different pictures as well. One of the pictures depicted a woman in a laboratory while the other picture of a woman upholstering a chair. The idea behind the test was that people would project their individual motives and desires into the pictures and stories they imagined. Highly success oriented people wrote stories that naturally included a significant amount of achievement imagery. It was found that in general, college men responded with more achievement imagery than their female counterparts (2006). In the research it was concluded that women are less success oriented than men (Meece, Glienke & Burg, 2006). Rentzsch, Schutz & Schorder found that effort mattered when looking at overall

achievement and motivation. According to Juvonen and Murdock, showing effort in school can lead to better relationships with adults who appreciate effort and good grades (Rentzsch, Schutz & Schorder, 2011). Furthermore, several studies have shown that interest in the task is important for enjoyment and persistence in the low to moderate challenge portion. When children choose to continue reading a text and stick with it, they report greater interest and enjoyment in the overall task of actual reading. According to Fulmer & Fritjters, it is important to remember that student engagement in reading and overall tasks can be triggered by motivational resources. This includes everything from personal interests, enjoyment of the activity, and the ability to make choices about their reading (Reeve, 2009).

The expectancy- value model of motivation, which predicts that both social and personal variables contribute to one's motivation in gender typed domains, was also used to investigate the processes related to girls' motivation in science, math, and English. According to the expectancy value model, it was found that individuals are motivated to excel in content areas that they are expected to succeed in. Other factors that contribute to one's success in these subjects are other people's perceptions of gender roles and how we act around certain genders in these different subjects. A lot of the expectations for success reflect the persons' belief in their particular ability to do well in that subject as well other people's beliefs helped to influence and motivate the individual (Leaper, Farkas & Brown, 2012). All in all, these factors contribute to an individual's expectancies for valuing and being successful in a particular subject domain (Leaper, Farkas & Brown, 2012). According to Robinson & Lubienski, females tend to be rated as more knowledgeable than their male counterparts by their teachers. Teachers often

view males as more mathematically talented and the confidence the teacher has or does not have in the female plays an important factor in shaping a girls' confidence in math (Robinson, Lubienski, 2011). According to Meece, Glienke & Burg, it was found that women were more likely to exhibit a low expectancy attribution pattern, which therefore resulted in their achievement behavior suffering (2006). For example, in mathematics, girls were found less likely than boys to attribute their success to their own personal ability; instead they attribute it to effort and hard work. This could possibly undermine their achievements and stand in the way of them pursuing these fields later on (Meece, Glienke, Burg, 2006).

In the 1960's to the 1970's many discussions began to happen on the white male bias and the certain psychological social features of a woman. In 1972, Money and Ehrhardt's book, *Man and Woman, Boy and Girl*, a theory was born about gender identity and gender differences. Gender identity refers to a person's inner feelings and identification as a man, woman or some other gender. However, the belief about themselves may not necessarily align with the gender given to them at birth (Human Rights Campaign, 1972). Self-perceived gender is typically related to academic motivation as well. Leaper, Farkas and Brown found that gender typically was negatively related to the undergraduate men's ability beliefs and possible interest in the non- expected fields such as reading and writing (2012). Research was done with different gender patients and conclusions were drawn that social factors were possibly more predominant than biological factors when shaping your gender identity (2011). Our social features growing up have been understandably a large portion of shaping who we are as individuals. It contributes to our interests, academic expectations, sporting options,

and many more things. The connection between a person's gender identity and their social factors play a large impactful role in the making of his or her identity. A model of gender identity was proposed by Perry, Egan, and Tobin in 2010. This model included three dimensions of gender identity: gender contentedness, gender typicality, and felt pressure for gender-role conformity (Leaper, Farkas & Brown, 2012). Gender contentedness was first thought of as contentment with one's biological sex; however, it is often seen more as the ability to measure one's satisfaction with their current gender role. Self-perceived gender typically refers to the degree a girl considers herself similar to the other girls. It is a social comparison to your peers and it may in fact relate to academic motivation. Finally, felt pressure to gender role conformity is the degree that girls experience pressure from peers and parents to conform to the traditional female stereotypical roles and behaviors (Leaper, Farkas & Brown, 2012). Leaper, Farkas & Brown also found that perceived peers' attitudes towards certain academic subjects could be related to an individual's motivation (2012). Furthermore, social influences including positive feedback that girls receive may affect the girls' ability to do well in science, technology, engineering, and math and non-STEM subjects. Encouragement of science achievement from a parent and or peers is related to more achievement in areas such as science and math as well as an imagination of a future as a scientist of some sort (Leaper, Farkas & Brown, 2012).

With Title IX of the 1972 Education Amendments Act, a law was put into place as the women's movement continued on. This law stated that no person should be excluded from participation in or be discriminated against in an education program receiving federal financial assistance based on their sex. While this law is often known

for its connection to sports, it goes well beyond that in its impact with women rights. No longer was it acceptable to discriminate against women and allow them to not receive an equal and adequate education in alignment with men (Banks & Banks, 2010). Title IX also referred to sex discrimination in employment practices, making sure that women were covered for interviewing and recruitment purposes, as well as hiring, promotion, compensation, job assignments, and benefits (Banks & Banks, 2010). Before this act women's rights were overwhelmingly subpar to men. Women were allowed to attend school in the 1970's even though they were still gender segregated. They often received a softer education without the same rigor and expectations. Some critics of the act believe that it is no longer needed and that gender bias has in fact been eliminated (Banks, 2010, p.140).

In the 1970's and 1980's, textbook companies and professional associations were given guidelines to promote non-sexist or racist books. These were designed to give ideas as to how to equally portray the different individuals in their curriculum. According to Banks, current elementary and high school social studies textbooks have five times more male than female stories included in their text. Furthermore, after Banks & Banks viewed the thirteen elementary curriculum guide textbooks, they found that male characters outnumbered females two to one. Also, the roles that these male and female characters take on were noted to portray a strong sense of male dominance. In a particular fifth grade book there was a significant account of male aggressiveness that gave its readers an idea of what a typical male gender role may have look like and continues to look like (Banks & Banks, 2010). Furthermore, according to Banks & Banks, these descriptions are often reinforced by award winning popular children's books

that are read daily in the classroom or nightly at home. A study of 200 children's books which were American Library Association award winners, Caldecott selections, and top selling children's picture books showed that their children's tales tell twice as many male centered tales than females (2010). The illustrations even depicted fifty percent more males and while female characters sometimes appeared in roles such as doctors, lawyers, and scientists, they were given traditional jobs ten times more often than nontraditional ones (Banks & Banks, 2010). Crocco suggests that we encourage students to discuss and understand different themes, events, concepts, and issues from different perspectives. Allowing students to talk about the issues they see in the textbooks can allow for them to identify the gender problems that exist and solve them (2001). Also, teachers can help students detect gender bias in the classroom by helping them to identify it. Learning the different forms of bias, outside of gender bias, can help students to become critical readers, thinkers, and develop a useful reading skill (Banks & Banks, 2010).

Banks & Banks also discuss disruptive classroom behavior and how boys are often envisioned as the troublemakers in the room. As a society we often stereotype boys as being aggressive individuals. In fact, Banks & Banks found that boys often have lower school achievement than girls, are over diagnosed with special education services and have a tougher time adapting to socialization with other boys because of the expectations placed on them (2010). The management approach of many teachers is often to control the boys because they are more physically aggressive than girls and harder to control (Banks & Banks, p.147). Crocco states that part of the process of socializing boys into men promotes distinct virtues of an aggressor and toughness (2001). Also, parents are often afraid that if they alienate their male child from the culture of

competition, masculinity, and sports, he will be subjected to ridicule and shame (2001). Rentzsch, Schutz & Schroder found that competition is more prevalent in boys than girls. Also, self-esteem management, which is the comparison of achievements to self and others, is increasingly more significant in males than females. Furthermore, when looking at high achieving students, boys found it more damaging to their image to be high achieving than the females did. In addition, the reaction high achieving boys get from other boys is different than what high achieving girls get from other girls in the classroom (Rentzsch, Schutz & Schroder, 2011). According to Rentz, Schutz & Schroder, effort, modesty, sports, and sociability can all be looked at in relating to self-esteem and classroom behaviors (2011). Students in the eighth grade revealed that successful students were less popular if they had high ability and showed low effort. Additionally, students avoid attributions to high effort if that means they will have to explain their reasons of success to their classmates (Rentzsch, Schutz & Schroder, 2011). When looking at modesty students were often found to be modest about their successes in order to be liked more. Sports and sociability also played a part in how peers reacted to students in the classroom. Those who participate in extracurricular activities, specifically sports, were found to have more academic brilliance according to their peers. In addition, students who socialize more were evaluated more positively than their more withdrawn peers (Rentzsch, Schutz & Schroder, 2011). Having peers react differently to you based on your achievement in school can resonate with children early on and stick with them. Ultimately this assists in creating and cementing gender roles in our minds, even at an early age.

Gender Roles throughout the Years

Transitioning from preschool to elementary school brings a lot of change in our development of interests and gender roles. Children in preschool have fewer limitations to their developing interests compared to later on in their academic career. Preschoolers have more opportunities to self-select the materials and things they engage with, whereas in elementary school students must adhere to schedules and assignments given by the classroom context being studied (Leibham, Alexander, Johnson, 2013). Different studies have concluded that by the time students reach middle school it is typical that boys and girls will have very different experiences in the science classroom. Even furthering that debate, Mantzicopoulos & Patrick determined that by the time children are in kindergarten boys have read more books related to science than girls (Leibham, Alexander, Johnson, 2013). As the years progress the interests of different genders in science seem to differ. Girls maintain an interest in health related topics such as animals and biology while boys maintain more of an interest in technology and X-rays (Leibham, Alexander, Johnson, 2013). Children start to develop interests in the early ages as young as preschool. DeLoache, Simcock, and Macari and Johnson, Alexander, Spencer, Leibham, and Neitzel (2013) all report that preschool aged children often have conversation around their objects of interest. They tend to spend more time engaged with the area and domains that specifically interest them from a young age. Children understand that they have different interests and have a tendency to want to be around those things and interact with them more frequently than others. Likewise, in the classroom students have different academic interests, which continue to develop throughout their formal education.

When Leahey and Guo decided to take a look at gender differences they used curvilinear growth models to look at the differences in mathematics. Curvilinear growth models are used to show patterns of change and growth at an individual level. They discovered that larger gaps did not in fact occur until the later years in high school (Mullis et al, 2000a). In 1995 the Trends in International Mathematics and Science Study (TIMSS) conducted a sample of more than 20,000 students from around 200 different schools. It was determined that on average boys outperformed girls in specific content areas such as math and science. However, there was not a great difference between math achievement amongst boys and girls in the fourth, eighth, and twelfth grades. (Mullis et al, 2000a).

Schools are often a place where gender roles are developed. Crocco discusses that, as the years go on, people begin to determine what it means to be male and female while attending school. She asks that we take a look at the pictures of maleness and femaleness we have displayed in the school and assess how they contribute to the overall feel and climate of the environment. We must really look at the messages we send to our school culture and how they are perceived (Crocco, 2001). School cultures can have an effect on the way females and males initially see themselves and therefore play a role in the shaping of their identity. The dominant view of male identity often highlights traits such as tough, aggressive, rational, aggressive, and intelligent. On the other hand, women are often portrayed as weak, caring, frightened, passive, dependent, and stupid. If male students often see themselves being portrayed as the aggressor, what message is that sending? If females see themselves as dependent, passive, and frightened what role are they more likely to take on (Crocco, 2001)?

Gender role stereotypes and the endorsement of them in the home or at school can be detrimental to the overall development of human beings. Crocco's study discusses the importance of understanding the messages that are given off about male dominance and male and female roles in our school cultures. It asks us to take a look at the way male football coaches speak to their players and how that is perceived throughout the school. Because gender roles are being developed in our school it is important that we as teachers grapple and understand our role in developing gender identity in the schools (Crocco, 2001). Furthermore, Crocco offers some tips to help understand gender identity and roles throughout the social studies curriculum in schools. Social studies educators should address three important elements in their teachings: critiquing the sometimes self-destructive gendered scripts our society provides for both young men and women, challenging the unwritten curriculum of schooling that normalizes male- dominant, misogynistic and homophobic patterns of males and females interaction, and ending the anti-gay bias that results in high levels of absenteeism, drop outs, and suicide for gay youth (Crocco, p. 66, 2001). When students absorb the messages they observe in their school cultures that can lead to preconceived ideas of what their role is with their specific gender.

Banks & Banks offer some suggestions for creating a gender fair classroom. If textbooks given to you are biased, confront that and do not ignore it. They also suggest discussing the bias that exists with your students so that they can be involved in the conversation. Another suggestion is to ask your students to list famous men and women and then discuss if they have an equal number of men and women listed. If not, discuss how we may be more susceptible to write down females or males and what we can do to

learn more about those other individuals. In addition, analyzing your seating chart can be powerful. Look for gender segregation in the classroom and help to monitor and change your grouping and promotion of equitable participation. Finally, do not tolerate harmful words against either gender in the classroom. The teacher should model and be the norm setter and therefore not tolerate any prejudice against a specific gender or group (Banks & Banks, 2010). All of these simple tasks can be done to eliminate gender stereotyping and help to create a more equitable classroom.

Gender Roles Effect on Achievement in Elementary School: Math

It is very clear that students in school struggle with many different social factors, but males and females greatly differ in the factors that specifically affect them academically in the classroom. A study performed by Zittleman in 2007 found that of more than 400 middle school children, different issues were noted for males versus females.

The topics that were found prevalent in males were the following:

- fighting
- poor grades
- fear of homophobia
- difficulty with friends (Banks & Banks, 2010).

Furthermore, the topics that were found prevalent in women were the following:

- gossiping
- friendship issues

- not being able to trust friends was on the top of their list (Banks & Banks, 2010).

Furthermore, it was noted that females deliberately chose to take simpler courses, perform poorly on tests and assignments, and act dumb in order to gain popularity in school (Banks & Banks, 2010).

The idea that our schools might be short changing one gender over another has caused much debate in the academic world. While it is clear that socially males and females have different fears in the elementary grades, it is difficult to understand if gender affects the overall long-term achievement of a child. According to the NAEP, in 1973, the gender gap in 17 year olds showed that males outperformed their female peers. Since the 1970's the NAEP has shown small disparities in math performance amongst males and females (Robinson & Lubienski, 2011). Gaps in students' math achievement have been found to increase in kindergarten to third grade. According to Leaper, Farkas & Brown, this only continues on throughout life even into doctoral degree program. Also, in recent years, it was noted that of the doctoral degrees awarded in the U.S., women only accounted for 27% in math, 15% in physics, 20% in computer science, and 18% in engineering (2012).

Data taken from the Program for International Student Assessment (PISA) in 2000 showed that there was no overall mean difference in math achievement between boys and girls (fifteen years old) in the U.S. It did, however, find that gender gaps were present at the school aged level. Girl's performance exceeded boys in some schools but not in all (Cheema & Galluzzo, 2013). Other factors such as race and socio economic status were not taken into account, possibly slightly altering the data. Also, it failed to acknowledge variables such as math anxiety and self-efficacy, also known as self-esteem.

When Cheema & Galluzzo tested the gender gap in achievement they found the results were in fact mixed (2013). The analysis of variance results showed a small but significant gender achievement gap in math, which was taken from large scale tests such as National Assessment of Educational Progress and the TIMSS. When other demographics were introduced the gap was still in fact present. On the other hand, the Trend in International Mathematics and Science Study of 1995 included more than 20,000 students from about 200 US schools and concluded that boys occasionally outperformed their girl peers in some content areas, but overall there were no significant differences in math achievement in fourth, eighth, and twelfth grade (Cheema & Galluzzo, 2013).

However, it was reported that when anxiety and self-efficacy were present, the gap disappeared. Math anxiety was tested based on five items that assessed student feelings of helplessness and emotional stress when they were given different mathematical tasks. A sample question included, ‘thinking about studying mathematics: to what extent do you agree with the following statements: I get very tense when I have to do math homework’ (Cheema & Galluzzo, 2013, p. 103). Math self-efficacy measured student confidence in tackling simple math problems anywhere from solving basic linear equations to computing percentages. A sample question included: ‘How confident do you feel about having to do the following calculations?’ (Cheema & Galluzzo, 2013, p. 103). Where the achievement gap still existed it seemed as though it was small and did not correlate with math achievement. They ultimately found that if we control the other demographic factors, math specific characteristics such as self-efficacy and anxiety, students then perform equally well regardless of their gender. The idea that many

previous studies did not control other variables when testing the gender gap in achievement may have been a reason for different results (Cheema & Galluzzo, 2013).

According to Leaper, Farkas & Brown, girls tend to do as well as their male peers in the science and math in the early grades, but boys score higher in ability beliefs and value regarding math and science content areas (2012). We can assume that gender related differences in motivation specifically predict differences in academic achievement later on, serving as a key factor in achievement (Leaper, Farkas & Brown, 2012). Math, science and English have typically been masculine or feminine stereotyped subjects, which also leads to differences in gender motivation and achievement in these content areas. Girls may be less content with excelling in math and science, which is typically a male dominated subject. Females have a stronger motivation towards English, which is considered a female dominated content area and follows the more traditional gender role (Leaper, Farkas & Brown, 2012). When observing all of the different factors it is clear to see a gender gap does exist in the content area of math and overall achievement. While it may not be so present early on in our years, it widens and becomes more prevalent as our schooling career continues.

Gender Roles Effect on Achievement in Elementary School: Reading

While the gender gap in achievement has been notably greater in the content area of math, it can also be found in the subject of reading. It is often feared that gender differences in reading and other important social factors pertaining to the achievement gap may go unnoticed in the United States (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014). In 1961, Gates found that females in second through eighth grade out

performed males in reading. Furthermore, this gap has continued to maintain itself over the years without increasing or decreasing much. According to Denton and West, gender discrepancies in Early Childhood Longitudinal Program- kindergarten begin in the first grade where females are noted to be slightly more proficient than men (Robinson & Lubienski, 2011). In fact, gender gaps in reading tend to be larger and more common all over the world. Some think that the gap from kindergarten through third grade could be attributed to the notion that boys mature and grow at a slower rate than girls', however, the gaps do not seem to narrow over periods of time (Robinson & Lubienski, 2011). Robinson and Lubienski found that from kindergarten through fifth grade the gap shrinks when looking at standardized test scores, but it in fact widens according to the scale scores. In the fall kindergarten year the 10th and 90th percentiles of females have an advantage of around 0.12% over their male peers (2011).

According to the Program for International Student Assessment, an international survey of achievement of 15-years olds around the world in a three-year cycle, it was found that there were significant gender differences in favor of girls in reading in 65 countries. The study noted significant changes in Korea where the results more than doubled from 2000 to 2009. On the other hand, the scores dropped slightly in the United States from 29% to 25% over that same period of time. In addition, a PISA 2009 further optional test of digital literacy was given to nineteen different countries. The findings noted that girls performed significantly higher than the boys on the electronic reading portion in 18 of 19 countries. They did find that the Organization for Economic Co-operation and Development average difference in favor of girls for online reading was 25 points, compared with an average difference of 39 points in print reading. In Korea the

difference was 18 points (digital) to 35 points (print reading) (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014). Reading engagement was found to be one of the strongest links to performance in overall reading.

It is also important to consider how reading performance is defined and measured for all countries. PISA 2009 used a student questionnaire that attempted to gather data regarding three different aspects of reading engagement: enjoyment of reading, overall time spent reading for enjoyment, and the diversity of texts that were read. As for enjoyment of reading, the girls had significantly higher ratings than the boys, particularly in Finland and Germany (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014). According to Wolters, Denton, York & Francis, motivation has been studied as one factor that impacts students' ability to learn to read, reading engagement, and ultimately reading comprehension (2015). In fact, young students self-reported motivational beliefs and interests were shown to predict their over engagement in reading, time spent reading, level of reading comprehension and reading grades (Wolters, Denton, York & Francis, 2015). Furthermore, looking at the overall time spent reading for enjoyment, females also scored higher by 22 percentage points in the United States (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014). In the United States it was also pointed out that the diversity of reading material amongst girls was much greater; however, girls and boys lacked diversity in print reading alone (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014). In the subject of reading, Robinson and Lubienski found that, females begin school ahead of their male peers, however, males at the top of the distribution grow at least as much as females. On the other hand, males in the lowest distribution fall way behind their female peers (Robinson, Lubienski, 2011). Therefore, it was concluded that

we need to focus more time on our low achieving males in elementary and middle school so that we can get them caught up with their female counterparts and continue to grow. While there is not one particular factor that contributes to this gender gap, it is clear to see that there is in fact a definite gender gap between males and females in our elementary schools.

Wolters, Denton, York & Francis found that adolescent girls tend to have greater self-efficacy and confidence in their reading abilities when compared to adolescent boys (2015). Also, throughout childhood and beyond, girls tend to report greater enjoyment, curiosity, involvement, and other intrinsic motivators that show a value for reading than boys do. They even reported that girls often find more enjoyment when reading with a parent, talking with friends about reading, and engaging in social activities around reading (Wolters, Denton, York & Francis, 2015). This could leave one wondering what factors motivate females to become lifelong readers and have an overall greater enjoyment level with reading and all activities related to reading.

Based on the Program for International Student Assessment 2009 study the researches presented some next steps to conquering the gender gap in reading.

- Support wide and regular readings of a variety of texts related to boys' individual interest: it has been reported that students who read a variety of material such as fiction, nonfiction, magazines, newspaper, and other print sources have the highest level of achievement and engagement (Brozo, Sulkunen, Shiel, Garbe Pandian, & Valtin, 2014).

- Support boys' use of digital texts and alternative media: boys' interest in new media and digital texts can be used to help build literacy skills.
- Involve fathers and other adult male role models in programs for boys: a positive relationship between student performance and the presence of a father at home was found in the PISA study. In addition, role models who are matched by gender and culture often produced the most promising results.
- Focus on practices for boys that promote reading engagement: boys who are engaged readers can make up for risk factors elsewhere in their lives, so ensuring and maintaining a passion for reading should always be a goal.
- Set priorities for addressing the literacy needs of boys: targeting resources and efforts to help support the neediest of all the groups in the youth years can be very impactful on personal and economic well-being (2009).

With the help of all these suggestions we can reduce the gender gap in reading in our classroom. Specifically, we can assist in the effect that gender roles has on our overall reading achievement in our schools.

Summary

Gender roles play a clear and evident part in achievement in elementary schools. In chapter three I will look to test and discover the gender differences in the classroom in content areas, specifically math and reading. This will be done by conducting a series of experiments using different reading material and mathematical materials that will link

together as a unit of study. This will serve to answer my research question: *how do gender roles affect achievement in school-aged children?*

CHAPTER THREE

Methods

My literature review provided research in gender roles and how they play a part in education. It also identified the effect gender roles have on achievement, including motivation in the early years and beyond. Furthermore, it discussed the impact gender roles have on the overall achievement of boys and girls in math and reading at the elementary level. In this chapter I will discuss my action research methods in which I will organize an activity using math, science, and reading with same gender groups and then again with mixed gender groups. A survey will be given to students after each grouping. This action research project is designed to address the following research question: *how do gender roles affect achievement in school-aged children?*

Research Setting and Subjects

The following action research plan took place in a suburban elementary school in Minnesota. The student make up is 43% white, 21% Asian, 17% Black or African American, and 8% Hispanic or Latino. Over 40 languages are also spoken at this school and a wide range of English Language Learners are serviced. While the school serves students in grades kindergarten through sixth, this particular research was done in a fifth grade classroom. For the 2015-2016 school year the demographic of the classroom was fifteen boys and ten girls. All students in the classroom were given the opportunity to participate in this action research portion. Twenty-five families signed the consent form

to participate while no families chose to opt out. The research took place in the month of October and lasted a total of three days.

Rationale and Relevance of Research Plan

Based on the research that was found in chapter two, it is clear to see that a gender gap does exist in the achievement of elementary aged children. According to the National Assessment of Educational Progress, in 1973, the gender gap in math for 17 year olds was at an eight-point difference ruling in the male's favor. Since the 1970's NAEP has shown little to no changes in males and females performance in math (Robinson & Lubienksi, 2011). According to Denton and West gender discrepancies begin in first grade where females were found to be slightly more proficient than males in reading (Robinson & Lubienski, 2011).

Contributing to this is the gender perceptions that exist in the classrooms today. According to Banks & Banks it should be noted that the gender nature of classroom interactions are often subtle and even ignored (2010). Without even realizing it, gender roles are dominating the classroom, whether it is boys taking over the group, being over diagnosed in special education services, or having more frequent disciplinary problems. On the other hand, girls tend to receive higher report card grades while their self-esteem actually plummets throughout their educational years (Banks & Banks, 2010). The need for gender- fair classrooms is a great one.

The sources in the literature review also included much research on how gender roles form and what part they play in achievement throughout life. Gender roles are often developed and nurtured at school. Crocco found that as the school years went on, people

began to determine what it meant to be male and female (2001). Also, understanding the relationship between how males and females are portrayed in a school setting and how that aids in shaping one's identity is pertinent to understanding gender roles in our schools (Crocco, 2001). Leaper, Farkas & Brown found that a lot of the expectations for success reflected a person's belief in their ability to do well in subjects. In addition, other people's beliefs helped to influence and motivate the individual (2012). Teachers, peers, and parents play a role in the motivation and achievement of boys and girls in school. While this research focused heavily on the part gender roles play in the classroom, the purpose of this action research plan was to identify the differences in achievement and the emotional effect that occurs when children are grouped with their same gender and opposite gender.

Research Design and Methods

In the fall of the 2015-2016 school year the teacher conducted her experiment in her fifth grade classroom. Before this could happen a couple of steps needed to be taken. First, a permission letter for parents was developed and sent home at the beginning of the year (see Appendix 3). This was done in order to highlight the Gender Study that was conducted in the classroom. It included a brief explanation of the two studies taking place and the survey students would be asked to respond to. The study took place in October and parents were given the exact dates. A week after families received the letter, the teacher contacted any parents/ families that had not responded, in order to try and get permission from them, or answer any questions they may have.

The group science, technology, engineering, and math (STEM) activity took place in a 45-minute block on two separate days. The first day students in the fifth grade classroom were put into same-gender groups where they were expected to work on a mathematical activity that involved reading, speaking, listening, and designing. The teacher assigned the groups on both days, eliminating any bias students may have towards each other. After the work on day one was completed, The Group Work Experience Survey was given to students to talk about their experiences in the group (see Appendix 1). The survey served as an opportunity for the teacher to reflect on the student's reactions after working with same and different gender groups. It asked questions about their feelings, how effective the group was, who took on which roles in the group, and what they would change if they could. On the second day students worked on the same activity in different gender groups and completed the same survey again. Finally, after students worked with both groups on two different days, they responded to the Overall Experience Survey (see Appendix 2) in order to compare the two different experiences. Students were not made aware that the teacher was looking for gender differences in achievement. The teacher monitored if the gender groups affected the achievement and ability to complete the assignment correctly. The results of the surveys will be shared in chapter 4.

CHAPTER FOUR

Results

For the 2015-2016 school year twenty-five fifth grade students were enrolled in a west suburban school in Minnesota. All students were asked to participate in a study of gender roles by completing a total of three surveys; the questionnaire after completing the activity with mixed gender groups and same gender groups, and then a questionnaire about the overall experience at the end of the two days. Of the twenty-five families, all chose to have their child participate in the gender study. However, completed surveys range from 23 students to 25 depending on whether students were present to participate during the investigation. Data from the student surveys is included in this chapter and serves to address the research question: *how do gender roles affect achievement in school-aged children?*

Background of the Investigation

Students in the fifth grade class were given the following STEM challenge: work cooperatively with your group to construct the tallest freestanding structure with a marshmallow on top. The materials that were given were twenty pieces of uncooked spaghetti, unlimited string, and unlimited tape. Students completed the activity once on a Thursday and then again on a Friday. The first day students worked in mixed gender groups and were given thirty-five minutes to complete the task. On the second day students worked in same gender groups and were also given thirty-five minutes to

complete the task. Students who participated took The Group Work Experience Survey after they worked with mixed gender groups on day one. They were asked to describe their experiences working in that particular group by completing a series of questions ranging from open response to true or false. After day two was completed students were asked to complete the same Group Work Experience Survey about their experiences working in their same gender group. Finally, after both challenges were completed, students were asked to complete the Overall Experience Survey reflecting over their two different experiences. The STEM challenge did not change, but the groups students worked with did.

The class dynamic was made up of 15 males and 10 females. While students did not write their names on the surveys they did circle if they were male or female in order to analyze the findings. All students responded to the surveys if they were present on that day. However, some students chose to not respond to specific questions located on the surveys.

Group Work Experience Survey: Mixed Gender Groups

Question 1: After working today please explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group.

Males

Positive	Neutral	Negative
62%	8%	30%

Females

Positive	Neutral	Negative
70%	10%	20%

Results were decided and categorized based on the words used in student's explanations. Those who used words such as: it was great, we worked well, or anything that expressed happiness with their work time, were categorized in the positive column. Those that expressed negative words such as: it was not good and I feel sad about our work time were categorized in the negative column. Furthermore, those that did not express feelings one way or another and used words such as: it was okay and I feel fine were categorized in the neutral column.

Question 2: Talk about how effective your group work was. Give specific examples.

Males

Effective	Neutral	Not Effective
54%	8%	38%

Females

Effective	Neutral	Not Effective
60%	10%	30%

Half or more of both males and females felt as though their group work was effective while about 30-38% of students felt that their groups were not effective. While, 54-60% of males and females noted that their groups were effective when working on the task. In the male's responses it was frequently noted some of their female group mates were 'loud and hogged' all of the parts. Statements such as: "I think one person hogged it in the beginning and they were being loud and demanding" were found in male surveys. Females noted what specific roles each of their group mates did and made statements such as: "Our group worked well together even if we did not win." It can be

concluded that overall a little more than half of the male and female students felt their mixed gender groups were effective.

Question 3: True or False: I felt like I was valued in the group and my opinions/ ideas were used in the investigation.

Males		Females	
True	False	True	False
69%	31%	70%	30%

Of the students surveyed, 70% of females and 69% of males felt that their opinions and ideas were valued while working in a mixed gender group. One of the females responded with, “True, the first thing we tried wasn’t my idea but we did some of my other ideas.” It seemed that the females were content with “some” or “one” of their ideas being used and that resulted in them feeling valued. On the other hand, some groups did not seem to value each other’s opinions and the student’s perceptions seemed to be different. Of the 31% of males that did not feel valued, one stated, “ False, it was everybody for themselves in my group!” Overall, it can be concluded that males and females felt valued in their mixed gender group more often than not.

The following is a list of the highest rated survey responses by males to the lowest rated survey responses by males (after day one):

- 1 I felt like I was valued in the group and my ideas/ opinions were used in the investigation.
- 2 After working in group one explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group.

- 3 Talk about how effective your group work was. Give specific examples.

The following is a list of the highest rated survey responses by females to the lowest rated survey responses by females (after day one):

- 1 After working in group one explain how you are feeling. Tell how you felt after working in the group and how you felt after finishing your work time with this group.
- 2 I felt like I was valued in the group and my ideas/ opinions were used in the investigation.
- 3 Talk about how effective your group work was. Give specific examples.

Group Work Experience Survey: Same Gender Groups

Students completed the same STEM challenge and were asked to respond to the same questions. While it should be taken into consideration that because students already completed this challenge once before that may affect the results, many students mentioned they did not bring much prior knowledge to how they worked with their group. They brought only prior knowledge of the task and what was expected of them.

Question 1: After working today please explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group.

Males

Positive	Neutral	Negative
100%	0%	0%

Females

Positive	Neutral	Negative
80%	10%	10%

Compared to the previous day when students worked in mixed gender groups, it is clear to see both males and females had a more positive experience when working with their same gender peers. The male's responses were considerably higher from 62% on day one to 100% of their experience being positive on day two. Typical words that were found on the male student's surveys were: "I am feeling amazing!" and "I felt good about this group." The female students were also strongly positive about their experience, but 10% were neutral to their experience and 10% felt it did not go well. Typical words used on the female's surveys were: awesome, great, and feeling successful to demonstrate their positive experience. On the other hand, some girls noted they felt kind of sad because their model did not turn out and that they were frustrated because some girls kept touching the tower and messing around. A conclusion can be made that both males and females felt positive more often than not after working in a group with their same gender peers.

Question 2: Talk about how effective your group work was. Give specific examples.

Males

Effective	Neutral	Not Effective
83%	17%	0%

The boys offered specific examples to show their group was effective by stating things such as: "Our group was slow, but we got it done." and, "I think it was very good because everyone was calm." It is also important to note that none of the males found this group to be not effective. They all either felt it was an effective group experience or were indifferent about the overall time they spent with this group. This is compared to 38% of them not thinking their group was effective when they were with mixed genders.

It can be concluded that more than half of the male students felt that their group time with their same gender peers was effective and they completed what was expected of them.

Females

Effective	Neutral	Not Effective
90%	0%	10%

Compared to their previous experience the girls also noted this to be a very effective group. The girls stated things such as, “it was fun and everyone was getting along” and “we worked together like a team.” Multiple surveys talked about how they felt good after this experience and felt like they all got a chance to work on the tower. One girl felt it was not an effective experience because they did not accomplish the task. She chose to reflect solely on completing the task rather than how she felt. A conclusion can be made that more often than not the female students felt their group was effective in working together when working with other female students.

Question 5: True or False: I felt like I was valued in the group and my opinions/ ideas were used in the investigation.

Males

True	False
100%	0%

Females

True	False
80%	20%

The males felt very valued in the group with other male students. The females felt pretty valued in the group with 20% of them not feeling valued. Many chose not to elaborate on this response, but rather reply with simply true or false. One female did respond with, “False, I felt like I was just there to work and next time I should not be so

submissive.” This was significantly higher compared to the mixed gender groups when 69% of males and 70% of females felt they were valued in the group.

The following is a list of the highest rated survey responses by males to the lowest rated survey responses by males (after day two):

- 1 After working in group two explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group.
- 2 I felt like I was valued in the group and my ideas/ opinions were used in the investigation.
- 3 Talk about how effective your group work was. Give specific examples.

The following is a list of the highest rated survey responses by females to the lowest rated survey responses by females (after day two):

- 1 Talk about how effective your group work was. Give specific examples.
- 2 After working in group two explain how you are feeling. Tell how you felt after working in the group and how you felt after finishing your work time with this group.
- 3 I felt like I was valued in the group and my ideas/ opinions were used in the investigation.

Mixed Gender Experience vs. Same Gender Experience

After students worked in mixed gender groups and then same gender groups they were asked to complete a survey comparing the two experiences. Their responses were all in a true/false format. Ten girls and eleven boys participated and completed this

survey. One chose not to respond because they did not want to pick sides and one picked true and false as an answer leaving their response invalid.

Question 1: I enjoyed working in my first group better than my second.

Males

True	False
18%	82%

Females

True	False
30%	70%

Both males and females enjoyed working in their same gender group better than working in their mixed gender groups. One female chose to not respond to the question stating she did not want to choose sides and another female chose true and false instead of picking one. It is clear to see that overall, both genders found the experience of working their same gender peers to be more positive. Of the males who participated, 82% of them enjoyed their second group better and 70% of females did. A conclusion can be drawn that more than half of the boys and girls in the classroom enjoyed working in their same gender groups more than mixed gender groups. However, it should be noted that the boys enjoyed it more than the girls did.

Question 2: I get along with most people in my classroom.

Males

True	False
92%	8%

Females

True	False
90%	10%

Question 3: I felt smart in group one (mixed gender).

Males

True	False
42%	58%

Females

True	False
60%	40%

Question 4: I felt smart in group two (same gender).

Males

True	False
100%	0%

Females

True	False
90%	10%

Significantly higher percentages were shown when working with their same gender peers. Students felt they were smarter while working with their same gender peers and 100% of males and 90% of females validated this.

Question 5: I think I got all the answers correct and did well while working in group one (mixed gender).

Males

True	False
36%	64%

Females

True	False
50%	50%

Question 6: I think I got all the answers correct and did well while working in group two (same gender).

Males

True	False
91%	9%

Females

True	False
90%	10%

Comparing Overall Results

Several themes emerged from student's experience while working in the two different groups. These themes are taken directly from student's responses and used to help understand the difference between genders.

Question one: I enjoyed working in my first group better than my second:

Both males and females enjoyed working with their same gender peers better than their opposite gender peers. However, according to responses 82% of boys stated they

enjoyed their second group better, while only 70% of the girls stated they enjoyed their second group better. The males definitely seemed to find their experience with their friends more enjoyable and were less concerned with getting the task accomplished. We can conclude that overall the male students enjoyed working with other males more than the female students enjoyed working with only females.

Question two: I get along with most people in my classroom: 92% of males and 92% of females all stated they get along well with their peers. This can eliminate the idea that because a child does not get along with anyone in the classroom, they therefore had a bad experience in both groups. Also, both males and females feel they have a positive relationship with their peers, even though I have seen behaviors in the classroom by boys and girls like verbal disagreements and difficulty working in group situations.

Comparing questions three and four: Some students stated that they felt smart in both groups, hence the percentages seemed a little off. In mixed gender groups only 42% of the males reported feeling smart, while 60% of the females felt they were smart. In same gender groups 100% of males felt they were smart and 90% of females felt they were smart. This shows that in group two both genders felt significantly smarter when working with peers who were the same gender.

Comparing questions five and six: Consistent with the responses in questions 3 and 4, it was found that both genders felt they got all the answers correct and did well working in a group with their same gender. Of the total, 91% of males and 90% of females reported this. Because this question required them to think about if they “got the answers correct” we discussed that this meant they were able to successfully complete the

challenge. When determining if achievement in fact was affected by the groupings that students worked with it should be noted that when working with their mixed gender groups 50% of females and 36% of males felt they achieved and got everything done that they should have. This was significantly lower than reported when asked the same question of same gender group.

CHAPTER FIVE

Conclusion

Different studies have concluded that by the time students reach middle school it is typical that boys and girls will have very different experiences in the science classroom. According to Mantzicopoulos & Patrick it was determined that by the time children are in kindergarten boys have read more books related to science than girls (Leibham, Alexander, Johnson, 2013). Furthermore, according to Leibham, Alexander and Johnson, as the years progress the interests of different genders in science seem to differ. Girls maintain an interest in health related topics such as animals and biology while boys maintain more of an interest in technology and X-rays (2013).

In my opinion, my current school does not really attempt to be aware of gender roles and how they affect our students on an every day basis. We attend trainings on diversity, equity, science, technology, engineering, and math (STEM), and literacy but fail to train our staff on the notion of gender roles and what they play in on our classrooms. However, on my current fifth grade team, we participate in numerous conversations and often ponder the idea of gender roles in our classrooms and how we can navigate that with our new students every September.

Every year as part of our science common core standards we must participate in some STEM activities. These activities involve science, technology, engineering, and

math. Sometimes the activities include all of these areas together, sometimes they require combinations of the different areas, or sometimes in isolation. In my personal experience with STEM activities I have always found them to be engaging and positive, and that my students benefited greatly from them. However, after having my students participate in a bridge building STEM activity a few years ago I found myself greatly intrigued by what was happening as I watched the groupings of children and how they interacted with each other. I knew that it was engaging and a positive experience that most of my students benefited from, but I found myself wondering how it would have gone if students had worked in same gender groups instead of mixed gender groups. To find some answers, I conducted my own research to gain insights in the gender roles we have as males and females and how they affect our overall achievement in school. The purpose of this study was to answer the following question: *how do gender roles affect achievement in school-aged children?*

Findings

The results of my research found that males and females overall have a more positive experience when working in same gender groups. When students were asked to reflect over their experiences when working in mixed gender groups and same gender groups, same gender groups were rated significantly higher. After working with their mixed gender groups on day one, students were asked a series of questions about their experience. When asked how they were feeling after working in this group 60-70% of both males and females responded in a positive way while the rest responded either neutral or negatively. When asked about how effective their group was the percentage of people who thought it was effective went down to 50-60%. Finally, when they were

asked if they felt valued in this group 70% of the boys responded with an answer of true and 70% of girls responded with an answer of true.

On the next day students participated in the same investigation and then were asked to respond to the same survey questions. The results were significantly higher and more positive when they were able to work with their same gender peers. In total, 100% of males and 80% of females responded positively when asked how they were feeling after working in this group. Furthermore, when asked how effective this same gender group was the males responded with 83% saying effective and 90% of females saying effective. Females felt like their group was more effective than the males did, while the males reported feeling more positive than the females after working in this same gender group. Lastly, 100% of males responded 'true' when asked if they felt the group valued their opinion in this investigation and 80% of females responded 'true.' It is clear that my students had a more positive, valued experience while working with their same gender groups on day two.

In my literature review I sought to understand gender roles and how they affect achievement in elementary students. According to Meece, Glienke & Burg, gender differences are found in the ways that males and females interpret or respond to their failures and successes in life (2006). The results of my research indicated that the males and females approached the task differently and responded differently to setbacks and successes when working with their same gender peers than their mixed gender peers. All together, the females were more critical of their overall experiences and the males felt their experiences were more all around successful.

Gender roles and how they affect us was well documented by experts in the field. According to the expectancy value model, individuals are more likely to excel in content areas that they are expected to succeed in (Leaper, Farkas & Brown, 2012). While my research did not uncover if females and males felt as if they were expected to excel in this task, it did uncover that overall males felt the task went better. In fact, 82% of the boys reported enjoying working in their same gender group better than their mixed gender group, while only 70% of females felt that same way. Whether or not it was due to females feeling less confident in this subject area is unclear, but the research did show an overall greater satisfaction with the activity in males.

According to the research, in mathematics, girls were found less likely than their male peers to attribute their success to their own personal ability, instead of effort and hard work (Meece, Glienke, Burg, 2006). In my research, when asked if the females felt smart while working in groups with males and females 60% of them responded 'true.' On the other hand only 42% of males responded that they felt smart while working in that group. When asked if they felt smart after working in with their same gender peers, 100% of males responded true and 90% of females responded true. It should be known that the female students felt smart and accomplished when working with other females rather than when working with their male counterparts.

Implications

At the classroom level I will continue to provide opportunities for students to work in same gender groups and mixed gender groups. As a result of my surveys, I would like to explore some more of the areas/ ideas my students addressed while

responding to the questions. For example, when asked in the survey if they felt smart while working in groups one and two many students responded with a simple ‘yes.’ However, after re-thinking my research I think the term smart has a lot of insinuated meanings that could have affected my student’s responses. One way I could address this is define the term smart with my group before beginning the investigation. We could discuss and come to a consensus on what the term means and what feelings are typically associated with the word smart. Furthermore, when the survey asked what roles students took on in the investigation I found myself wondering about the idea of roles and what that really means when we work in a group. In my classroom I typically assign members roles in their group work in order to eliminate the chance of students not participating, fighting over roles, or lack of engagement. However, in this particular investigation I did not assign my students roles because I wanted to see who took on what role while working. The responses I got to this question were all about who got what materials in the group and not about the typical roles that come to my mind: task guide, time keeper, equity manager, materials provider, and presenter. One way I could address this in the future is by giving students options of different roles that they can refer to when responding to this question. This might guide some of them to think about the difference in getting materials and attempting to navigate who completes what in the investigation.

At the district level, my goal is to share my findings with the teachers in my building who serve kids in kindergarten through sixth grade. Also, I hope to share it with the administrators in my building. By making the teachers and administrators aware of the gender roles students take on in the classroom and how it affects their achievement I believe they would pay more attention to the types of curriculum related activities and

assignments we partake in. Furthermore, I think it will allow us as adults to be more aware of the things we say to students at an early age that are cementing ideas in their minds that we may not even be aware of. According to Zosuls, Miller, Ruber, Martin & Fabes, even before a child is born, gender roles and gender socialization are being acknowledged and put into effect. When a mother chooses to confirm the sex of the child before they are born, she already modifies how she feels and acts around the unborn child, simply based on the reveal of its gender (2011). The concern is often that, without realizing it, we modify the questions we ask, tone we use, and ways we react to our children possibly based on their gender at an early age (2011). Administrators in the district may be useful in implementing some teacher and staff training that draws attention to the ways we treat males and females in the classroom.

Finally, my research may serve as a useful tool to other school districts and parents who are raising young children. It can assist all people in understanding gender roles and helping to eliminate some of the stereotypes that exist around boys and girls in education and our careers.

Limitations

According to Leaper, Farkas & Brown, social influences such as positive feedback that girls receive might affect their ability to do well in science, technology, engineering, and math (2012). In my study a limitation was the ability to understand if girls had received any previous positive or negative feedback from others throughout their life. This could have affected their perceptions towards this STEM activity and therefore played a factor in how they performed while working in their groups.

Unfortunately, most of my students knew each other previously and already had pre-existing relationships. This allowed for possible feedback, positive or negative, to already have been given to females and males prior to this study occurring.

According to Banks & Banks, boys are often thought to cause most of the troublemaker behavior that occurs in the classroom. As a society we even often stereotype boys as the aggressors and they often have lower school achievement than girls (2010). In my own observations in the research I could have been biased toward the male's behavior in my classroom. At this age, it is typical for boys to have high energy and more rambunctious ways of communicating with each other, so as their teacher I felt it was hard to eliminate that thought when observing the behaviors during my investigation.

Another possible limitation was the design of the research questions in the Group Work Experience Survey. The wording was a little confusing and somewhat difficult to obtain concrete results from. The specific questions were:

- After working today, please explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group
- Talk about how effective your group work was. Give specific examples.

After looking at the responses I found that many students responded with positive, neutral, or negative feelings, but in order to make it more definitive I could have used a rating system. This could have been a more concrete way of analyzing the data and allowed me to eliminate any bias on my part. Although I was still able to draw

conclusions from this research, my results could have been much clearer if I had used a rating system.

Future Research

I would like to further explore the idea of race with gender roles. In our district we have African American families, Asian families, Hispanic or Latino families, African families, and American Indian families. Our district as a whole may not be very diverse, but our school accounts for a majority of the diversity. For the three years I have been at this school and I have noticed differences in ways boys and girls are treated and brought up based on their home life. I think that home life plays a significant factor in how our students view themselves and the roles they take on in and outside of the classroom. In my future research I would explore how race relates to gender roles and what connections home life has to our roles.

Another area I would like to do future research on is the connection between males and reading or writing. In a lot of my research I found that males typically lean towards math and science and have careers in math or science related areas, but there lacked a lot of information about reading and males. I would like to learn more about how gender roles are possibly playing a part in this and how we as a society can get males involved in reading more.

Leaper, Farkas & Brown found that a lot of the expectations for success reflected a person's belief in their ability to do well in subjects (2012). My literature review and my study found that more often than not, performance in the classroom was tied to motivational factors and how others responded to them. I would also like to take a closer

look into how those motivational factors play a part in shaping our identity and how all adults who work with children can be aware of the things they are saying and cementing into children's minds. All of this information could be important and used at a Family Curriculum Night or to share with our staff at the elementary school.

I would also like to work with the staff at my building to further understand their feelings and biases on gender roles. I could do this by giving a staff survey and allowing them to respond to some thought provoking questions around gender. This would allow us to move forward with professional development and help us to reflect on our thoughts and preconceived ideas of gender roles in the classroom.

In conclusion, gender roles play a critical part in our every day lives. I hope to continue researching, learning, and leading discussions in order to bring understanding and awareness to the roles we take on as individuals each and every day.

Appendix 1

Group Work Experience Survey: Question Rationale

Survey Question	Type of Question	Rationale for Question
<p>1. After working today please explain how you are feeling. Tell how you felt while working in the group and how you felt after finishing your work time with this group.</p>	<p>Open Response: Positive, Neutral, or Negative</p>	<p>This question will establish how students are feeling after working in the group with their mixed gender peers and then be compared to the results of how they felt after working with their same gender peers. Key words will be used to determine if students had a positive, neutral, or negative experience.</p>
<p>2. Talk about how effective your group work was. Give specific examples.</p>	<p>Open Response: Effective, Neutral, or not effective</p>	<p>This question will establish how productive students feel their group work was. It will attempt to understand if students felt their group effected their achievement in the task. Key words will be used to determine if students believe it was effective, neutral, or not effective. Results will be analyzed and used to determine if the group was productive.</p>
		<p>This question will be used</p>

<p>3. I felt like I was valued in the group and my opinions/ ideas were used in the investigation.</p>	<p>True or False</p>	<p>to determine if the student's ideas felt validated or not in the group. Results will be analyzed and compared between the two groups to determine an overall level of comfort and validation while working in each group.</p>
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Appendix 2

Overall Experience Survey: Question Rationale

Survey Question	Type of Question	Rationale for Question
1. I enjoyed working in my first group better than my second.	True or False	This question will be used to establish which gender students prefer working with: their same gender or opposite gender peers. It will be analyzed and used to determine student's overall preference.
2. I get along with most people in my classroom.	True or False	This question will be used to determine if students feel they have an overall positive connection with their peers. It will not be used to determine between genders, but rather overall how accepted they felt in the classroom.
3. I felt smart in-group one.	True or False	This question will be used to analyze if students felt smart or not. Responses will be compared with question 4 to determine which group they felt smart

		in or possibly both.
4. I felt smart in-group two.	True or False	This question will be used to analyze if students felt smart or not. It will be compared to responses that are given in question 3 and looked at for potential themes.
5. I think I got all the answers correct and did well while working in group one.	True or False	This question will establish if students felt their group achieved their goal. It will be looked at to determine if the group make up affected the overall achievement. Results will be compared with question 6.
6. I think I got all the answers correct and did well while working in group two.	True or False	This question will establish if students felt their group achieved their goal. It will be looked at to determine if the group make up affected the overall achievement. Results will be compared with question 5 and looked at for themes.

Appendix 3

Informed Consent Letter

September 25, 2015

Dear Parent or Guardian,

I am so excited to be your child's teacher for this upcoming school year! I am also a graduate student working on an advanced degree in education at Hamline University in St. Paul, Minnesota. As a part of my graduate work I plan to conduct some research in my classroom from October 1, 2015- October 15, 2015. The purpose of this letter is to ask for your permission for your child to take part in my research this year. This research is public scholarship the abstract and final product, will be cataloged in Hamline's Bush Library Digital commons, a searchable electronic repository and it may be published or used in other ways.

I want to study how gender affects the achievement of school aged school in my classroom. I have always been interested in the roles females and males take on when working in groups at the elementary level. I plan to have students partake in a curriculum related mathematical activity in which they will use skills such as reading, speaking, listening, and designing. Students will complete the activity in same gender groups and then take a brief anonymous survey over their experiences and then complete the activity in different gender groups and take the same survey. To end it the students will compare their experiences and take one final summative survey. The surveys will not include their name, but will include if they are a male or female.

There is little to no risk for your child to participate. All results will be confidential and completely anonymous. Nowhere in the research will I state specific names or use identifying characteristics of any specific student. Participation is voluntary and if at any time you choose to not have your child participate they will not receive any form of negative consequence.

I have received approval for my study from the School of Education at Hamline University and from the principal of xxxxxx xxxxx Elementary, xxxxxx. The capstone will be cataloged in Hamline's Bush Library Digital Commons, a searchable electronic repository. My results might also be included in an article for publication in a

professional journal or in another professional setting. In any case, your child's identity and participation in the study will remain confidential.

If you agree that your child can participate please keep this page. Fill out the duplicate agreement to participate on page two and return to me by no later than October 1, 2015. If you have any questions at all please email me at: kheidrick@ xxxx or call me at: (xxx) xxx-xxxx.

Sincerely,

Katie Heidrick

Participant Copy

I have received your letter about the study you plan to conduct this upcoming school year. You will observe how gender affects the achievement of school-aged children while working in groups. I understand there is little to no risk involved for my child, that his/her confidentiality is protected, and that at any point in time I may withdraw my child from the participation of this study.

Parent/ Guardian Signature

Date

Appendix 4

Questionnaire 1- Group Work Experience Survey

Circle one: Female/ Male

- 1) After working today please explain how you are feeling. Tell how you felt working in the group and how you felt after finishing your work time with this group.

- 2) Talk about how effective your group work was. Give specific examples.

- 3) True or False: I felt like I was valued in the group and my opinions/ ideas were used in the investigation. _____

Appendix 5

Questionnaire 2- Overall Experience Survey

Circle one: Female/ Male

1) I enjoyed working in my first group better than my second. True/False

2) I get along with most people in my classroom. True/False

3) I felt smart in group one. True/False

4) I felt smart in group two. True/False

5) I think I got all the answers correct and did well while working in-group one.

True/False _____

6) I think I got all the answers correct and did well while working in group two.

True/False _____

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