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### **Why do Girls Outperform Boys in School: A Qualitative Study of Boy-Friendly Teaching, Teacher Efficacy and Practices**

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Why do girls outperform boys in school:  
A qualitative study of boy-friendly teaching,  
teacher efficacy and practices

By  
Renee Clifford

A Dissertation Submitted to the  
Gardner-Webb University School of Education  
in Partial Fulfillment of the Requirements  
for the Degree of Doctor of Education

Gardner-Webb University  
2018

## Approval Page

This dissertation was submitted by Renee Clifford under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

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## Acknowledgements

“Every good and perfect gift is from above, coming down from the Father of the heavenly lights, who does not change like the shifting shadows.” James 1:17

Thank you, God for giving me with the strength and determination to finish this doctorate program and this dissertation.

Thank you, Spencer, my husband – my gift from God. You have encouraged and supported me in this crazy endeavor called graduate school in amazing ways. Thank you for continuing to believe in me. I love you so very much.

Thank you, Grace, Andrew, and Joy for being understanding when Mom had homework or needed to write. Thank you for helping more around the house than expected or asked. Thank you for encouraging your mother to finish this degree and huge project. You are very gracious, supportive, and loving children! I love you so much and am proud of each of you.

Thank you, Mom and Dad. You have cheered from the sidelines since the day I was born and helped to make this dream a reality in many tangible ways. I would not have had the drive to finish without your influence in my life.

Thank you, Dr. Palermo, Dr. Sabin, and Dr. Greer, for your valuable input, direction, and encouragement with this study. I cannot put into words the amount of appreciation I have for the time, suggestions, phone calls, meetings, readings, and re-readings to help me through this mountain of a project called a dissertation. Thank you.

## **Abstract**

Boy friendly teaching: Why do girls outperform boys in school, Clifford, Renee, 2018: Dissertation, Gardner-Webb University, Professional development, Teacher's self-efficacy, Boys' engagement, Best practices, Teaching strategies, Elementary classroom engagement, Boy friendly teaching

This research study explored reasons why girls consistently outperform boys in the classroom, examining professional development teachers may have received, strategies teachers are implementing, and teacher's self-efficacy in teaching boys. This was a qualitative study centered on the idea that boys do not perform as well in school as girls because teachers are not aware of learning differences or not designing instruction to address the unique learning needs of boys. This study took place at one South East elementary school.

## Table of Contents

	Page
Chapter 1: Introduction .....	1
Statement of the Problem .....	1
Background .....	2
Brain-based Best Practices .....	7
The Research Problem .....	8
Audience .....	9
Purpose of the Study .....	9
Definition of Terms .....	9
Research Questions .....	10
Study Site .....	10
Achievement Data .....	12
Leading Adult Learners .....	13
Teacher Professional Development .....	13
Professional Learning Communities .....	14
Teacher Efficacy .....	14
Conclusion .....	15
Chapter 2: Literature Review .....	16
Introduction .....	16
Theoretical Framework .....	18
Literature Review .....	18
Differences Between Boys and Girls .....	18
School Practices .....	25
Best Practices with Boys .....	29
Current School Environment and Schedule .....	32
History of Single-sex Education .....	33
Feminism and Single-sex Education .....	35
History of Testing .....	36
Test Scores and After High School .....	38
Adult Learning Theory .....	39
Leading Adult Learners .....	40
Teacher Professional Development .....	43
Professional Learning Communities .....	44
Teacher Efficacy .....	47
Purpose Statement .....	48
Research Questions .....	48
Conclusion .....	48
Chapter 3: Methodology .....	49
Introduction .....	49
Research Questions .....	49
Participants .....	50
Instruments .....	52
Procedures .....	54
Data Analysis .....	56

Limitations and Delimitations.....	58
Conclusion .....	59
Chapter 4: Results .....	60
Introduction.....	60
Research Questions.....	60
Surveys.....	60
Observations .....	69
Focus Group.....	73
Chapter 5: Discussion .....	79
Introduction.....	79
Discussion .....	79
Current Level of Knowledge .....	79
Level of Implementation.....	82
Limitations of the Study .....	82
Recommendations for Further Study .....	84
Implications of the Study .....	85
Conclusion .....	85
References .....	87
Appendixes	
A Teacher Consent Forms .....	93
B Teacher Survey.....	95
C Teacher Observation Checklist .....	98
D Focus Group Questions.....	100
E Peggy Daniels Emails.....	103

## **Chapter 1: Introduction**

### **Introduction**

Why does the data show that girls academically outperform boys on a regular basis? Is it biology? Is it cultural forces? What role does the teacher play in the boy's performance? This study examined the current body of knowledge concerning biological differences between boys and girls that directly correlate with their ability or inability to stay engaged in the elementary classroom. With that foundation, this research study examined best practices and strategies that elementary teachers utilize to ensure boys are engaged in the classroom. Michael Gurian (2005) attests, "... when teachers enact specific changes and innovations, they can directly alter a boy's (or girl's) success ...". This research investigated these specific changes and innovations and built a further understanding of the role teacher development and teacher efficacy play in keeping boys engaged. According to Bem (1972), teachers come to know their own attitudes, emotions, and other internal states partially by inferring them from observations of their own behavior. This awareness builds confidence or teacher efficacy in their ability to teach students – even difficult ones.

Chapter one of this study addresses the context of the research within the current educational climate. A general description of the school in which the teacher observations took place provides for a backdrop for the study.

### **Statement of the Problem**

Boys are receiving 70% of the D's and F's in most schools, make up 80% of discipline problems, and make up 70% of the students in special educational settings (Michael Gurian, 2005). Of students on Ritalin, Adderall, and Concerta, 80% of them are boys. There is a clear crisis in American education when it comes to educating boys. This crisis has captured the

attention of stay-at-home mothers who talk to other mothers at the playground, fathers who discuss issues at work, and even hard-working teachers, frustrated trying to reach the boys by doing the same strategies that work well with girls. Too many of our boys and young men are falling behind in school and life. This disconnect with boys in the classroom begins at the elementary level and goes as far as graduate programs at the university level. What can be done to reach our boys in the elementary classroom? Are there teaching best practices or strategies that ensure boys in the elementary classroom will stay engaged?

## **Background**

Education students in colleges learn about the history of education, educational reform, laws concerning special needs students, and many teaching strategies. But the school of thought in most universities is that boys and girls should be taught using the same strategies and methodologies. Because of this, classroom teachers often teach in one way to the entire class, thinking they are reaching all their students. This presupposition is a myth. Boys and girls learn differently. “Most schools are girl-friendly ... because teachers, who are mostly women, teach the way they learn” (Tyre, 2005, p. 59). Teachers encourage discussion and connecting emotionally with a story or downplay competition in any form because competition can be interpreted as unkind to them. When in fact, boys do not naturally “connect emotionally” with stories and could greatly benefit by using competition in a healthy manner in the classrooms. There seems to be a mismatch in that “boys are struggling to learn in the ways provided for them” (Gurian & Stevens, 2006, p. 87). Boys are being labeled as “difficult” or “failures” too often simply because they are not engaging with the material on a level of their female peers. Gurian and Stevens (2006, p. 87) go on to ask, “should we keep trying to change our boys or should we change the educational system in which they are now taught?” Teachers must learn

and choose to engage boys in the classroom and thereby change the educational system to accommodate the way boys learn. This change will produce positive results for which parents, teachers, administrators, and boys themselves are all searching.

To be effective, teachers must understand brain-based gender differences. Many teachers are not aware of these differences. These brain-based differences directly impact the way boys and girls learn best. For example, research has established that the “male brain is on the average 10 to 15 percent larger and heavier than the female brain” (Bonomo, 2006, p. 258). Because of the differences in the biological make-up of the brains, girls can engage with both sides of their brains. Their left and right hemispheres are capable of “talking” to each other at a higher rate than that of boys. This allows for multi-tasking. While multitasking is not necessary for learning to take place, it does place girls at an advantage over their boy peers when lessons or teaching styles require multitasking.

Similarly, girls have stronger neural connectors in their temporal lobes than boys do. These connectors facilitate better listening abilities. According to Sax (2005), research shows that newborn girls hear differently than newborn boys -- especially at high frequency. Professor Cassidy, (Cassidy & Ditty, 2001), a professor at Louisiana State University, confirmed this hearing difference by using a technique known as transient evoked otoacoustic emissions. Humans hear because of the little hair-type attachments on the cells in the inner ear that are very sensitive to sound. The “hair cells” wiggle when they detect a sound. The wiggling generates a subtle acoustic response, which is the transient evoked otoacoustic emission (Cassidy & Ditty, 2001). Professor Cassidy studied three hundred fifty newborn baby girls and boys. She found that the girls’ hearing was substantially more sensitive than the boys’, especially in the 1,000 to 4,000 Hz. Range. This range is important for speech discrimination. Other studies have shown

that teenage girls do in fact hear better than teenage boys and the differences in hearing only gets larger as kids get older (Sax, 2005). Women speak at a higher frequency than men (Sax, 2005), and most teachers are women. In the classroom, boys are not hearing the same lessons as their female peers because of hearing differences.

The difference in girls' and boys' ability to hear is one hard-wired reason a gender-neutral education cheats both girls and boys. According to Sax (2005), another difference is the ways boys and girls are wired to deal with threat and confrontation. A middle school teacher confesses to yelling at a boy student in her class with positive results.

*Tina Spencer, a middle school teacher, gets frustrated at Sam and yells at him in front of his peers. Ms. Spencer says Sam is very intelligent and is not doing the work he is capable of doing in class as well as not turning in any homework. After she yells at Sam, Ms. Spencer is concerned about their relationship – she is worried that Sam will shut down even further and not speak to her at all. Just the opposite happens. The next day, Sam comes into class with his homework completed and correct. Sam goes on to share his baseball collection, his most prized possession with Ms. Spencer. This type of confrontational, in-your-face approach worked wonderfully with Sam. He was motivated to work harder and engage more in class. This same type of confrontation would have had devastating effects if used with a girl student (Sax, 2005).*

Professors Tracey Shors and her colleagues at Rutgers, Princeton, and Rockefeller University have demonstrated that stress improves learning in males while it impairs learning in females (Wood & Shors, 1998). According to Shors (2001), exposure to the stressor had diametrically opposed effects on learning in females compared with males. She has also shown that exposure to stress enhances the growth of neural connectors in male hippocampus while it inhibits growth of connections in female hippocampus. Reports like these indicate there are

innate differences in the ways males and females respond to stress. In classrooms, young boys can be energized by confrontation and time-constraints with learning tasks, while few girls flourish in a high-pressure learning environment.

Another difference between boys and girls is their ability to interpret facial expressions. Most girls and women interpret facial expressions better than most boys and men can (Hall, 1990). Researchers at Cambridge University studied newborns on the day they were born to ascertain if females developed a superiority in understanding facial expressions because of social factors such as parents encouraging girls to interact with other girls while the boys shoot at each other with toy guns or were girls born with this heightened ability.

The study plan was to give the babies a choice between looking at a simple dangling mobile or at a young woman's face. The choice was a live, young woman right there with the baby or a mobile that dangled and twisted but made no noise. The young woman made no noise either. The researchers videotaped all one hundred two babies in the study and analyzed their eye movements. The researchers did not know the sex of the babies at the time of analysis of eye movements, as not to taint the study.

The boy babies were much more interested in the mobile than the young woman's face. The differences were large: the boys were more than twice as likely to prefer the mobile. The researchers concluded that they had proven "beyond reasonable doubt" that sex differences in social interest "are, in part, biological in origin" (Connellan, 2000, p. 114).

There are many biological differences between boys and girls, and teachers need to understand the hardwired differences in how boys and girls learn (Sax, 2005). Many teachers are unaware of these differences. Sax (2005) maintains many of these differences directly impact boys and girls and their ability to stay engaged in the classroom.

Student engagement in the classroom is a clear answer to many of the problems in classrooms. Kub (2001) and Wasley (2006) as quoted by Van Amburgh, Devlin, Kirwin, and Qualters (2007), report that a high level of student engagement increases learning and retention. “Extensive research on student engagement has shown that higher engagement produces positive effects in math (Anderson et al., 2007), literacy (Pontiz, Rimm-Kaufman, Grimm, & Curby, 2009), classroom grades (Fredricks, Blumenfeld, & Paris, 2004; Hughes & Kwok, 2007; Klem & Connell, 2004), and standardized achievement tests (Finn, 1993) at all levels” (Sabin, 2012). Marks (2000) contends that engagement can be defined as simply involvement with school while Skinner, Kinderman, and Furrer (2009) define engagement as a personal connection and involvement with the people and activities of the school. Teachers and researchers alike agree that a higher level of engagement in the classroom will lead to a higher level of achievement and retention of material taught.

This high level of student engagement must involve the student interacting with the teacher, fellow students and the material being taught. Teachers are working towards more than a basic level of understanding or comprehension but rather a higher level of ownership of the material. This is most often accomplished with engaging classroom activities. Active learning promotes the application of the material while it is still being presented by the teacher. “Active-learning techniques engage students more deeply in the process of learning course material by encouraging critical thinking and fostering the development of self-directed learning” (Van Amburgh, et.al, 2007, p. 5).

The rise of feminism and the belief that girls were not being educated as well as boys pushed many educators to make changes in the day to day operations within the classroom and school. While these changes were intended to give girls and equal opportunity to access a quality

education, many of them inadvertently put boys at a disadvantage. By demanding equality for girls, boys were left behind in many ways.

Michael Gurian works as a marriage and family counselor and corporate consultant. He has published twenty-eight books and founded the Gurian Institute. The Gurian Institute provides advanced training workshops for educators, therapists, and parents. More than 60,000 teachers have been trained in the Institute's programs and interventions from thousands of schools across the world with some schools becoming "GI Model Schools." The Gurian Institute provides the critical training that is missing from most post-secondary education related to how boys and girls learn (Gurian, 2017). Many teachers are engaging boys in their classrooms daily. Some teachers have been to formal training and others have read books. Still others are simply naturals at engaging boys.

### **Brain-based Best Practices**

According to Gurian (2006), there are specific teaching strategies that teachers can implement in the classroom to help boys stay engaged. The Gurian Institute provides training on these strategies, and Gurian has authored many books and articles on the subject. These strategies include the physical environment of the classroom, movement allowed in the lessons, and products produced, as well as the very way teachers package the lessons. Allowing choice in seating is one way to help boys stay engaged. Whether a desk chair, a bean bag, a rocking chair, the rug, or standing at the back of the classroom, choice in seating gives the boy ownership of his environment. The lighting in the classroom is another factor of the environment that is easy to control. According to Gurian (2006), boys stay more alert in brightly-lit classrooms. Teachers should consider boy-friendly lessons that are structured as games, require vigorous motor activity, and require a combination of teamwork and competition. Gurian (2006) suggests

allowing boys to produce products not just work on worksheets. Boys get excited and invested in products that they produce. Boys thrive using lessons that require them to address open, unsolved problems and focus on boys' personal realization of their masculinity, their values, their present and future social roles. Gurian (2006) goes on to explain that when boys assume the role or responsibility for promoting learning in others, they engage at a higher level. Boys thrive in lessons which introduce dramatic movement and surprises. Other helpful strategies are the use of more visuals, which increases attention and focus. Boys generally learn best when visuals are included in the learning process. Auditory instruction is less effective for most boys. As for the environment, Gurian Institute training suggests allowing boys to spread out across the classroom as much as possible. According to Gurian (2006), boys tend to need and benefit from more physical space in the classroom than their female peers. Gurian (2006) also offers strategies designed to help engage boy students specifically in reading and writing. Teachers could offer boys a shorter passage to read, when possible. Teachers can benefit from reading or studying teaching strategies to improve boy engagement in the classroom.

### **The research problem**

There is a crisis in education today. Boys are not being engaged at a level to ensure they are successful with school. According to the U.S. Department of Education, "females are less likely than males to repeat a grade and to drop out" (Freeman, 2004, p. 2). The report goes on to say that elementary boys are an average of a year to a year and a half behind girls in reading and writing skills (Freeman, 2004).

Teachers must understand that boys and girls learn differently and what best practices enable boys to be engaged in the classroom. Teachers want students engaged in the classrooms, but what works to keep students, boys, engaged in the classroom? What teaching practices

encourage student engagement? What can teachers do to keep student engaged and thereby raise critical thinking and synthesis of material? Boys consistently do not perform as well in schools as girls academically in schools. Is it because teachers are unaware of the vast differences in the ways boys and girls learn or is it because teachers are not designing and utilizing instruction that is meeting the unique needs of boys?

## **Audience**

The target audience for this study is teachers, administrators, and parents who want to make a difference in the life of a boy. Boys will benefit from this study in that, there will be research to back up what works in the classroom to help elementary boys stay engaged. Teachers will benefit by having a list of best practices that work. Parents will benefit by understanding what will work best with their sons in the elementary classroom.

## **Purpose of the Study**

The purpose of this study was to examine the impact of teacher knowledge of strategies for engaging boys in the elementary classroom. In addition, this study examined teacher efficacy about teaching boys.

## **Definition of Terms**

**Best Practices.** Best practices can be defined as existing practices that hold a high level of widely-agreed effectiveness (Hargre & Fullan, 2012).

**Engagement.** According to Abbott (2014), “In education, student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education” (Student Engagement section, para. 1).

**Professional Development.** Professional development in education has come to include a wide variety of specialized training, formal training, or advanced learning intended to equip teachers, administrators, or other educators with professional knowledge, competence, skill, and effectiveness (Abbott, 2014).

**Single-sex Classroom.** According to the National Association for Single Sex Public Education website, a classroom in which most of the academic part of the day is separated by gender. Some classes and/or schools do not separate students for lunch, art, music, and PE while some schools separate for these class periods as well (NASSPE, 2017).

**Teacher Efficacy.** Teacher efficacy can be defined as teachers' beliefs in their abilities to organize and execute courses of action essential to bring about desired results (Tschannen-Moran, Woolfolk-Hoy & Hoy, 1998).

### **Research Questions**

1. What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?
2. To what level do elementary classroom teachers implement the knowledge of boy-friendly teaching strategies into their practice in the classroom?

### **Study Site**

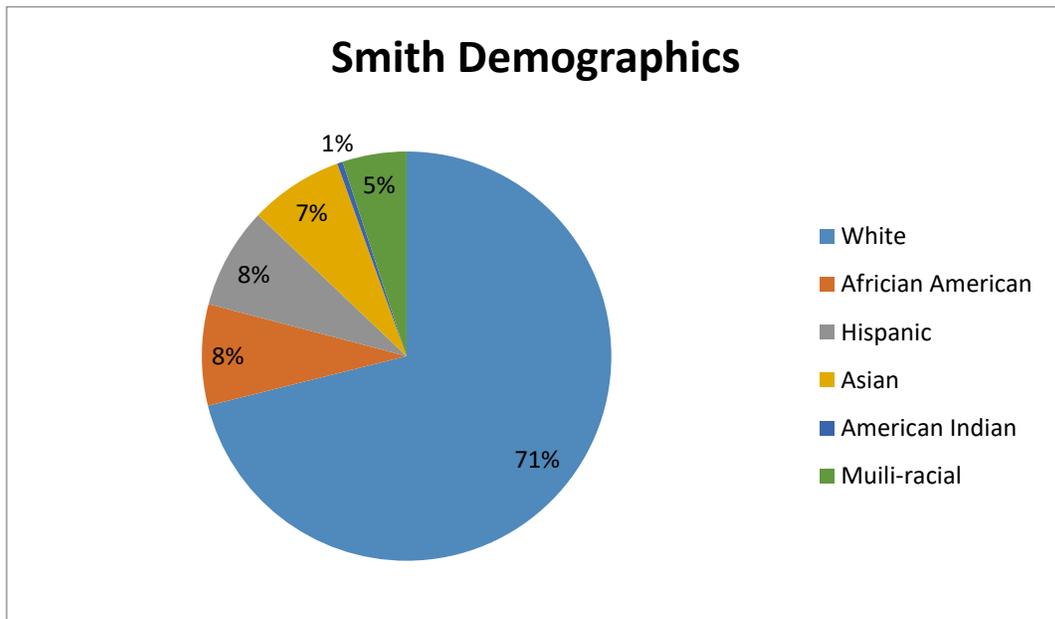
Smith Elementary School, a pseudonym, is a kindergarten through fifth grade traditional school, serving 750 students, in an urban setting of North Carolina (North Carolina School Report Card, 2016). Smith is one of sixty-seven elementary schools in the district. Smith opened its doors in the fall of 2007 with the following mission statement: to provide a safe and diverse learning atmosphere for students (North Carolina Department of Public Instruction, 2017).

Smith strives to stimulate the whole child in a journey of learning. Smith Elementary was chosen as a convenience sample, both in proximity and accessibility to the researcher.

Smith Elementary operates on a traditional school calendar, meeting for 180 instructional days. Smith’s free and discounted lunch recipients make up 17.1% of the school’s population (School Digger, 2016). The teacher to student ratio is 18 to 6 at Smith, which means that class size is below the district average (School Digger, 2016). Smith’s student population is made up of 71% white students with African Americans and Hispanic students both being the next largest group at 8% each (North Carolina School Report Card, 2016). The demographics of Smith are depicted in figure one below.

*Figure 1*

*Smith Demographics*



Of Smith’s thirty-nine teachers, 97.5% of them are fully licensed with 20.5% of them holding advanced degrees and five of them being National Board Certified (North Carolina School Report Cards, 2017). At Smith 61.5% of the teachers have over ten years of experience,

25.6% have four to ten years of teaching experience, and 12.8% have three or less years of teaching experience (North Carolina School Report Cards, 2017).

According to the North Carolina School Report Card (2016), Smith Elementary scored a B on overall school performance, with a B in both EOG Reading and Math tests. North Carolina conducts End-of-Grade tests in all public elementary schools. Students receive a level 1, 2, 3, 4 or 5 as an indicator of achievement. Per North Carolina’s Department of Instruction, level 1 represents a limited command of knowledge and skills, level 2 a partial command of knowledge and skills, level 3 a sufficient command, level 4 a solid command, and level 5 is a superior command of knowledge and skills. Smith’s achievement data is represented in Table 1 below.

*Table 1*  
*Smith Elementary End-of-Grade Test Results 2015-2016*

	<b>Reading</b>	<b>Math</b>
Level 1	6.4%	5.8%
Level 2	14.5%	12.7%
Level 3	10.7%	6.4%
Level 4	48.3%	42.8%
Level 5	20.2%	32.4%

In reading, Smith Elementary had 79.2% of its students scoring a level 3, 4, or 5, which is considerably higher than the district average of 51.9% of students scoring 3, 4, or 5. Smith Elementary had 81.6% of the students score a level 3, 4, or 5 in math. The district had only 50.6% scoring a level 3, 4, or 5 in math. Smith is a school in which students consistently score well on achievement tests.

### **Leading adult learners.**

Today educators are faced with increasingly more pressures to improve student achievement. According to Dufour (2007), there is a direct link between student achievement and supporting adult learning. Schools can be places where both students and adults flourish and grow. Whether the adults engage in *informational learning*, designed to increase a person's knowledge and skill or *transformational learning*, which is designed to strengthen a person's "cognitive, emotional, interpersonal, and intrapersonal capacities" meaningful adult learning can and should take place in schools today to enable teachers to be better equipped to manage the complexities of the profession (Drago-Severson, 2009). When leading adult learners into new knowledge and skills, the environment must be trusting and engaging. Many adults in the school system are eager to learn ways to lighten their load and improve student achievement. This can come through meaningful professional development.

### **Teacher professional development.**

Professional development is considered the primary means for schools to help teachers continuously learn and improve in their trade over time. Most educators agree that professional development is essential for helping teachers stay current in their field, and yet, school administration often encounters many obstacles when attempting to provide meaningful professional development. Some of the common obstacles are funding, lack of time, and lack of

interest from the faculty. While many worthy topics are covered in professional developments, the brain differences between boys and girls in the elementary classroom setting is not one that is frequently discussed, leaving teachers ill-equipped to teach to the many differences in learning styles, modalities, and simple learning differences.

This research study took place at a school that regularly engages in meaningful professional development.

### **Professional Learning Communities**

Professional learning communities have become popular in schools around the country to encourage teacher growth and student achievement. The PLC model at its most basic level is about collaboration: people working and learning together (Graham & Ferriter, 2010). “Learning communities have been identified as a best practice model in education” (Schnackenberg & Burnell, 2013, p. 67). Professional learning communities that are built on trust, have established non-negotiables, and possess a collective sense of ownership can directly impact student achievement.

Smith Elementary utilizes grade-level professional learning communities. These PLCs meet weekly with the principal, assistant principal, and the curriculum facilitator to discuss student data and ways to improve student achievement.

### **Teacher efficacy.**

Teacher efficacy can be defined as a “teacher’s confidence in their ability to promote students’ learning (Hoy, 2005). A teachers’ level of confidence in their ability to promote learning can depend on past experiences or even the culture of the school. Administration can help develop a new teacher’s sense of efficacy or make the entire school a place to develop that

confidence. “Teachers who set high goals, who persist, who try another strategy when one approach is found wanting – in other words, teachers who have a high sense of efficacy and act on it – are more likely to have students who learn” (Shaughnessy, 2004, p. 162). With the increasing pressures to improve student achievement, the concept of a teacher’s confidence in their ability is vital because teachers who believe they can teach all children in ways that enable their success are more likely to exhibit teaching behaviors that help support this goal of student success and achievement.

## **Conclusion**

This study added to the current body of research knowledge on teaching strategies used to assist teachers in helping boys stay engaged in the elementary classroom. Smith Elementary School, the school in which observations took place, regularly provides professional development. There was a need for further measurement and reporting of teacher strategies of student engagement in the elementary school setting.

## Chapter 2: Literature Review

### Introduction

The purpose of this chapter is to present the theoretical framework for this study, as well as a literature review which provides background on pertinent research on each topic and current findings on their relationships. As research and medical technology advances, educators seek to examine the differences between boys and girls. Sommers (2013) suggests that more boys than girls are suspended from school, held back to repeat a grade, and are likely to drop out of school completely. He goes on to say that boys are three times more likely to receive a diagnosis of attention-deficit hyperactivity disorder. Does biology have anything to do with this? Does the way teachers are teaching contribute?

As medical technology has advanced, so has the ability to examine the human body more closely. Researchers have found differences in boys and girls from brain tissue (Carter, 1998) to hearing abilities (Sax, 2005) and many of these new discoveries give credence to believing that boys and girls learn quite differently. Today educators discuss “best practices” as the most acceptable ways to present or package the curriculum to ensure student’s understanding and retention. Yet, few people are bringing attention to the differences between boys and girls and how they learn. Even fewer are training teachers with strategies designed to reach boys, hold their attention, and help them engage with the curriculum. Michael Gurian is an American author and social philosopher. He works as a marriage and family counselor. Gurian is also a teacher trainer who trains teachers how to be successful with boys. He suggests that every aspect of the classroom, from lighting, seating arrangements, and voice levels to physically standing and incorporating movement can help boys participate with what is taking place in their classroom (Gurian, 2001). These strategies are tied to his and other’s research concerning how boys and girls are different and because of these differences, they each require different things in the

classroom to be successful. Teacher training in these areas is key for success for students, both girls and boys. Some schools are investing in teacher training. Some trained teachers are doing everything they can do to help engage boys in the classroom. Over the years, multiple options have been offered to help close the gap between boy and girl achievement in the classroom. Some are as simple as separating boys and girls into single-sex classrooms and others require intensive teacher training and a reworking of a teacher's overall philosophy of how she interacts with all her students in the classroom – especially the boys.

Many educators believe that single-sex classrooms are the best option for giving boys the advantage they desperately need in schools today (Sommers, 2013). Yet others argue that keeping boys and girls in the same classroom has benefits that will aid the boys in the real world. Either single-sex classrooms or mixed-sex classrooms can be ones in which boys and girls are both taught with strategies that will assist them in their educational journey. In the 1970s, feminism suggested that girls were not being treated fairly in the classroom and many educators made changes to encourage girls, while unintentionally putting boys at a disadvantage (Kaminer, 1998).

Every year educators are presented with a multitude of new and exciting options to implement in their classroom that will help them achieve their goal of assisting their students in being academically successful and demonstrating high academic achievement. These programs are shiny and new, often promising high-test scores. Some are helpful, and some are a waste of time, but very few address the biological differences between boys and girls and what specific strategies teachers can implement in their classroom to help both their boys and girls be successful (Gurian and Stevens, 2006).

Many educators today are wondering what best practices and teaching strategies make up a strong classroom that reaches both boys and girls today. Girls seem to thrive academically, while boys seem to be at a disadvantage. Do teachers know what works and what does not work to help elementary boys stay engaged in the classroom?

Teachers daily implement strategies to support students in becoming academically successful in the classroom. Some teachers participate in professional training concerning classroom management, new teaching strategies, cultural awareness, and maybe even the differences of boys' and girls' learning styles and what is necessary to ensure student engagement in the elementary classroom. Other teachers read books full of practical ideas written to equip teachers with practical strategies to help reach the boys. Still others are just naturally gifted at keeping students engaged. Many of the strategies these teachers are using to engage boys are research based. What is the current level of knowledge concerning boy-friendly teaching strategies in the elementary classroom? What are teachers doing who understand the uniqueness of boys in the classroom?

### **Theoretical Framework**

This is a qualitative study centered on the idea that boys do not perform as well in school as girls because teachers are not aware of learning differences or not designing instruction to address the unique learning needs of boys.

### **Literature Review**

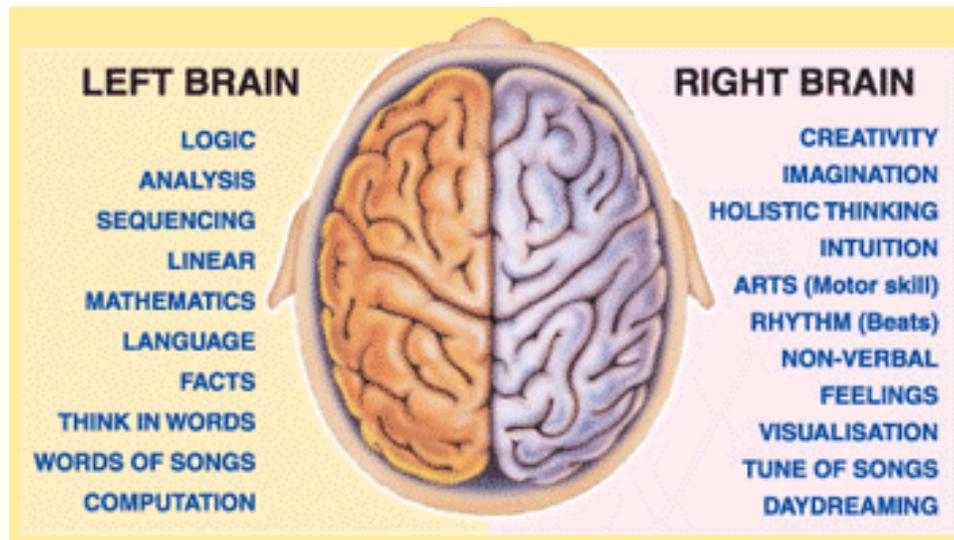
**Differences between boys and girls.** In the past, most people have thought that the main differences between boys and girls could be summed up in saying that boys have much more energy than girls. But now with the advancements in medical tests resulting in PET scans, positron emission tomography and MRI, magnetic resonance imaging, researchers can observe

the structural and functional differences between the brains of boys and girls (Gurian, 2005). Medical science is conclusively proving that there are measurable differences in the hardwiring, biochemistry, neurological development, and anatomy of boys' and girls' brains from a very early age (Rhoads, 2005). These differences are indisputable and have a substantial impact on the ways boys and girls learn from their environment.

The human brain is divided into two halves or hemispheres: the left and the right, each being responsible for different aspects of the body. Each hemisphere controls the opposite side of the body. The right hemisphere of the brain controls the left side of the body and the left hemisphere of the brain controls the right side of the body. The concept of right and left-brain thinking was developed from the research of Roger W. Sperry in the late 1960s, who discovered that the human brain has two distinct ways of thinking. Sperry attests that the left brain is responsible for analytical thinking. The left hemisphere of the brain is the logic and mathematical side of the brain. It aids in sequencing information, processing language and words, as well as mathematical operations and computation. The right hemisphere is credited with creativity and imagination or holistic thinking. This right hemisphere is the non-verbal, day-dreaming side that aids in intuition and accessing feelings. Figure two below depicts the different hemispheres of the brain.

*Figure 2*

*Left and Right Hemispheres of the Brain*

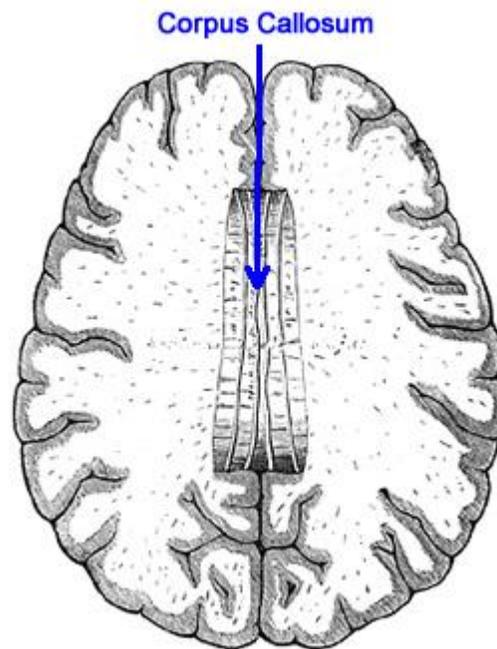


In 1981 Sperry was awarded the Noble Prize for his published work on the right and left hemisphere of the brains. He postulates that that by activating the power of both hemispheres, people will be able to retain knowledge better and become more proficient in any subject, especially math (USMAS, 2017).

One of these striking differences is the size of certain areas of the brain. The corpus callosum is the connecting tissue between the left and right hemispheres in the brain. Carter (1998) asserts that a boy's corpus callosum is a different size than a girl's, with some studies showing the difference up to twenty-five percent. Figure three below depicts the corpus callosum in the brain.

*Figure 3*

*Corpus Callosum in the Brain*



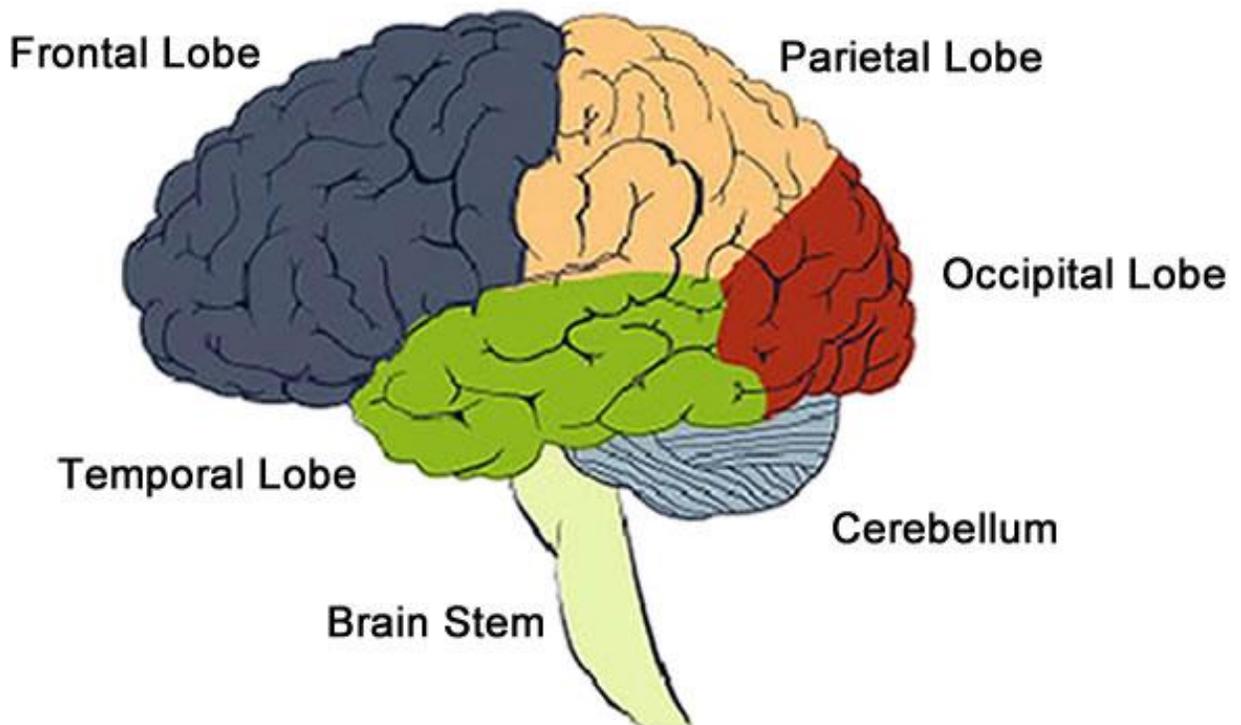
The corpus callosum or connecting tissue allows the brain to cross-talk from hemisphere to hemisphere. The girl's brain, which has a higher level of corpus callosum, is engaged in talking across the hemispheres at a higher rate than that of boys. Carter (1998), submits that one result of this could be better multitasking. On average, girls test better on multitasking than boys. This behavior difference is attributed to the higher level of cross-talk between the brain's hemispheres (Carter, 1998).

The brain is divided into four areas, called lobes. The four lobes are the frontal lobe, the parietal lobe, the occipital lobe and the temporal lobe. Each area of the brain, or lobe, has different responsibilities and controls everything from vision and language to memory and problem solving. Below in Figure four, the four lobes of the brain are depicted, as is the brain stem and the cerebellum.

Figure 4

The Four Lobes of the Brain

## The Lobes of the Brain



The occipital lobe is in the middle of the back of the brain and is primarily responsible for vision. The parental lobe is in the top back area of the brain and is involved in higher sensory and language functions. The frontal lobe is the area around the forehead and is involved in purposeful acts like judgement, creativity, problem solving, and planning. The temporal lobes are located on the right and left sides of the brain and are primarily responsible for hearing, memory, meaning, and language. The frontal lobe in girls is generally more active than that of boys at an earlier age

and is believed to be directly related to girls making less impulsive decisions than boys (Diamond & Hopson, 1998).

Blum (1998) discovered that, in general, girls have stronger neural connectors in their temporal lobes than boys do. It is believed that these stronger connectors facilitate more sensorially detailed memory storage and better listening, especially for tone of voice (Blume, 1998). She goes on to state that boys generally pick up less of what is aurally going on around them, *especially when it is said in words*, and need more sensory-tactile experiences than girls for their brains to light up with learning (Blum, 1998).

The main language centers of the brain are the Broca's and Wernicke's areas in the frontal and temporal lobes. These areas develop earlier in girls and to a more advanced degree. In general, the female brain uses more neural pathways and brain centers for word production and expression of experience, emotion, and cognition through words (Moir & Jessel, 1989). Maccoby (1998) confirms that girls begin to speak earlier than boys and have much larger vocabularies at each age.

Another difference in the hard-wiring of the brain of girls and boys is the amount of hormones within the brain. In general, girls have more estrogen and oxytocin than boys. Oxytocin is a hormone that is made in the hypothalamus of the brain. The pituitary gland secretes oxytocin. The pituitary gland is located at the base of the brain. Oxytocin is classified as a nonapeptide, which is a peptide containing nine amino acids. Its biological classification is as a neuropeptide. Oxytocin acts both as a hormone and as a brain neurotransmitter (MacGill, 2015).

According to Marzano (2003), the larger male cranium is filled with more white matter and cerebrospinal fluid, which cushions the brain. This white matter is made of long arms of neurons that are sheathed with a protective film of fat (Marzano, 2003). Marzano reasons that this white

matter carries fibers that inhibits “information spread” in the cortex, which in turn, allows males to be more single-minded than females. Boys compartmentalize brain activity and therefore are using less of their brain to operate than girls. Marzano (2003) attests that boys operate with fifteen percent less blood flow than do girls. Similarly, boys are structured to learn with less multitasking and therefore tend to perform better focusing for long periods on one task in which depth of learning takes place. Boys do less well when required to move from task to task very quickly. Gurian (2005) asserts that one primary response to the overstimulation of doing many things at once (multitasking) is frustration, which medically is a swelling in the amygdala, an anger and aggression center in the brain. This center has a significantly higher volume of tissue in males (VanScoy, 2002).

All fetuses begin as female in utero, surrounded by an environment awash with female hormones. Genetically male fetuses will develop the female form of sex organs until ‘maleness’ is activated by the SRY gene on the Y chromosome, at which time the fetal testis start to develop and produce testosterone. Fetal testosterone affects the brain and influences behavior for the rest of the baby’s life. When testosterone levels are high in utero, the male grows up to be more of a systemizer. When testosterone levels are low in utero, the male grows up to be more of an empathizer. Estrogen, which is considered a mainly female hormone, is produced in much smaller amounts in males, but is present in both sexes (MacGill, 2015).

The level of estrogen and oxytocin have a direct impact on the use of words. It is well-known that boys have a higher level of testosterone, which is closely associated with aggression and sex. Boys also have a higher level of the hormone vasopressin, which relates to territoriality and hierarchy. The hormone oxytocin rises when girls communicate verbally with a close friend or family member. Boys, with much less oxytocin in the bloodstream, have a much less verbal

emphasis in their brains (Gurian, 2005). Males have less serotonin in their brains, which some believe may cause excess energy and fidgeting. Whereas females have more oxytocin, a hormone linked to bonding and forming relationships. Males have higher levels of testosterone, which is linked to a competitive nature. Girls have much less testosterone, and some do not do well with competition (Tyre, 2005). These are just a few of the multitude of differences physically between boys and girls that may or may not affect their learning.

**School practices.** These many differences between boys and girls can be seen in the classroom. Some educators even see the differences as a reason behind why boys are falling behind their female counterparts. What are the factors in student achievement, and do individual classroom teachers make a difference?

James Coleman, along with Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966), postulated in the report that came to be known as the “Coleman Report” that the quality of schooling a student receives accounts for only about ten percent of the variance in student achievement and the other ninety percent can be attributed to factors like the student’s natural abilities or aptitude, the socioeconomic status of the student, and the student’s home environment. Knowing that most of these factors are out of the school’s control, this conclusion did not leave educators very hopeful. Years later, researchers Hunter and Schmidt (1990) and Rosenthal (1991) examined Coleman’s findings and looked for new ways to interpret the data. They concluded that Coleman’s study showed that an individual teacher can have a powerful effect on her students *even if the school doesn’t*. Coleman examined the average effect of schools, making the results much clearer.

Jere Brophy and Thomas Good (1986) submit that: “The myth that teachers do not make a difference in student learning has been refuted” (p. 370). Researchers Sanders and Horn

(1994), go on to claim that individual classroom teachers have an even more of an effect on student achievement than originally thought. Brophy and Good (1986) examined the achievement scores of more than 100,000 students from hundreds of schools, concluding, “The results of this study will document that the most important factor affecting student learning is the teacher. Effective teachers appear to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classrooms” (Wright et al., 1977, p. 63). Teachers do many things to be effective and best practices is one of the movements taking place in today’s classroom.

The conversation about “best practices” in education is an on-going conversation. The concept of what is considered a *best practice* is constantly changing and evolving. Educators who desire to remain life-long learners are continually growing and attempting to remain current in both preparation and practice, always finding new ways to help student learn and grow as individuals. Best practices are constantly morphing, and new ones emerge. According to the Department of Public Instruction of North Carolina: Elementary Division, “best practices are an inherent part of a curriculum that exemplifies the connection and relevance identified in educational research” (North Carolina Department of Public Instruction, 2017).

While educators differ in which best practices to include in their classrooms, all educators seem to have a philosophical pedagogy about the implementation of best practices.

Dr. Robert Marzano is a researcher, writer, and trainer for educational school improvement. In *Classroom Instruction that Works* (2001), Marzano, Pickering, and Pollock put forth nine instructional strategies or best practices that are likely to improve student achievement. These strategies can be implemented across all grade levels and all subject areas. These strategies include: identifying similarities and differences, summarizing and note taking, reinforcing effort

and providing recognition, homework and practice, non-linguistic representations, cooperative learning, setting objectives and providing feedback, generating and testing hypotheses, cues, questions, and advance organizers (Marzano, 2001).

The first strategy is to teach students to identify similarities and differences. By teaching students to compare and classify items, a deeper more complex understanding is obtained. Students are learning to analyze information in a simplistic manner.

The second strategy is summarizing and note-taking. This promotes comprehension because students are having to evaluate which information is important to include in their notes and which information is superfluous. Students quickly learn to paraphrase and reword information. A beginning step could be fill-in-the-blank notes that simply require students to write pertinent information.

The third strategy is reinforcing effort and providing recognition. This is demonstrating the connection between effort and achievement. Aiding students in realizing the importance of effort allows them to change their core belief system thereby encouraging them to put forth more effort. In this strategy, recognition is more effective if it is contingent on achieving some previously agreed-on standard. Students benefit from being exposed to stories of people whose effort lead to success. These people's ability to not give up is tied to their success. This encourages perseverance in students.

The fourth strategy is homework and practice, which teachers have known for years provides the opportunity to extend the learning outside the classroom. Obviously, this should be assigned based on the grade level and what is developmentally appropriate. Teachers should assign only homework that has a purpose and the purpose should be relevant to the students. There should be

an established routine that includes due dates and time parameters. Homework needs feedback to be effective.

The fifth learning strategy is the use of nonlinguistic representation in teaching. This can be incorporating words and images or symbols to represent relationships or ideas. Or this could include the use of physical movement to represent information.

The sixth strategy is cooperative learning. Putting students into cooperative learning groups has proven to have a positive impact on overall learning. Teachers should keep groups small enough to be effective and use cooperative learning groups in a systematic and consistent manner. It is best to group students according to interests and experiences, vary group sizes, and focus on positive interdependence, social skills, face-to-face interaction, and individual and group accountability.

The seventh strategy is setting objectives and providing feedback. Providing students with a specific direction is valuable, and yet objectives should be general enough to allow the student to individualize them. Helping students set goals for units of study will increase their “buy in.”

The eighth strategy is teaching students to generate and test hypotheses. Both inductive and deductive reasoning can help students understand and relate to the material. Teachers can ask students to make predictions about outcomes of the material in the unit.

The ninth strategy is the use of cues, questions, and advanced organizers. Students can use what they already know to enhance what they are about to learn. Dr. Marzano attests that these nine learning strategies can dramatically improve student achievement (Marzano, 2001).

While these best practices or learning strategies are designed to improve students’ achievement, there is little or no training for teachers on how boys and girls learn differently. Undergraduate programs in education have wonderful classes on child physiology and

methodology, yet there seems to be a lack of classes on how learning styles differ from boys to girls. New teachers enter the classroom incorrectly thinking that boys and girls learn in the same manner.

**Best practices with boys.** Michael Gurian (2001) suggests that teachers receive training in how the brain learns and how boys and girls tend to learn differently. This training would create a new way of thinking in teachers and schools. This way of thinking would lead teachers to create nature-based classrooms. In a nature-based elementary classroom, the physical environment is different. The room is set up differently. Tables and chairs are arranged to provide sufficient space for each child to spread out and claim a learning space. Boys tend to need more physical space for learning than girls do. Teachers could give choice in seating. Desk chairs, tables with chairs, rocking chairs, bean bags, large exercise balls, rugs for sitting or lying, or even allowing a student to stand at the back of the classroom are all options in seating that teachers could offer. Boys would be allowed to choose which seating option worked best for them. The teacher would, of course, explain the parameters concerning this privilege. This choice in seating would also allow the boys to be involved in gauging where they are with their concentration and level of engagement and result in a greater sense of ownership and responsibility. Gurian (2001) suggests best practices would include having a variety of seating options.

Classroom materials would be less organized and more widely dispersed. Instead of having all the crayons in their boxes neatly lined up in the plastic crate on the shelf by the window, a teacher may put the crayons in open, round containers on each cluster of desks or around the room, thereby, allowing students easier access to them when working.

This boy-friendly classroom would incorporate lessons where more opportunities for movement and noise occur than in a traditional classroom. Boys need to be able to move and wiggle. While the history of “brain breaks” is uncertain, what is for certain is a boy’s need to move. Brain breaks are short active breaks from instruction designed to get the participants up and moving and thereby, reengaged. Generally, some laughter during brain breaks occurs, which can be a positive thing because humor can decrease stress levels for struggling students. Lessons that provide opportunities for boys to move and make noise are ones in which the boys will be more engaged and remember long after the lesson is finished.

Gurian (2001) submits that a boy-friendly preschool classroom would have a block center, as well as a water and sand center. According to Gurian (2001), while the boys are building in the block center the teacher can engage them with language, asking them to describe their buildings. Because of a greater flow in the cerebellum, considered the doing center of the brain, boys more easily verbalize what they are doing than what they are feeling. The boy’s language will be richer in vocabulary and more expansive when they are engaged in a task.

In an elementary classroom that is designed with boys in mind, teachers would use beadwork and other manipulatives to promote fine motor development. Boys usually start school behind girls in this area, so any fine motor skill movement would go far in helping the boys catch up.

In a boy-friendly classroom, books would be easily-accessible and seemingly everywhere. Teachers would have multiple book shelves in the classroom with loads of books, showing boys that books are everywhere in life and encouraging them to embrace books. The choice of books around the classroom would need to be interesting to boys as well as girls. The shelves would be full of animal books, dinosaur books, truck and car books, and sports books. Maybe even books about castles, moats, and dragons could be found. Boys need to be surrounded with choices in

reading material. When boys are given choice in reading material, they feel a sense of ownership, which will help the boys stay engaged and read for a longer time. When given reading passages, teachers could offer shorter passages for boys. This would help boys not become frustrated and want to stop reading.

Gurian (2001) submits lessons need to be both experiential and kinesthetic to engross the boys. When giving instructions to boys, teachers would limit the oral instructions to no more than one minute. These lessons should include teamwork and contain opportunities for collaboration with peers. Lessons would be rich in visuals and have options for students to produce products as opposed to simply filling in a worksheet. When possible, teachers should give boys a role of responsibility for promoting learning for others. This role will go far in ensuring engagement. Boys who explain the lesson or teach the lesson to their peers, will have an easier time remembering the lesson.

Boy-friendly writing lessons need to include a “talk time” prior to writing. Boys could verbally process their writing with a peer prior to writing. Allowing boys to illustrate their writing prior to writing is another strategy to getting boys to enjoy writing and thereby write more.

Boys are by nature competitive. Any time a teacher can include a sense of competition into lessons, boys will stay tuned in for a longer period. Competition could be against others or it could simply be against themselves. For example, having a timed addition drill each week to allow the boys to see how many more correct answers they can achieve in the given time, will be a healthy competition that would go far in their enjoyment of addition facts.

In a boy-friendly classroom, teachers would personalize student's desks and cubbies to increase the boy's sense of attachment. Allowing the boys to know that they "own" part of the classroom, will give them a deeper sense of ownership over their classroom.

When choosing volunteers, teachers would be wise to use as many male mentors and role models as possible. Fathers and grandfathers would volunteer in the classroom. Boys would also be given the freedom to nurture one another through healthy aggression and direct empathy (Gurian, 2001). Recognizing the different needs of boys and taking steps to meet those needs will make the classroom experience more enjoyable and set the boys up for success in the classroom.

**Current school environment and schedule.** The actual hard-wiring of the brain in boys and girls is different. Boys and girls learn differently and act differently in the classroom. These differences between boys and girls are seen in the classroom. Some educators even see the differences as the cause boys are falling behind their female counterparts. Males have less serotonin in their brains, which some believe may cause excess energy and fidgeting. Whereas females have more oxytocin, a hormone linked to bonding and forming relationships. Males have higher levels of testosterone, which is linked to a competitive nature. Girls have much less testosterone, and some do not do well with competition (Tyre, 2005). Today's classroom and even school is not generally designed with boys in mind.

Many teachers unknowingly and unintentionally have teaching styles that are more suited for girl students. These teachers are more verbal and expect their students to be verbal-emotive, to sit still and listen carefully, to take notes, and even multitask (Gurian et al., 2001). Gurian points out that many teachers tend to view the natural assets that boys bring to learning as problems. These characteristics of impulsivity, single-task focus, spatial-kinesthetic learning, and physical

aggression are often seen as problems. Teachers are often inflexible with their schedule and do not allow for physical movement which provide brain breaks throughout the day. It is during these long periods of nonmovement that many elementary boys mentally check out. Teachers often can misinterpret a classroom full of seated, quiet students as one that is credited to excellent classroom management skills. While these students are under control many are not mentally engaged in the learning taking place.

**History of Single-sex education.** Throughout much of history, separation of boys and girls for education was a normal practice. There were some examples of coeducation in the late 17<sup>th</sup> century, but there was not a general trend to coeducation until the mid-1800s. Single-sex classes were designed to prepare girls and boys for different roles in life. Girls, for example, were taught sewing, cooking, and general home economics, whereas, boys were taught agricultural or industrial arts (Cuizon, 2008). In the mid-1800s there was a great expansion of public education in the United States, and with this expansion came a general push for coeducation (Coeducation, 2008). This interest in female education and a growing perception that women had a critical role to play in the education and socialization of children of the new republic combined with the largely dispersed and largely agrarian population, pushed coeducation into a common practice by the early nineteenth century. Oberlin College became the country's first coed college in 1837 and by the 1890s, most of American school children were enrolled in coeducational schools. This was a far higher percentage than any other nation (Coeducation, 2008). Coeducation became commonplace.

With the civil rights movement in America, in the 1970s, many parents were opposed to any type of segregation of students, and same-sex public schools became prohibited for most situations by federal law. Coeducation has been the common system in America for decades. It

was also in the 1970s that educators, feminists, and others worried that girls in coed schools were not receiving an equitable education (Kaminer, 1998). This concern led many families to put their daughters in private or religious schools that did indeed segregate classes by sex.

In 1972, Title IX was enacted which states, “No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance” (Title IX, 2005). Richard Nixon signed Title IX of the Education Amendments of 1972 into law on June 23, 1972, thereby guaranteeing that every educational program that receives federal funding will not exclude participants based on sex. There are ten key areas that the law now addresses: access to higher education, career education, education for pregnant and parenting students, employment, learning environment, math and science, sexual harassment, standardized testing and technology, and athletics (Title IX, 2005). Title IX made public single-sex classrooms and schools illegal.

On January 8, 2002, thirty years after the passage of Title IX, President Bush signed No Child Left Behind into law. With its implementation, the option of single-sex schooling in the public-school arena once again emerged. Many parents were particularly worried about the seeming “boy crisis” in education (Cable, 2008). The main concern that led many to believe there is a boy crisis was the fact that boys had fallen far behind girls in achievement. Many schools began experimentation with single-sex education in classrooms and schools. In 2001, Senator Hillary Clinton and Senator Kay Bailey Hutchinson proposed an amendment to the No Child Left Behind Act that would eventually pass and allow public schools to implement single-sex programs with very few regulations (Sax, 2002). The proponents of single-sex education claim that there exist biological differences that affect the cognitive, social, and emotional

development of both boys and girls therefore affecting the learning styles of both boys and girls. Supporters claim these differences are significant enough to necessitate attention. Critics of single-sex education compare it to the racial segregation that took place decades ago in America that claimed intelligence differences between the races based on so-called scientific research.

### **Feminism and Single-Sex Education.**

While the original reasons behind the push for single-sex education in the 1970s stems from a seeming need for girls to receive a quality education as their male counterparts, the push today in the public-school arena is fueled mostly by the belief that boys are not being educated to the best of their abilities. Boys are often resented as the unfairly privileged sex and seen by teachers as the obstacle for girls to get a quality education. This perspective that boys are the obstacle in the way of girls getting a quality education is promoted in many schools of education around the county, leading many teachers to feel that girls need and even deserve special consideration. “It is really clear that boys are Number One in this society and in most of the world,” Patricia O’Reilly, a professor of education and the director of the Gender Equity Center, at the University of Cincinnati (Sommers, 2013).

The thinking that schools hold girls down has spurred multiple laws and policies intended to limit the advantage boys have over girls and at the same time redress the harm done to girls. Many people in the public assume that the girls are treated as the second sex in schools and are not taught as well and therefore suffer. According to Sommers (2013), these presumptions are false. Sommers (2013) asserts that “the research commonly cited to support claims of male privilege and male sinfulness is riddled with errors.” As she goes on to claim that almost none of the research has been published in peer-reviewed professional journals, she also points out that the data points to the boys being on the weaker side, not the girls. According to the data, the

typical boy is a year and a half behind the typical girl in reading and writing. In 1997, college full-time enrollments were forty-five percent male and fifty-five percent female. The Department of Education predicts that the proportion of boys in college classes will continue to shrink. The data from the U.S. Department of Education and from several recent university studies show that the female students are not shy and demoralized, but rather outshining the boys by getting better grades (Sommers, 2013). According to the National Center for Education Statistics, female students follow a more rigorous academic program, participate in more advanced-placement classes, and enroll in high-level math and science courses at a higher rate (Sommers, 2013). Girls now outnumber boys in student government, in honor societies, on school newspapers, and in debate clubs. For now, boys are only ahead of girls in sports, and some claim that women's groups are targeting the sports gap with a vengeance. Girls read more books and outperform boys on tests for artistic and musical ability. According to the numbers, more girls choose to study abroad than boys, and more girls join the Peace Corps to serve than boys. At the same time, Sommers (2013) attests that more boys than girls are suspended from school, held back to repeat a grade, and are likely to drop out of school completely. Boys are three times more likely to receive a diagnosis of attention-deficit hyperactivity disorder. Girls seemingly have the advantage over boys in the school arena.

**History of Testing.** China was the first country to mandate standardized testing. This testing covered a student's knowledge of Confucian philosophy and poetry and was used for access to government jobs. The Western world used an approach to testing that stemmed from the affinity for the Socratic method: essays. But as the Industrial Revolution and the progressive movement of the early 1800s moved school-age kids from the farms and factories to desks in classrooms, standardized tests emerged as a quick way to assess many students quickly (Fletcher, 2009).

In 1905, a French psychologist, Alfred Binet began creating a standardized test of intelligence. This test would eventually morph into the modern version of the IQ test, the Stanford-Binet Intelligence Test. The military used standardized tests to assign servicemen to jobs during the war effort, but these tests had to be graded manually. What originally was designed to assess the masses quickly was slow and arduous. It was not until 1936 that the first automatic test scanner was developed. The computer called the IBM 805 would use electric current to detect pencil marks or bubbled in answers (Fletcher, 2009).

Educators at all levels seek the most effective ways to measure student achievement. In today's educational climate, legislation has mandated measuring student learning which has led to the increased use of standardized achievement tests for comparison purposes. Standardized tests like the EOG, End of Grade test, produces quantitative data on student achievement that has undergone tests of validity and reliability. Educators have fought for and against standardized testing in education (Decker & Bolt, 2008). With the rise of legislation on accountability in education, standardized testing at every level is here to stay.

The SAT and the ACT, used today by many colleges as a filter for students who are possibly not able to be successful in the difficult academic demands of the college classroom, are the two primary standardized tests in the country. The SAT, the Scholastic Aptitude Test, was developed in 1926 by a nonprofit group of universities and educational organizations known as the College Board. The ACT, American College Testing, was developed in 1959 by a professor at the University of Iowa, Everett Franklin Lindquist, who later pioneered the first generation of optical scanners and the development of the GED. Both the SAT and the ACT are used today, but the ACT is more commonly accepted in Midwest and South, while schools on the coasts show a preference for the SAT. The SAT is geared toward testing logic while some considers the ACT

to be a test of accumulated knowledge (Fletcher, 2009). One thing is sure, both the SAT and the ACT are both important tests that are taken by many students on the road to higher education.

**Test scores and after high school.** According to Sommers, (2013), if looked at quickly, the test scores are deceptive. She explains that boys get higher scores than girls on almost every significant standardized test, including the Scholastic Assessment Test, law school and medical school entrance exams, and graduate school admissions tests. Boys are better test-takers than girls. But when the data is examined closely a different story is seen. The pool of students who take the SAT and similar tests show that girls' lower scores do not necessarily have to do with schools' bias or being unfair towards girls. College Board Seniors, an annual report on standardized-test takers published by the College Board, points out many more "at risk" girls than "at risk" boys choose to take the SAT. These girls are defined as girls from lower-income homes or homes with parents who never graduated from high school or never attended college (Sommers, 2013). These characteristics are associated with lower than average SAT scores. Sommers (2013), believes that scholars should be more concerned about the male students who are not showing up to take the tests than the supposed bias against girls in schools.

Sommers (2013) points out that women in the United States earn sixty-two percent of the associate degrees, fifty-seven percent of bachelor's degrees, sixty percent of master's degrees, and fifty-two percent of doctorates. At first, the admission departments of colleges were perplexed. Then they were worried, which soon turned to panic. Henry Broaddus, dean of admissions at William and Mary explains, "Women ... expect to see men on campus. It's not the College of Mary and Mary; it's the College of William and Mary" (Sommers, 2013). Broaddus goes on to explain that when male enrollment falls to forty percent or below, female students begin to flee.

## **Adult learning theory.**

Today's educators are under immense pressure to improve student achievement. Teachers, school administration, district personnel, policymakers, and researchers are all searching for promising new approaches (Blankstein, Houston, & Cole, 2007). The “ongoing support for adult growth and new ways of working, learning, growing, and leading together – not just specific training for discrete skill acquisition – is critical to fulfilling our visions for our school communities” (Drago-Severson, 2009, p. 7). An understanding of how adults learn is essential to adult growth which could lead to student growth.

Malcolm Shepherd Knowles (1913-1997) was an American educator who is known for the use of the term andragogy, meaning the art and science of adult education (Knowles, 1984). The term andragogy comes from the Latin *andr* meaning man and *agogos* meaning leading (Pappas, 2013). The theory of andragogy is anchored in the characteristics of adult learners and best utilized within a community of self-directed learners (Smith, 2010). Smith goes on to explain that Knowles' theory is built around five crucial assumptions about adult learners that are vastly different from child learners on which Knowles believed traditional pedagogy is based. According to Pappas (2013), Knowles assumptions are as follows: First, the need to know – Adults need to know the reason they need to know something before they learn it. Second, the learner's self-concept – Adults have a self-concept of being responsible or self-directed. Once adults have developed their self-concept, they have a deep psychological need to be viewed by others and treated by others as being capable of self-direction. Next, readiness to learn – As adults mature, they become ready to learn the things they need to know and can do in order to cope effectively with their real-life situation. Next, orientation to learning – Adults are task-centered or problem-centered in the manner they oriented themselves for new learning. In

earning new information, adults orient themselves around what is beneficial for their life.

Finally, motivation – While adults are incentivized to some degree by external motivators like better jobs, promotions, and higher salaries, the most potent motivators are internal pressures like the desire for increased job satisfaction, self-esteem, and quality of life (Knowles, 1990, p.57-63).

Knowles (1984) suggests that there are four principles to direct adult learning. These principles help to ensure that adult learning takes place. The first principle is that adults need to be involved in the planning and evaluation of their instruction. This involvement gives the adults buy-in and raises the possibility for real learning to take place. The second principle is experience. An adult's experience, including mistakes made, should provide the basis for the learning activities. Drawing on prior experience will enable adults to personalize the learning objectives. The next principle is that adults are most interested in learning new information that will have immediate relevance or impact on their job and personal life. This is key in planning adult learning: make learning relevant. The final principle is that adult learning needs to be problem-centered rather than content-centered. Adults are problem-solvers. If given the option, they want to learn how to solve problems that they encounter in their work and life.

### **Leading adult learners.**

DuFour (2007) acknowledges that there is a direct link between supporting adult learning and enhanced student achievement. Levin (2006) suggests that opportunities for improving student achievement are dependent on administration leadership and the quality of teaching. An environment in which meaningful adult learning is available will improve the quality of teaching and thereby improve student learning. "The more often educators are engaged with their peers in effective professional learning, the more they will learn and the more likely it is their practice

will improve” (Mizell, 2007, p. 2). Given the intense demands placed upon classroom teachers, teachers need to work together to support each other’s growth and development in their teacher practices. Therefore, schools need to be centers of learning where both students and teachers are constantly learning.

Drago-Severson (2009) contends that there are two distinct kinds of learning: informational learning and transformation learning. *Informational learning* focuses on increasing the person’s knowledge and skill. *Transformational learning* “relates to the development of cognitive, emotional, interpersonal, and intrapersonal capacities that enable a person to manage the complexities of work” (Drago-Severson, 2009, p. 11). Too often today, the goal of professional development in schools is merely informational learning in nature, whereas teachers and professionals need opportunities to develop their internal capacities. This learning needs to take place in a trusting environment (Barth, 2006). Barth attests that “the nature of relationships among adults within a school has a greater influence on the character and quality of that school and on student accomplishment than anything else” (Barth, 2006, p. 8). Growth happens best in a trusting environment in which teachers can discuss and share about their practice. Barth (2006) points out that teachers need to be about to talk about practice, share their craft knowledge and observe and root for success in others and without this no meaningful improvements are possible.

Drago-Severson’s (2009) model of adult leadership is based on learning and composed of four pillar practices: teaming, providing adults with leadership roles, engaging in collegial inquiry, and mentoring. Drago-Severson (2009) submits that this model of adult development can be used in school systems to support and challenge adult growth.

The first pillar practice is teaming. Teaming is working within teams, which provides opportunities for adults to question their own and other people's philosophies and assumptions about leadership, teaching, and learning. This type of working with others supports adult growth. Schools can set up teams by grade levels, subject matter, or even randomly. Drago-Severson (2009) attests "that teaming helps adults in the school to build relationships, decrease feelings of isolation, open communication, become aware of each other's thinking, learn from diverse perspectives, and share information and expertise" (p. 85). Teaming can be an effective approach to professional development within a school setting.

The second pillar practice is providing leadership roles. Adults grow from being responsible and assuming leadership roles in which they can share power and decision-making authority. This pillar provides opportunities for adult growth through the challenges and opportunities of leadership. Student learning is enhanced "when teachers and others take on formal and informal leadership responsibilities" (Olson, 2008, p. 8).

The third pillar practice is collegial inquiry. Drago-Severson (2009) defines collegial inquiry as "a shared dialogue that involves reflecting on one's assumptions, values, commitments, and convictions with others as part of the learning process" (p. 26). This shared dialogue allows for self-analysis and can lead to improvements in practice. Drago-Severson (2009) submits that having a reflective practice is an effective way to improve student achievement through building leadership and improving teaching practice (p. 154). Taking part in collegial inquiry and having a reflective practice has the potential to strengthen relationships and support adult learning and growth.

The final pillar practice according to Drago-Severson's (2009) model is mentoring. Mentoring takes many different forms and can provide opportunities for adults to broaden

perspectives, examine assumptions and beliefs, and share experiences. “Mentoring is an excellent tool for professional learning for both the mentor and the mentee through systemic critical reflection” (Nicholls, 2002, p. 141). Mentoring can provide opportunities for personal and professional growth.

Leading adult learners is a necessity within the school system today if student achievement is desired. Meeting the complex demands cannot be addressed in isolation, but rather needs to start within trusting environments where adult learning can take place. Drago-Severson’s (2009) model of adult development finds its basis on adult learning theory, developmental theory, leadership practice, and organizational collaboration. This model can be used to support adult growth within schools.

### **Teacher professional development.**

School systems today are expected to address the increasing demands of reducing the achievement gap. Students come with many challenges and requirements. English Language Learners have many new laws and require much more effort than English speakers. Special-needs students are being mainstreamed at a higher rate but require legal paperwork and documentation, as well as creativity and effort in teaching strategies. These subsets represent a few of the obstacles facing today’s classroom teachers. Teachers need opportunities to develop and improve their teaching strategies and thereby raise their competency.

Holye and John (1995, p. 17) define teacher professional development as “the process by which teachers acquire the knowledge, skills, and values which will improve the services they provide to clients.” Evers, van der Heijden, Kreijns, and Vermeulen (2016, p.229) define teacher professional development as “participation in the following learning activities at work: (1) keeping up to date: reading, (2) keeping up to date: participation in training related to work, (3)

experimenting, (4) reflecting, (5) collaborating with colleagues to improve the lesson, and (6) collaborating with colleagues to improve school development.” Professional development has become a means to assisting teachers in advancing how they attempt to meet the high demands of the classroom.

Professional development can also be defined as “the process of improving staff skills and competencies needed to produce outstanding educational results for students” (Hassel, 1999, p. 1). The overall goal of professional development is raising the teacher’s competency and equipping the teacher with educational strategies to raise student achievement. As Guskey (2000, p. 4) asserts, “One constant finding in the research literature is that notable improvements in education almost never take place in the absence of professional development.” Professional development is the key to meeting today’s educational demands.

High quality professional development is no longer “sit-and-get” type of workshops where the expert lectures and the teachers take notes. A vast array of companies is producing quality professional development for use in schools today. The professional development must be engaging and deepen teachers’ content knowledge and pedagogical skills, while providing opportunities for practice, research, and reflection and be full of efforts that are job-embedded, sustained, and collaborative (Sparks, 2002). “Probably nothing within a school has more impact on students in terms of skills development, self-confidence, or classroom behavior than the personal and professional growth of teachers” (Barth, 2006, p. 49).

### **Professional Learning Communities.**

The phrase Professional Learning Communities was introduced in 1990 in the book *The Fifth Discipline* by Peter Senge and explained to have learning organizations within a business, which encouraged reflective practice. In 1995 in the book *The Professional Educator*, Myers and Myers related this phrase to schools. Professional Learning Communities or PLCs as they are

often referred to in education, are built on the idea of collaboration and therefore help reduce isolation in teachers.

In 1998, Richard DuFour and Robert Eaker (p. 15-16) attested:

*If schools are to be significantly more effective, they must break form the industrial model upon which they were created and embrace a new model that enables them to function as learning organizations. We prefer characterizing learning organizations as “professional learning communities” for several vital reasons. While the term “organization” suggests a partnership enhanced by efficiency, expediency, and mutual interests, “community” places greater emphasis on relationships, shared ideals, and a strong culture – all factors that are critical to school improvement. The challenge for educators is to create a community of commitment – a professional learning community. It sounds simple enough, but as the old adage warns, “the devil is in the details.” Educators willing to embrace the concept of the school as a professional learning community will be given ambiguous, oftentimes conflicting advice on how they should proceed.*

Professional Learning Communities is the term given to “an ongoing process in which educators work collaboratively in recurring cycles of collective inquiry and action research to achieve better results for the students they serve” (DuFour, DuFour, Eaker, & Many, 2006, p. 2). Many schools are incorporating PLCs in the structure of their school’s systems. According to DuFour et al (2006), PLCs need to operate under the assumption that the key to improved learning for students is continuous job-embedded learning for educators. The focus of PLCs needs to be the commitment to the learning of each student. DuFour and his colleagues (2006) submit that if the PLCs are to be organizations that help students learn they must first be organizations where the adults are continually learning. Therefore, job-embedded learning must

become routine in every day work practices. For PLCs to be effective, they must be dedicated to the idea that the organization exists to ensure all students learn essential knowledge, skills, and dispositions to be successful.

Collaboration is a vital part of PLCs, representing a systematic process in which teachers work together interdependently to impact their classroom practice in ways that will lead to better results for their students, their team, and their school (DuFour et al, 2006).

Collective inquiry is an integral part of the PLCs, examining both best practices in teaching and best practices in learning. PLCs attempt to arrive at consensus on vital questions by building shared knowledge within a trusting environment rather than just pooling opinions. This collective inquiry leads teachers to new skills and eventually new practices within their classrooms. Teachers work together to build shared knowledge on the best way to achieve goals and meet the needs of students, and thereby, work and learn together (DuFour et al, 2006).

Teachers within a PLC are action oriented and move quickly to turn goals into action and reality within their school. PLCs can serve as a catalyst for action within the school. In the same way, PLCs are committed to continuous improvement. Teachers are constantly examining student learning and developing strategies to strengthen weaknesses in learning. Teachers are brainstorming and conceptualizing new strategies and ideas to move the students to the next level of achievement.

For Professional Learning Communities to be successful the focus must be on student achievement and the results must be evaluated on tangible results rather than intentions (DuFour et al, 2006). This focus on results leads each PLC to develop and work towards measurable improvement goals that are aligned to the school and district goals for learning. This should drive

the teachers to collaboratively create common formative assessments that can be administered to students to check understanding and identify students who need support. Common formative assessments are one of a PLC's most powerful tools (DuFour et al, 2006).

PLCs need to be places in which teachers are focusing on learning and developing within a trusting and caring environment. Here true growth can take place.

### **Teacher efficacy.**

Teacher efficacy is a teacher's "judgement of his or her capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Hoy, p. 783). Teacher efficacy demonstrates itself in a teacher's persistence, enthusiasm, and commitment to instruction and student achievement. Jerald (2007) highlights some of the teacher behaviors found as it relates to a high sense of teacher efficacy: tend to exhibit greater levels of planning; are more open to new ideas and experiment with new methods; are more persistent and resilient; are less critical of students when they make errors; and are less inclined to refer a student for special education.

It is common for teachers to have faith in the ability of their coworkers and still lack confidence in their own teaching abilities. Hoy (2000) proposes that some of the strongest influences on developing a strong sense of teacher efficacy happen during the student teaching phase and the first year of independent teaching. Schools can influence teacher efficacy by encouraging new teachers to observe experienced teachers teaching. Administration can also encourage new teachers to ask for help and have an environment where this is the expected behavior. Many factors affect teacher efficacy. In this time of high pressure for teachers to help every student be successful and demonstrate academic growth, the concept of teacher efficacy in the form of individual teachers and the faculty is critically important. Hoy (2002) attests that it is

not enough to employ the smartest teachers – they must also believe they can successfully meet the challenges and overcome the obstacles at hand.

### **Purpose Statement**

The purpose of this study was to examine the impact of teacher knowledge of strategies for engaging boys in the elementary classroom. In addition, this study examined teacher efficacy about teaching boys. The significance of this study was to make recommendations for teacher support and training in engaging boys in the classroom.

### **Research Questions**

1. What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?

2. To what level do elementary classroom teachers implement the knowledge of boy-friendly teaching strategies into their practice in the classroom?

### **Conclusion:**

This literature reviews provides a foundational background for each of the areas outlined in this study. There is an upsurge in research concerning brain-based differences between boys and girls and how they each learn best. Teacher strategies concerning how to address these differences is an expanding and evolving topic in education today. This study will examine which teaching strategies best assist boys in staying engaged in the elementary classroom.

## **Chapter 3: Methodology**

### **Introduction**

This research study was qualitative in nature. Qualitative data was gathered in the form of teacher surveys, teacher observations, and a teacher focus group. According to Creswell (2014), qualitative research is an investigation to attempt to understand an individual's impressions, behaviors, and attitudes, due to their experiences. The data that was gathered in the form of a teacher survey generated descriptive statistics. This study analyzed the impact of current level of knowledge of classroom teachers concerning boy-friendly teaching strategies for ensuring boys' engagement in the elementary classroom, as well as the impact of teacher efficacy on a teacher's abilities to engage boys in the classroom. Phase one of the study was a teacher survey questioning teacher's individual beliefs regarding which teaching boy-specific strategies they are implementing in the classroom. The researcher obtained fifty teacher surveys. Phase two consisted of classroom observations of these teachers. Teachers were observed three times for thirty to forty-five minutes each time. Two of the observations were planned and agreed upon, with one observation unannounced in nature. In Phase three, teachers took part in a focus group discussion centered on which specific strategies they implement in their classroom as a means of keeping boys engaged. Finally, phase four involved the analysis of data collected from the surveys, observations, and focus groups. The researcher coded the data and looked for themes. This chapter will describe the methodology of this study in selecting the participants and instruments. It will also describe the data collection and analysis process.

### **Research Questions**

1. What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?
2. To what level do elementary classroom teachers implement the knowledge of boy-

friendly teaching strategies into their practice in the classroom?

### **Participants**

The target population for this qualitative study was kindergarten through fifth grade, which comprises the traditional elementary school set up. The school selected is an urban school in North Carolina. This school is part of the third largest school district in North Carolina and the largest elementary school in its district. This population was selected as a convenience sample. According to Laerd (2017), the relative cost and time required to carry out a convenience sample makes it a clear choice for many studies. A convenience sampling allows the researcher the easiest access to the study. Problems with a convenience sample are over-representation or under-representation of groups within the sample. This research study examined six elementary classroom teachers, with each grade at the elementary level represented. All research was approved by both the principal of Smith Elementary and in compliance with the school board's requirements for conducting research within the district. Although this sample size was small, it produced a large amount of valuable data and research.

Smith Elementary School serves 750 students with 17% of its students on free or reduced lunch services. Participants for this study consisted of one teacher from each grade kindergarten through fifth grade at Smith Elementary. The participants demographics are presented in Table 2 below. Pseudonyms for teacher's names were used in this study to maintain anonymity.

*Table 2*

*Teacher Demographics*

	Grade taught	Age	Race	Highest degree earned	Years of experience	NBCT
Amy	K	48	Caucasian	BA	26	no
Betty	1st	34	Caucasian	BA	12	no
Carol	2nd	44	Caucasian	BA	13	no
Donna	3rd	26	Caucasian	BA	3	no
Elizabeth	4 <sup>th</sup>	35	Caucasian	BA	13	no
Fran	5th	39	Caucasian	Masters	15	yes

Potential teacher participants were contacted through email about possible participation in the proposed study. The researcher met with the teachers, providing a description of the study and necessary background information. Finally, the researcher secured six teachers to take part in the study. The researcher was employed at Smith Elementary at the time of the research study as a first-grade teacher. She was colleague to the participants in the study. As bias was impossible to completely remove, the researcher admits that this is a limitation of the study.

Consent forms contained information on the voluntary basis of participation, rights to withdraw from the study, ask questions, obtain results, and anonymity, as well as the purpose, procedure, and benefits of the study (Appendix A). The consent forms met all the Gardner-Webb Institutional Review Board requirements as well as all requirements by the school district for conducting research. No research surveys, observations, or focus groups were conducted prior to informed consent forms being signed by participants. Teacher surveys were given to all teachers at the school site, completing phase one of the data collection.

## Instruments

The researcher used several different approaches to inquiry (Creswell, 2007) or research methodologies (Mertens, 1997). Phase one included a teacher survey (Appendix B). The researcher obtained fifty completed surveys from multiple schools. The survey was designed in cooperation with Peggy Daniels, a Gurian Institute Master Trainer. In a personal communication with the researcher, Mrs. Daniels indicated that the teacher survey and observation tool seemed to be both valid and reliable and made several suggestions concerning wording (Daniels, 2017). See Appendix E.

The teacher survey served as the observation tool. This tool was piloted with a group of eight teachers not in the study. These elementary public-school teachers completed the survey independently and then participated in a discussion about the nature, validity, and reliability of the instrument. In the debrief conversations after taking the survey, the teachers all agreed it was an accurate, well-worded survey of teaching strategies used in the classroom. The teachers made suggestions on the rewording of the two open-ended questions, and the researcher made those modifications accordingly.

A large amount of data was collected using a survey instrument. Survey methods allow a large collection of data in a short amount of time than individual interviews or group interviews. The use of survey data “provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population” (Creswell, 2007, p. 145). This data was used in the form of descriptive statistics. On the survey, teachers were asked questions concerning which teaching strategies they implement in their classroom. The survey utilized a Likert scale with the responses of *daily*, *weekly*, *sometimes*, *rarely*, and *never*. According to Creswell (2014), Likert-type scale responses are quasi-interval scales because of the unequal

nature of the separation of the categories. The data collected from the survey was analyzed and treated as ordinal scales.

In phase two, the researcher used observations to gather data. The researcher had a checklist of teaching strategies obtained from the Gurian Institute (Appendix C). The Gurian Institute provides advanced teacher training on best teaching strategies for helping boys stay engaged in the classroom. The observation checklist is one that Gurian trainers use with teachers after they have completed the training sessions. The researcher took antidotal notes as well as utilized the checklist. According to Creswell (2014), one advantage of the researcher being the complete observer is that the researcher can record information as it occurs, allowing for unusual aspects to be noticed and recorded. Creswell (2014) attests that a disadvantage could be that the researcher may be seen as intrusive or the participants may present special problems.

Phase three focused on what teachers collectively believe are excellent teaching strategies for keeping boys engaged in the elementary classroom. The researcher used open-ended questions in a focus group to gather responses (Appendix D). Creswell (2014) points out that a focus group allows the researcher to control the line of questioning. Creswell (2014) asserts that the researcher's presence during the focus group could bias the participants' responses. Recognizing that there may be bias towards the researcher and in an attempt to remove this bias from the focus group, the researcher used a proxy to facilitate the focus group. A veteran teacher from a different school led the focus group. The researcher provided the focus group facilitator questions, group protocols, and an overview of the goal of the focus group. The veteran teacher was instructed to take copious notes as to the focus group discussion.

## **Procedure**

This qualitative study used data gathered from teacher surveys, observations, and focus groups.

Data collection occurred in phases one, two and three. In phase one, teacher surveys were administered to all teachers at a school-wide faculty meeting. Thirty-eight surveys were gathered. The researcher obtained twelve surveys from a second site. In all, fifty surveys were administered. Phase two consisted of three 45-minute observations of teachers interacting with their students during a lesson. During the observations, the researcher noted which boy-friendly strategies the teacher was implementing. In phase three, a focus group of participants was conducted. The researcher was employed at Smith Elementary. Therefore, to remove bias, a veteran teacher from a different school facilitated the focus group. The researcher shared the open-ended questions and overall goal with the group facilitator.

Phase one of this study consisted of the administration of a survey formulated in conjunction with Peggy Daniels, a Master Trainer for the Gurian Institute. According to Creswell (2012), surveys are used to describe trends and determine individual opinions about issues or programs. At Smith, the survey was explained at the end of a faculty meeting and teachers were asked to participate. A veteran teacher from a different school has agreed to give the survey at her school to ensure a larger number of completed surveys. The survey utilized nine Likert-type scale questions, two open-ended questions, and took approximately ten minutes to complete. The surveys were anonymous to encourage truthful answers. The survey was given in the beginning of September.

Phase two consisted of three forty-five-minute teacher observations during an academic teaching time. “Attitudes, beliefs, and opinions are ways in which individuals think about issues whereas practices are their actual behaviors” (Creswell, 2012, p. 377). Observations included two announced and one unannounced observation times. The two unannounced observations were intended to observe the teacher as they usually teach and not overly prepared for an observation. Each observation was limited to forty-five minutes of whole group or small group instruction during September.

Phase three included a focus group with the teachers who have volunteered to participate in the classroom observations. The researcher collected qualitative data gathered through interviews done in a focus group with open-ended questions. Because the researcher worked at the study site and the participants might have given answers to questions that they think the researcher would like to hear, a proxy was secured to facilitate the focus group time. The focus group happened at the end of September.

Teachers met in the library at school for approximately twenty minutes. The focus group facilitator, a veteran teacher from another public school, asked the open-ended questions and took notes as to the teacher responses. Participants were encouraged to be honest and candid in their responses. “Focus groups provide for interaction among interviewees, collection of extensive data, and participation by all individuals in a group” (Creswell, 2012, p. 384).

A qualitative research design was chosen as a part of this study because it allows for the use of open-ended questions to gather more information from participants, and it provides insight about the perceptions, attitudes, and opinions of those participants (Creswell, 2005). The information given by the participants during the focus group questions revealed the participants’ perceptions based on their experiences. Janesick (2000) attests, “The qualitative researcher

prefers to capture the lived experiences of participants to understand their meaning perspectives, case by case” (p. 395).

This research study was qualitative in nature. The researcher gathered data over a set period from several sources. A timeline of the study is represented in Table 3 below.

*Table 3*

*Study Timeline*

Aspect of study	Timeframe
Phase one – teacher survey	September
Phase two – teacher observations	September and October
Phase three – focus group	Once teacher observations have been completed, end of October

**Data Analysis**

This study was qualitative in nature, using teacher surveys, teacher observations, and focus group questions and answers. The researcher utilized a qualitative computer data analysis program to assist with identifying codes.

Qualitative data, in the form of notes from observations, was entered into QDA Miner, a qualitative data analysis computer program. The data was “cleaned.” This involved identifying any missing data or data incorrectly entered (Creswell, 2012). The data was analyzed for themes to determine perceptions of teaching strategies for keeping boys engaged in the elementary classroom. The data was coded as it was analyzed. This was completed using a qualitative data

analysis computer program, QDA Miner. Coding is a process of bracketing chunks of text of the focus group interview transcript and then writing a word that represents a category in the margins (Creswell, 2012). Once these categories were determined, themes emerged. The results of the study were explained in a narrative.

According to Creswell (2008), triangulation in research increases the credibility by drawing from a variety of viewpoints. In this research study, triangulation was used to increase accuracy and reliability, in that, a teacher at a different school read, cleaned, and transposed the focus group notes. Creswell (2008) explains that the idea of data validation by triangulation is the process of corroborating evidence from different individuals or sources. This culminates in descriptions and themes in qualitative research. By using triangulation of data collection, the researcher increased the concurrent, convergent and construct validity of the research.

Table 4 below depicts that collection of data, the organization of data, data displays, and the analysis of data.

*Table 4*

*Data Management*

Research Question	Data Collection	Data Organization	Data Displays	Data Analysis
What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?	Focus group questions  Surveys	Organized and coded by themes	Data was displayed in a table upon completion	Data was cleaned and coded according to themes that emerged
To what level do elementary classroom	Observation checklist	Observation checklist	Data was displayed in a table upon	Data was cleaned and coded for

teachers implement the knowledge of boy-friendly teaching strategies into their practice in the classroom?			completion	according to themes that emerged
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### **Limitations and Delimitations**

Teachers have different opinions concerning elementary-aged boys and their ability or inability to sit still and focus in a busy, sometimes noisy classroom. These personal attitudes or opinions about elementary age boys could have skewed the data. Personal experiences with elementary-aged boys, both good and bad, could have influenced participants answers to survey and focus group questions. Participants may not have answered the questions on the survey honestly. Teachers may have wanted to appear more willing to offer accommodations for boys than they are.

The study size was relatively small. Six teachers, one from each grade kindergarten through fifth grade from one school participated in this study. The results would be stronger with more teachers from a diverse background. Due to the limitations of time and finances, this study was conducted with six teachers from one elementary school.

Although the researcher took steps to minimize bias, there was research bias because the researcher was employed as a first-grade teacher in school where the study took place. The researcher asked the teachers to participate. As a colleague, the participant may have altered their answers and involvement to please the researcher. As stated earlier, to address this bias, the

researcher had a proxy to facilitate the focus group. The proxy was a veteran teacher from another school and did not know any of the teachers who participated in the research study.

## **Conclusion**

This qualitative research study was conducted to broaden the research that has been conducted on teacher knowledge and teacher efficacy concerning teaching strategies for use in elementary classroom to help keep boys engaged. This study is important for teachers and school administrators who must help close the apparent gap between elementary boys and girls in the classroom.

## **Chapter 4: Results**

### **Introduction**

Boys are falling behind girls academically in American public schools (Freeman, 2004). Because of biological differences, boys and girls learn differently in the classroom. Teachers can implement different strategies to help elementary boys stay engaged in the classroom.

This study analyzed the impact of teacher knowledge of strategies for engaging boys in the elementary classroom. It examined teacher efficacy concerning teaching boys. This study attempted to answer the question of whether teachers are unaware of these strategies to help boys stay engaged or aware of these strategies but not taking the time to plan and implement these strategies.

Teacher's implementation of boy-friendly teaching strategies was measured by utilizing a teacher survey developed by Peggy Daniels, a Gurian Master Trainer (Appendix B). Teacher observation and a focus group were utilized after the administration of the teacher survey. Chapter 4 presents the data and findings collected by these instruments during this study.

### **Research Questions**

1. What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?
2. To what level do elementary classroom teachers implement the knowledge of boy-friendly teaching strategies into their practice in the classroom?

### **Surveys**

This study aligned with the philosophy of boy-friendly strategies from Michael Gurian (2001). Gurian's strategies are based on biological differences that he has observed and studied. For the purposes of this study, these strategies were measured using an anonymous teacher

survey, teacher observations and teacher responses within a small focus group. The teacher survey consisted of nine questions based around the more important boy-friendly strategies and was developed by Peggy Daniels, a Gurian Master Trainer (Appendix B). Each of the strategies were represented in the nine survey questions where teachers responded on a Likert-type scale.

Surveys were collected from 50 teachers at two public schools. The goal of this study was to include all elementary classroom teachers at the school where the observations took place as well as surveys from classroom teachers from a second school within the same district. Smith Elementary has thirty-three classroom teachers, three Exceptional Child teachers, and two Academically Gifted teachers. Although the surveys were anonymous, the researcher collected thirty-eight surveys. The other twelve surveys were from a different school in the same district. Fifty surveys were collected in total. The surveys from Smith were completed at a staff meeting with a 100% response rate. The other twelve surveys were taken at a different school. These surveys were given by a teacher at that school after a staff meeting on a voluntary basis, with a much lower response rate.

The teacher survey directions read: *indicate with a check in the appropriate box how often you implement the following teaching strategies in your classroom to help boys stay engaged.* Nine boy-friendly teaching strategies based on Gurian's philosophy were represented. Each of the nine strategies had a Likert-type scale for response. Response options included *always, frequently, sometimes, rarely, and never.* After the nine teacher strategies, the survey had two open-ended questions.

The questions and responses to the teacher survey are listed in Table 5 below.

Table 5

*Teacher Survey*

Strategies	Always		Frequently		Sometimes		Rarely		Never	
	N	%	N	%	N	%	N	%	N	%
1. Allow choice in seating (rug, bean bags, rocking chairs, etc.) or allow boys to stand in the back of the room	8	16%	14	28%	20	40%	6	12%	2	4%
2. Plan lessons that include opportunities for movement	10	20%	27	54%	13	26%				
3. Include teamwork and collaboration in lessons.	12	24%	29	58%	9	18%				
4. Use visuals in lessons.	26	52%	23	46%	1	2%				
5. Offer shorter texts or passages for boys.	1	2%	2	4%	12	24%	17	34%	18	36%
6. Plan opportunities for boys to build and produce products.	3	6%	9	18%	24	48%	9	18%	5	10%
7. Structure parts of some lessons as games, considering an element of competition.	5	10%	23	46%	20	40%	2	4%		
8. Allow boys to assume a role or responsibility for promoting learning of others.	5	10%	15	30%	22	44%	3	6%	5	10%
9. Allow boys to share their thinking through talk time prior to writing.	12	24%	23	46%	12	24%	1	2%	2	4%

The first question on the survey dealt with student choice with regards to seating arrangements. Examples given after the statement included “rug, bean bags, rocking chairs, or allowing the boy to stand in the back of the room.” Sixteen percent of teachers indicated that they *always* allow the boys to choose their seats in their classroom, while four percent indicated that choice is *never* allowed. The highest response was *sometimes* with a score of forty percent.

Gurian (2001) indicates a strong connection between a boy’s ability to move within a lesson and a higher level of engagement. The second question indicated that fifty-four percent of the teachers *frequently* incorporate movement in to their lessons. Twenty-six percent of teachers indicated that they *sometimes* use movement, and twenty percent utilize it *always*. No responses were marked for either *rarely* or *never*. The response to this question affirms that elementary teachers know movement is important and utilize it in lessons on a regular basis.

Teamwork and collaboration in lessons is another way to ensure student engagement. Responses to the third question that asked about teamwork and collaboration were high, with fifty-four percent of teachers stating that they use teamwork and collaboration *frequently*, and twenty-six percent indicating *sometimes* use and another twenty percent marking *always* for their usage. No responses were indicated for either *rarely* or *never*.

Gurian (2001) stresses the importance of using visuals in to keep students, especially boys, engaged. The corresponding question scored high with fifty-two percent of teachers signifying that they *always* use visuals and forty-six percent marking *frequently* regarding their use of visuals. Two percent checked *sometimes*, and no responses were recorded for *rarely* or *never*. The use of visuals is a common teaching strategy that most teaches employ daily.

Offering shorter texts or passages for boys had scores in every category. Only two percent of teachers indicated that they *always* give boys shorter passages. Four percent marked

*frequently*, with twenty-four percent indicating that they *sometimes* give boys shorter passages. Thirty-four percent indicated the use of shorter passages *rarely*, and thirty-six percent stated that they *never* offer boys a shorter text or passage. While 20% of teachers plan for movement, 24% incorporate teamwork and 52% use visuals, a staggering 70% rarely or never use shorter texts or passages for boys, one of the boy-friendly teaching strategies suggested by Peggy Daniels, a Gurian master trainer. The low response to allowing boys to have shorter texts or passages indicates that this is one strategy for which most teachers do not agree. This sentiment was further evident with answers to focus group questions.

The next question was about planned opportunities for boys to build and produce products. The answers for this question had the highest concentration in *sometimes* with forty-eight percent of teachers indicating that they do allow students to build or produce products. The other answers were evenly distributed with six percent *always*, eighteen percent *frequently*, eighteen percent *rarely*, and ten percent *never*. Third, fourth, and fifth teachers at the focus group discussed the ease of incorporating products and projects into their schedule, while kindergarten, first and second grade teachers talked about the amount of preparation required to have students build products.

All teachers indicated the use of games. Ten percent use them *always*, thirty percent use them *frequently*, and forty percent use them *sometimes*. Only four percent indicated that they *rarely* use games and no teacher indicated that they *never* use games.

Allowing boys to assume a role of responsibility for promoting learning of others had a wide array of answers. Ten percent of teachers stated that they *always* allow boys to assume of role of responsibility. Thirty percent indicated that they *frequently* use this strategy. The largest number of teachers, forty-four percent, indicated that they *sometimes* allow boys to assume a role

of responsibility for promoting learning of others. Six percent stated that they *rarely* use this strategy, and ten percent indicated that they *never* use this strategy.

The last boy-friendly strategy the teacher survey asked about was allowing boys to share their thinking through talk time prior to writing. Teachers seemed to agree through their responses that this is valuable and something that they regularly incorporate. Twenty-four percent *always* allow boys to talk prior to writing. Forty-six percent *frequently* allow this to take place in their classrooms. Twenty-four percent use this strategy *sometimes*, with two percent stating they *rarely* use it and four percent indicating they *never* allow boys to talk prior to writing.

Teachers had strong answers to allowing students to move and collaborate during lessons. Teachers also scored the use of visuals and structuring part of the lesson as games or using competition as high. In contrast, the thirty-five percent of teachers indicated that they rarely or never give boys a shorter text or passage.

The teacher survey was designed to be answered quickly. The front of the survey contained a chart with nine questions utilizing a Likert scale, with the two open-ended questions on the back. When the survey was distributed, the researcher pointed out the two questions on the back of the survey to ensure teachers would not inadvertently overlook the open-ended questions. Unfortunately, many teachers did not answer these two questions. Only thirty of the fifty surveys (sixty percent) had answers to the open-ended questions. Some of the reappearing comments are listed below in Table 6.

Table 6

*Teacher Survey Open-ended Questions*

Question 10: What training, workshops, or reading have you completed to advance your	No training African American male training
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knowledge of best strategies to keep boys engaged in the elementary classroom?	Professional Development at school Read books or articles Kagan Cooperative Learning strategies Ron Clark material ADHD articles
Question 11: What are obstacles for implementing boy-specific strategies in your classroom?	Space Very structured curriculum Lack of time to plan Making girls also feel supported Knowledge of these strategies Cost Don't match EOG testing standards Various ability levels within the class Some students become unfocused with movement

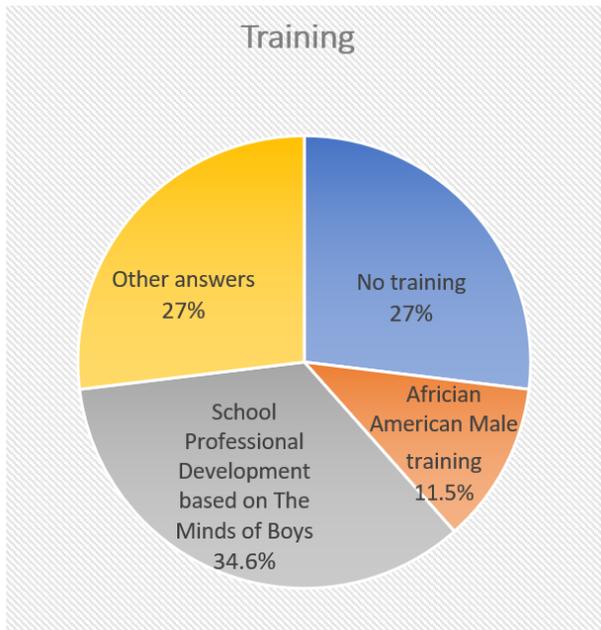
Question one of the open-ended question dealt with the training, workshops, or reading that teachers had accomplished to further their knowledge of engagement strategies. 26 of the 50 surveys had an answer to this question. There were three main themes that surfaced in the answers to this question: no training at all, African American male training, and a school-wide professional development that took place at Smith Elementary four years prior to this study. Seven of the twenty-seven surveys that had an answer for question ten had “no training” or “none” as the answer. Twenty-seven percent of the participants indicated no training in boy-friendly strategies. The district had an emphasis on African American males two years ago and offered several trainings to help equip teachers with strategies to improve test scores within this population. Three of the twenty-six responses to question ten mentioned this training, giving this theme 11.5% of the weight. The final theme that bubbled up within question ten pertained to a school-wide professional development, based on *The Minds of Boys*, a book by Michael Gurian (2005). Nine of the twenty-six surveys referred to this professional development, giving it the largest amount of response with 34.6%. The other seven surveys that contained mixed answers.

Table 7 below represents the responses to question ten, the first of the two open-ended questions on the teacher survey.

Table 7

*Question 10 Responses*

*What training, workshops, or reading have you completed to advance your knowledge of best strategies to keep boys engaged in the elementary classroom?*



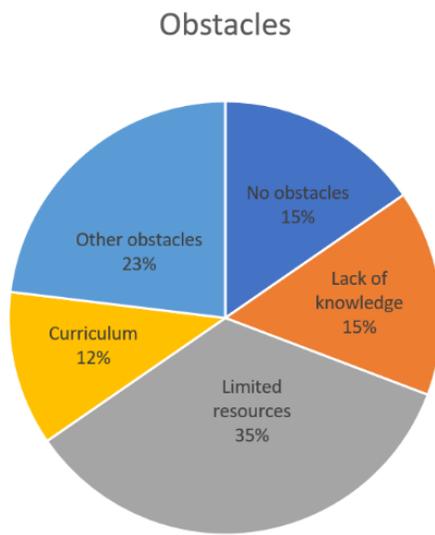
The final open-ended question on the teacher survey addressed obstacles teachers face when attempting to implement boy-friendly strategies of engagement in the classroom. Twenty-six teachers or 52% responded to this question. Four general themes emerged: no obstacles, lack of knowledge, limited resources, and the curriculum. 15% of teachers indicated that they had no real obstacles in implementing these strategies, while 15% specified a lack of knowledge in either boy-friendly engagement strategies or how to implement them into the classroom. Thirty-five percent of teachers responded that resources are an obstacle for implementing these strategies. These teachers wrote comments concerning finding materials, the cost involved and

the time required to implement the strategies. The curriculum was cited as an obstacle for 12% of the participants with comments stating that the curriculum is very structured and not flexible enough to allow such strategies. Finally, 23% of the responses were based around other concerns. These other concerns are listed in bullet form in table 6 above. The responses to question eleven are displayed in table 8 below.

Table 8

*Question 11 Responses*

*What are obstacles for implementing boy-friendly strategies in your classroom?*



The open-ended questions allowed the teachers to write their thoughts about the strategies in a less structured style than that of the Likert scale questions. Several teachers wrote statements that support the overall data of the Likert scale questions, as evidenced by this teacher's comment: "I do interventions for whoever needs it, no just boys." Some statements show a lack of knowledge of the value of the boy-friendly engagement strategies as demonstrated by the statements: "Don't like the saying 'boy-specific' because it could be girls too" and "Boys tend to be the problem students." One teacher in response to the question about obstacles to

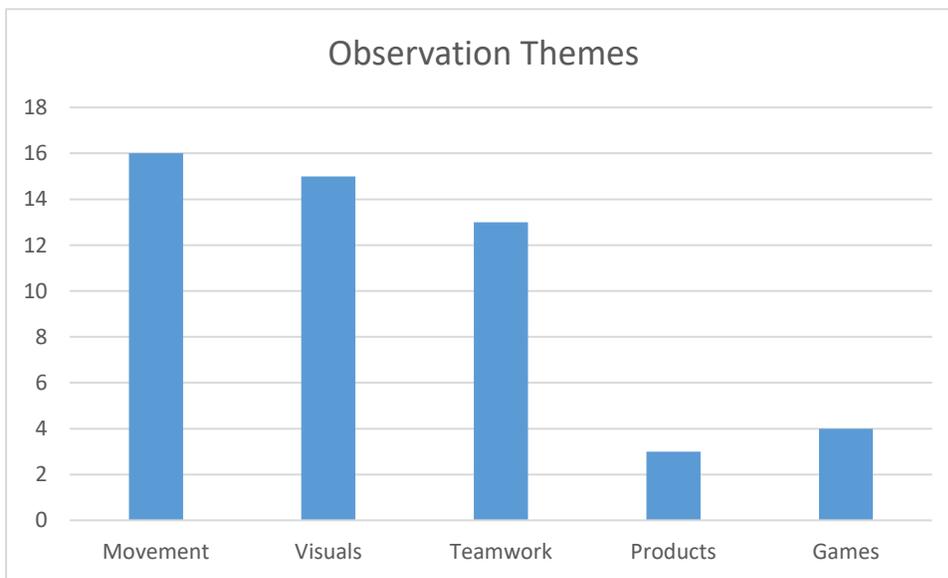
implementing these strategies wrote, “Fear of what administration might say.” These statements support the researcher’s hypothesis of a general lack of knowledge in boy-friendly engagement strategies and a low level of implementation of such strategies in classrooms.

### Observations

The researcher conducted observations in six classrooms at Smith Elementary. One teacher from each grade kindergarten through fifth grade agreed to participate in the study. Three forty-five-minute observations were conducted in each class. Antidotal field notes were taken and uploaded to QDA Miner, a qualitative data analysis computer program. Five themes were evident in the observations: *movement*, *visuals*, *teamwork*, *products*, and *games*. The themes are displayed below in Table 9.

Table 9

Observation Themes



Of the eighteen observations, movement was seen in sixteen, making it the strongest used strategy. Teachers did a variety of things to include movement in their lessons. One teacher simply had the children hop five times while moving back to their chairs after being seated on

the rug for a portion of the lesson. Another teacher had the children “Skywrite” sight words in the air, using their arm as a large pencil. While the form of movement varied, each of the six teachers being observed used it in at least one of their lessons.

The use of visuals was the second most used strategy observed. Of the eighteen observations, it was noted in fifteen of the lessons. Some teachers simply wrote on their white boards, while other teachers used base ten math blocks or flashcards. Students also used visuals in the form of student white boards, vocabulary cards, or magnetic letters.

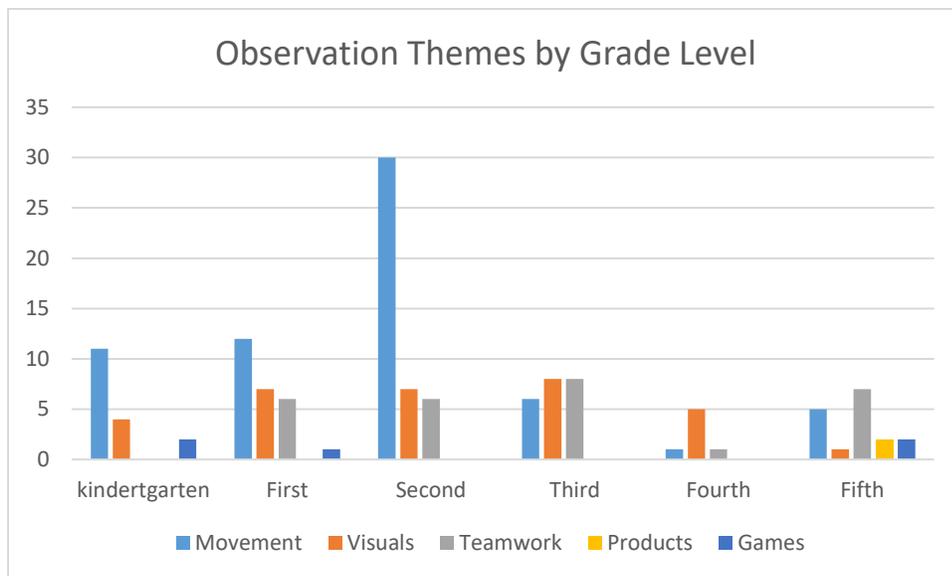
The researcher was pleasantly surprised at the amount of collaboration that was present in the observations. This collaboration was themed teamwork and present in thirteen of the eighteen observations. Several of the teachers simply had the students pair up and discuss as aspect of the lesson. Several teachers called this “Turn and talk,” and it was evident that this strategy was used frequently in their classroom.

The use of products and games was understandably low, as every lesson does not lend itself well to produce products or engage in a form of competition.

The researcher further analyzed the data based on grade level. As expected, some themes showed up more often in the younger grades and older grades and vice versa. The breakdown of themes by grade level are displayed in Table 10 below.

Table 10

Themes by Grade Level



The researcher noted that while kindergarten used movement, visuals, and games, the teacher did not have students produce products or incorporate teamwork in her lessons. Movement was evident and necessary with kindergarten, as was visuals. Whereas getting five-year old students to produce products in a lesson would be more time-consuming and with the set phonics curriculum the researcher was observing impossible to carry out.

The first-grade teacher incorporated a good amount of movement. The researcher noted eleven instances of movement within the three lessons. Visuals and teamwork were also frequently used.

The second-grade teacher had the highest use of movement within lessons. The researcher noted thirty occurrences of movement within the three lessons. The students were constantly moving. This teacher of thirteen years, transitioned her students from the carpet to standing or seated seamlessly.

During one observation, the researcher noted that the teacher had students hop, skywrite words with their arms, tap their fingers, sit down and stand up. This teacher seemed to intrinsically know that her students needed to move. While quantitating the amount of student

engagement is outside scope of this study, the research wants to draw attention to the fact that this teacher's students were engaged in the lesson. They verbally responded, raised their hands to answer questions, volunteered to go to the board to write sentences, and seemed capable of performing the tasks asked of them by their teacher. This is the type of teacher new teachers need to be exposed to and observe.

The third-grade teacher utilized a good mix of visuals, teamwork, and movement. The students knew the requirements and pairs of students moved to beanbags, mats, chairs, or carpet squared with little distraction. The teacher monitored behavior and assisted students individually while collaboration was taking place.

The fourth-grade teacher that was observed was teaching math during each of the observations. After the observations took place, the teacher explained to the researcher that the observations were during a new unit of math.

The fifth-grade teacher utilized a mixture of all five themes. This teacher is the only teacher that had her students produce products. In each of the lessons, the students were working with a partner or in a small group to make a product that went with the lesson. The students were engaged and excited about the products that were being produced. Each of these products could have easily been turned into a worksheet, but the teacher had taken the time to design a product that the students could build in class to demonstrate their knowledge in a fun, engaging manner. The researcher acknowledges that measuring the level of student engagement is outside the parameters of this study. However, all students were actively participating in the production of the product in the class time the researcher was present. The students were laughing and talking about the main idea of the lesson while building the products. This seemed to be the goal of the teacher.

In the eighteen observations conducted, movement was seen the most and the use of products the least. The researcher acknowledges that while products were only observed in the fifth-grade classroom, it is possible that the strategy of producing products is used in other classes and other grades and could simply not been observed within the allotted timeframe.

### **Focus group**

According to Creswell (2014), a focus group allows the researcher to gather qualitative data around the collective beliefs of a group of participants while controlling the directions of questioning. The focus group in this study took place after school on a week day, facilitated by a veteran teacher who teaches at a different school in the same district. The researcher provided the facilitator the focus group questions, group protocols and an overview of the goal of the focus group time. While the facilitator took abundant notes, several teachers in the focus group did not want to be video or audio recorded.

The focus group was made up of all six teachers who volunteered to participate in the study by allowing the researcher to conduct classroom observations in their classrooms. The facilitator began the focus group time together stressing the importance of honesty in the participants' answers and ensuring anonymity with her notes about answers. The focus group took approximately thirty minutes to complete.

Question one and the answers from participants are listed in table 11 below.

Table 11

#### *Focus Group Question One*

Question one: How has the Professional Development you have received impacted your teaching of boys in your classroom?

- Very little professional development on engagement strategies
- *The Minds of Boys* training four years ago
- More mindful of how boys are different than girls
- Both need to be engaged – same strategies work for both boys and girls

- Structure lessons to include movement every 15 minutes
- Attempt to do “brain breaks” that include movement in between subject areas
- Attempt to incorporate games into daily lessons

All six teachers asserted that they had received little if any professional development on teaching strategies for keeping boys engaged or the differences in boys and girls. Smith Elementary conducted a professional development four years ago that aligned with a district professional development on *The Minds of Boys* by Michael Gurian (2005). Three teachers went to the district training and shared with the staff team the main highlights from the training, including a power point and notes. The material covered differences between how boys and girls learn best and strategies on how to keep boys engaged in the elementary classroom. Two of the six teachers in the study attended the professional development at Smith four years ago.

All six teachers stated that they had read articles or books on engagement strategies but not necessarily specifically on keeping boys engaged or how boys and girls are different in their classroom needs. The teachers indicated that they believe the same strategies work well with both boys and girls to keep them engaged.

Each teacher stressed the importance of movement in their classrooms to keep students engaged, stating the movement is planned every fifteen minutes. Teachers stated they use *Go Noodle* and online “brain breaks” to incorporate movement. These breaks are planned to happen at transition times, when the academic focus is moving from one subject area to another.

Games and competition was another strategy that all six teachers said they used in their classroom on a regular basis. Teachers discussed the use of several different types of games including games where students are competing against themselves, other students, or the teacher. One teacher stated the use of boys versus girls-type games at a regular basis with great success. Other teachers discussed assigning partners to play the games and at other times allowing the

students to select with whom they play the games.

Question two and the answers from participants are listed in table 12 below.

Table 12

*Focus Group Question Two*

Question two: How prepared do you feel to keep boys engaged in your classroom?

- Pretty prepared
- Have figured it out over the years. (No first-year teachers.)
- No training in college on differences between boys and girls
- All commented on how they do things much differently than their first-year teaching.

The teachers stated that at this point in their career they all feel prepared to engage boys in their classroom. None of the six teachers who participated in the study were first-year teachers, but each commented on how they do things much differently than when they were first-year teachers. The teachers discussed a trial-and-error approach over the years as to what works and what does not work in their classroom to keep students engaged. When asked about specific training on boy and girl brain differences, the teachers stated that they had not received any training in college on these differences, but rather inferred that boys and girls learn the same.

Question three and the answers from participants are listed in table 13 below.

Table 13

*Focus Group Question Three*

Question three: What are some of the strategies you use to keep your students engaged in the classroom?

- Movement: “brain breaks” every ten to fifteen minutes
- Choice in seating for independent work and free read time
- Incorporate games into lessons
- Partner work
- Have options available for early-finishers

In answering question three, all the teachers again stressed the importance of using

movement in their classrooms. Teachers discussed using *Go Noodle* or some other form of movement as often as every fifteen minutes to help students move and stay engaged. Teachers discussed the value in giving choice in seating to students. Options mentioned were individual student desk, tables, bean bags, couch, large comfortable chairs, carpet squares, and squishy mat. Teachers varied when they offer choice in seating in their classroom. Some teachers offer this freedom during independent work time, while still others offer it only during free read time when independent work is completed.

Teachers once again discussed the use of games and competition in their classroom with great success. This competition could be with oneself, against another student, in small groups, or against the teacher. Several teachers stated the frequent use of boys versus girls type games.

Another strategy the teachers discussed using in their classroom with success is the use of partner work. Teachers commented that sometimes the teacher strategically chooses who students will work with and at other times allows the students choice with whom they will work.

A final strategy that was discussed being used on a regular basis by these teachers is simply having options available for students who finish early. Teachers mentioned reading a book quietly at a reading area, working on an ongoing project, journaling, or even free drawing. The importance that was inferred in the discussion was having something planned for early finishers not necessarily what was planned.

The fourth question in the focus group time was *Which specific strategies do you use to help your boys stay engaged?* Every teacher without exception stated that they use the same strategies with both their boy and girl students.

The fifth question was *Which strategies do you see the most success with in your classroom?* Once again, the group was in unity in their answer. Allowing student movement and

the use of games or competition were the two strategies with which the teachers see the most success.

Question six and the answers from participants are listed in table 14 below.

Table 14

*Focus Group Question Six*

Questions six: What are the obstacles for implementing boy strategies in your classroom?

- Limited knowledge of strategies
- Limited funding
- Curriculum

When asked about the obstacles for implementing boy strategies in their classrooms, all the teachers declared a limited knowledge of such strategies, while at the same time indicating an interest in deepening their knowledge on this subject. Whereas teachers discussed books and articles they had read, only one professional development was mentioned. This professional development occurred four years ago, and only two of the teachers attended. The other four teachers were not employed at Smith Elementary at the time of the professional development.

The second most discussed obstacle was a lack of funding. One teacher verbalized a desire to use large, fitness balls as another option for choice in student seating. Several teachers agreed with wanting this seating option. One teacher expressed a need for stretchy bands for several students. These bands go between the legs of the desk and allow the student to bounce or move their feet while remaining seated. The teacher said she has purchased a rubber tubing and made her own stretchy bands but admitted her homemade version is not as sturdy as the purchased model. She indicated that she has seen great success with her active students utilizing the stretchy bands. Several other teachers expressed a desire to purchase and try the bands in their classrooms.

The final obstacle for implementing boy-friendly engagement strategies discussed in the focus group was the current curriculum. The teachers all agreed that the curriculum is very structured, and the teachers indicated a general feeling from administration that the curriculum must not be deviated from. The teachers asserted that they must adhere to the curriculum closely and do not have the freedom to make modifications that would allow for the inclusion of movement, games, or partner work.

## **Chapter 5: Discussion**

### **Introduction**

This study examined the impact of teacher knowledge of best practices and strategies for engaging boys in the elementary classroom. It also looked at teacher efficacy concerning teaching boys, attempting to answer the question of whether teachers are unaware of these teaching strategies to help boys stay engaged or aware of these strategies but not implementing them. Chapter 5 will apply the data found in the study to draw conclusions and discuss implications in education and for further research.

### **Discussion**

This chapter will use data from Chapter 4 to answer each of the research questions. This study sought to address these specific research questions:

1. What is the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom?
2. To what level do elementary classroom teachers implement the knowledge of boy-friendly teaching strategies into their practice in the classroom?

Data from this study provides information about the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom, teacher efficacy in teaching boys, and to what level elementary teachers know the strategies but are not implementing them into their practice.

### **Current Level of Knowledge**

The first research question dealt strictly with the level of knowledge of elementary classroom teachers concerning boy-friendly teaching strategies. This indicator was measured using a teacher survey completed by the teachers. The survey contained nine-questions in a Likert

scale format and two open-ended questions. This study found that of the 50 surveys completed, only 30 or 60% completed the open-ended question pertaining to teacher training. Of those who answered the open-ended question, 27% stated that they have had no training of any kind concerning boy-friendly teaching strategies. The teachers who said that they did indeed have some type of training, listed a multitude of resources for their training.

Holye and John (1995, p. 17) define teacher professional development as “the process by which teachers acquire the knowledge, skills, and values which will improve the services they provide to clients.” Whether professional development is defined as acquiring needed knowledge and skills, attending a workshop, or reading a book, 27% of the teachers in this study attested that they had not received that professional development. While this number seems low, it does not account for the other 38% who noted that they have read a book on their own or attended African American training. Gurian (2001) proposes that all teachers need training in how boys and girls learn differently and what teaching strategies can ensure engaged students in the classroom. During the focus group discussion, teachers discussed being more mindful of how boys and girls are different. All six teachers agreed that they had all had very little training on these differences. Gurian (2001) suggests that many teachers do indeed “figure it out” over the years, but that all teachers could benefit from more training.

Teacher’s current level of knowledge concerning boy-friendly teaching strategies was also measured in the form of teacher observations. Only 34% of the teachers who filled out the open-ended questions, indicated that they had been through some type of boy/girl training. Yet, when the researcher conducted observations, all six teachers who were observed incorporated some of these strategies into their classrooms to varying degrees. The researcher conducted three observations in six different classrooms for a total of eighteen observations. Each observation was

around forty-five minutes in length. The researcher made note that some teachers are simply more comfortable incorporating some of the boy-friendly strategies. For example, the second-grade teacher demonstrated thirty different instances of movement in her three lessons. The fourth-grade teacher only demonstrated one instance of movement in her three lessons. Movement was incorporated in the kindergarten, first and second grade classes at a much higher rate than the third, fourth, and fifth grade classes. During the focus group, the teachers of the older grades alluded to the fact that the older students could sit still longer but also enjoyed doing things the younger students were not capable of doing – like building products. The fifth-grade teacher was the only teacher who had the students build products. This was seen in two of the three lessons.

Hoy (2002) acknowledges that teachers must believe they can successfully meet the challenges and overcome the obstacles at hand. The teachers in the study seemed to have a high efficacy concerning teaching boys by evidence of focus group comments asserting that at this point in their career they had “figured it out.”

Are teachers aware of boy-friendly teaching strategies? Many are aware of strategies to help students stay engaged, but are they aware of specific strategies to help boys stay engaged? Of the 50 teacher surveys taken in the study, only 30 filled out the open-ended questions. Twenty-seven percent of the open-ended responses stated that they had received no training in boy-friendly teaching strategies. Another 11.5% indicated that the only training they had received was in African American Male training. And a final 27% indicated that their training about boy-friendly teaching strategies included self-study as in reading books or articles and visiting websites. Only 34.6% of the teachers indicated that they had attended professional development specifically pertaining to boy-friendly teaching strategies. These numbers demonstrate a small number of teachers who are aware of boy-friendly teaching strategies.

## **Level of Implementation**

The second research question centered on to what level the teachers were implementing the boy-friendly teaching strategies. This was measured first by the teacher survey in which teachers checked which strategies they currently utilize in the classroom. Fifty teachers filled out the 9 Likert-style questions. While many teachers checked that they *sometimes* implemented the strategies, the numbers were inconsistent. For example, when movement was examined, 54% of the teachers stated that they utilize movement *frequently* in their teaching, with another 26% indicated they *sometimes* and 20% *always*. This means that 0% of the teachers *never* or *rarely* use movement in their lessons, or all teachers use movement.

The theoretical framework for this study was that boys do not perform as well in school as girls because teachers are not aware of learning differences or not designing instruction to address the unique learning needs of boys. The findings show that many teachers are not aware of strategies for keeping boys engaged and many who know about the strategies are not taking the time to plan and implement the strategies.

During the focus group when the teachers were asked about the obstacles for implementing the boy-friendly strategies, they gave only a few answers. While limited knowledge was one of the answers repeated by several teachers, limited funding was a topic that all of the teachers discussed and agreed upon. Teachers commented on the desire to objects in their classrooms that they said would help boys stay engaged.

## **Limitations of the Study**

Creswell (2012) contends that limitations in a study offer helpful parameters concerning possible weaknesses of a study which could affect the study's results. Analyzing the limitations of a study allows the readers to make informed decisions about replicating the study or

possibly conducting a similar study.

This study of boy-friendly teaching strategies was limited by the personal attitudes or opinions of the teachers involved in the study. The personal attitudes or opinions of the teachers involved in the study was a limitation. Several of these teachers made comments about including girls as well as boys in their strategies. This leads the researcher to assume that some of the teachers in the study had attitudes inconsistent with the study's premise that boys do indeed need more assistance staying engaged in the elementary classroom than girls.

A second but closely related limitation was the personal experiences of the teachers involved in the study. Teachers who have not experienced a need to help elementary age boys stay engaged will not see the value in this study.

A third limitation is honesty. Fifty teachers filled out the teacher survey. Six teachers attended and participated in the focus group. There is no way of knowing how many of those teachers were not completely honest as they answered the questions. Whether intentional or unintentional, dishonest answers can skew the research study results.

A fourth limitation in this study was the study size. This study was conducted in a large elementary school in North Carolina. Only fifty teachers filled out teacher surveys. Thirty-eight surveys from Smith Elementary and twelve from a second school. While the percentage of teachers at Smith who filled out the survey is large, the researcher acknowledges the results would have been different if a much larger number of teachers from many different schools were surveyed. Along the same lines, six teachers were observed. The researcher contemplates if the number of teachers observed was much larger, how the data would be different.

A fifth limitation is personal bias. For convenience sake, the researcher selected the school at which she works. Even with the use of a proxy for the focus group, the researcher

acknowledges that in a different school setting the study results could be very different. The researcher simply invited teachers at the school to participate in the study. As the researcher was a colleague at the time of the study, the participants worked with the researcher daily and could have had bias because of this relationship. The use of a proxy to conduct observations would have limited the personal bias present in the study. This was not possible for this study.

A final limitation is the location geographically. The study was conducted at an elementary school in North Carolina that pulls from a relatively advantaged student clientele. The free and reduced lunch population at the school is 17%. This limits the researcher ability to generalize about other schools and districts.

### **Recommendations for Further Study**

Both the teacher survey and teacher observations gave a snapshot as to which boy-friendly teaching strategies teachers are knowledgeable. They also provided insight on the strategies teachers are implementing in their classroom. Several teachers discussed using the strategies with both boys and girls. Conducting a parallel study for girls would be provide data related to what keeps boys engaged. That data could be compared to the data this study provided. This study was designed to collect observation data within three forty-five-minute time periods. If more observations had occurred, the results may have been different. Conducting a study over the course of an entire school year would provide much more data than this study could do. In addition, more observations would make a stronger case for which strategies teachers are implementing. A future study that would be beneficial to educators would be to complete a correlational study to investigate which strategies are the most useful for student engagement. Then teachers would have data to back up the effectiveness of these boy-friendly teaching strategies.

This study was completed in an urban setting. A future study could be completed in a city setting or a rural setting. This would provide data that could be analyzed concerning school regions and their impact on student engagement.

### **Implications of the Study**

This study sought to discover the current level of knowledge of classroom teachers concerning boy-friendly teaching strategies in the elementary classroom. It is apparent from data collected that a small number of teachers have a working knowledge of these boy-friendly strategies. Indeed, teachers in the focus group were open to having professional development on boy-friendly teaching strategies. The second aspect of the study was to investigate to what level elementary classroom teachers are implementing the knowledge of boy-friendly teaching strategies into their practice in the classroom. The data suggests that more professional development is needed for stake-holders pertaining to boy-friendly teaching. Administration can plan for professional development for their teachers providing valuable information concerning this research. District personnel could develop and disseminate informative training on these strategies. These research-based strategies could impact parents' decisions concerning class placement and school choice. Once realizing the importance of this information, positive social change could take place as boys engage in the classroom and male student achievement once again rises.

### **Conclusion**

This study investigated both the current level of knowledge of boy-friendly teaching strategies and to what extent that knowledge is being implemented in the classroom. For the limited sample size of the study, the level of knowledge of boy-friendly was low, thus, demonstrating a need for more professional development on these strategies. The researcher also

concluded that the level of implementation is low, with only a few strategies being widely used. Teachers at this study site need more training on boy-friendly teaching strategies to ensure boys stay engaged. Teachers also need the support required, whether that be time or resources, to ensure these strategies are being utilized. These two things would directly impact student academic achievement for boys.

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Appendix A  
Teacher Consent Form

## Teacher Consent Form

Title: Why do girls outperform boys in school:  
A qualitative study of boy-friendly teaching,  
teacher efficacy and practices

The following information is being provided to help you decide whether you wish to participate in the present study. You should be aware that your participation is voluntary and you are free to withdraw from the study at any time without consequences from the administration of the school, district, or researcher.

The purpose of this study is to examine the impact of teacher knowledge of strategies for ensuring boys' engagement in the elementary classroom and teacher efficacy concerning their ability to engage boys in their classroom. Data collection will take place in several phases: Phases one – You will be asked to fill out a survey about your beliefs regarding what strategies you use on a regular basis in your classroom; Phase two –The researcher will observe your classroom for three 30 to 45-minute snapshots of student engagement; Phase three– You will be asked to participate in a focus group discussion of what strategies elementary teachers use to keep boys engaged in the classroom; Phase four – The researcher will collect and analyze data from the surveys, observations, and focus group using teacher codes. Participants names will not appear in this study.

Please do not hesitate to ask any questions about the study prior to, during or after your participation in the study. When the study is completed, data will be shared with each participant as a means of sharing the study findings. Your name and school will not be associated with the research findings in any way and only the researcher will know your identity.

There are no known risks and/or discomforts associated with this study. The expected benefits associated with your participation in the study are the information about best teaching strategies for keeping boys engaged in the elementary classroom. You will be making a valuable contribution to an important field of research.

Please sign this consent form. You are signing it with the full knowledge of the nature and purpose of the procedures. A copy of this form will be given to you to keep.

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Signature

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Date

Renee Clifford, Doctoral Student, Gardner-Webb University  
rclifford@gardner-webb.edu

Appendix B  
Teacher Survey

## Teacher Survey

Please indicate with a check in the appropriate box how often you implement the following teaching strategies in your classroom to help boys stay engaged.

Teaching Strategies:	Always	Frequently	Sometimes	Rarely	Never
1. Allow choice in seating (rug, bean bags, rocking chairs, etc.) or allow boys to stand in the back of the room					
2. Plan lessons that include opportunities for movement					
3. Include teamwork and collaboration in lessons.					
4. Use visuals in lessons.					
5. Offer shorter texts or passages for boys.					
6. Plan opportunities for boys to build and produce products.					
7. Structure parts of some lessons as games, considering an element of competition.					
8. Allow boys to assume a role or responsibility for promoting learning of others.					
9. Allow boys to share their thinking through talk time prior to writing.					

10. What training, workshops, or reading have you completed to advance your knowledge of best strategies to keep boys engaged in the elementary classroom?

11. How prepared do you feel to implement boy-friendly strategies in your classroom?

12. What are obstacles for implementing boy-specific strategies in your classroom?

## Appendix C

### Teacher Observation Checklist

## Teacher Observation Checklist

Observer indicated with a check in the appropriate box which teaching strategies were implemented in the classroom to help boys stay engaged.

Teaching Strategies:	Always	Frequently	Sometimes	Rarely	Never
1. Allow choice in seating (rug, bean bags, rocking chairs, etc.) or allow boys to stand in the back of the room					
2. Plan lessons that include opportunities for movement					
3. Include teamwork and collaboration in lessons.					
4. Use visuals in lessons.					
5. Offer shorter texts or passages for boys.					
6. Plan opportunities for boys to build and produce products.					
7. Structure parts of some lessons as games, considering an element of competition.					
8. Allow boys to assume a role or responsibility for promoting learning of others.					
9. Allow boys to share their thinking through talk time prior to writing.					

Appendix D

Focus Group Questions

## Focus Group Questions

1. How has the Professional Development you have received impacted your teaching of boys in your classroom?
2. How prepared do you feel to keep boys engaged in your classroom?
3. What are some of the strategies you use to keep your students engaged in the classroom?
4. Which specific strategies do you use to help your boys stay engaged?
5. Which boy strategies do you see the most success with in your classroom?
6. What are the obstacles for implementing boy strategies in your classroom?

## Appendix E

Email from Peggy Daniels concerning instruments used in study

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**instrument**

3 messages

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Renee Clifford <renee.clifford5@gmail.com>  
To: "Daniels, Peggy" <pdaniels@carolinaday.org>

Mon, Jul 24, 2017 at 9:27 AM

I sent this last week. Perhaps, it got lost in cyberspace!

Mrs. Daniels,

I hope this finds you enjoying your summer break. I honestly believe the summer flies by for teachers at a faster pace than for others!

Just to refresh your memory . . .

I am a doctorate student at Gardner-Webb University, working on my dissertation that focuses on teacher professional development as it relates to teaching strategies for helping boys stay engaged in the elementary classroom. You were kind enough to share with me your Strategies for Teaching Boys and Girls. I believe these are notes you taught from while teaching/training with the Gurian Institute. I have formulated a teacher survey and observation checklist from your notes to use in my research for my study.

\*Would you please read over the instrument and let me know if there is anything you think I should change or add? I would like it to be a valid and reliable measure for teacher's use of strategies in their classrooms.

Thank you for your time. I appreciate your assistance in my study.

Renee Clifford

[336/509-0882](tel:3365090882)

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Renee Clifford  
[336/509-0882](tel:3365090882)

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 Teacher Survey and Teacher Observation Checklist.docx  
14K

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Daniels, Peggy <pdaniels@carolinaday.org>  
To: Renee Clifford <renee.clifford5@gmail.com>

Wed, Aug 2, 2017 at 7:05 PM

Renee - These are my suggestions. Sorry for the delay. This is a busy time for me and I have been on vacation. Hope this goes well! Peggy

1. Allow choice in seating (rug, bean bags, rocking chairs, etc.) or allow boys to stand in the back of the room

2. Plan lessons that include opportunities for movement

3. Include teamwork and collaboration in lessons

4. Use visuals in lessons.

5. Offer shorter texts or passages for boys.

6. Plan opportunities for boys to build and produce products

7. Structure parts of some lessons as games considering an element of competition.

8. Allow boys to assume a role or responsibility for promoting the learning of others

9. Allow boys to share their thinking through talk time prior to writing

Peggy Daniels  
Associate Head of  
School Upper School  
Principal  
Carolina Day School  
Asheville, NC 828-  
274-0757

[Quoted text  
hidden]

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Renee Clifford <renee.clifford5@gmail.com>  
To: "Daniels, Peggy" <pdaniels@carolinaday.org>

Thu, Aug 3, 2017 at 11:19 AM

Ms. Daniels,

Thank you so much for taking the time to look at the instrument and make your suggestions. I will use them in my final copy.

Again, I appreciate your willingness to help me with this study.

I wish you the best this school year!!

Renee Clifford  
[Quoted text  
hidden] --  
Renee Clifford  
336/509-0882