A Study of the Organizational and Instructional Approaches and Learning Outcomes from the Alignment of Students of the Same Gender with Teachers Who Have a Known Proclivity for Working with Students of One Gender

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Carletta D. Griffis-Anderson

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by

CARLETTA D. GRIFFIS-ANDERSON

has been approved for

the Department of Educational Studies

and The Patton College of Education by

William K. Larson

Associate Professor of Educational Studies

Renée A. Middleton

Dean, The Patton College of Education

Abstract

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A Study of the Organizational and Instructional Approaches and Learning Outcomes from the Alignment of Students of the Same Gender with Teachers Who Have a Known Proclivity for Working with Students of One Gender

Director of Dissertation: William K. Larson

This study is focused upon the identification of the organizational and instructional practices, which are used by teachers who have been selected to engage with students in a single gender environment and the learning results of the arrangement (Ferrara, 2009). More specifically, the purpose of the study is to ascertain the manner that these practices and the related learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities.

While the results of research are available regarding the implications of the alignment of a teacher‟s instructional style with a student‟s learning style, (i.e. auditory, visual or kinesthetic) (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984), no studies have been found in the literature regarding the relationship between a teacher‟s approach to pedagogy and the learning characteristics of that specific gender (Ferrera, 2009).

To pursue the objectives of this research, a case study, with a mixed methods approach was conducted in an urban elementary school with teachers who have been identified, based upon a norm-referenced survey, as having an inclination toward instruction to a specific gender (Ferrara, 2009). The study incorporated a quantitative analysis of the results of the district assessment to determine learning outcomes.

Dedication

I dedicate this work to my family. May it be a source of inspiration to further your dreams. To my daughters, Sarah and Kami; thank you for always understanding and allowing mommy to do her work. It is through this work I hope I have instilled in you the value of perseverance. To my mom, Ruby D. Hoelyfield-Harris, for your constant support during this process and to my friends, Michelle R. Milner and Lisa R. Munnerlyn, I will never take for granted our friendship or your support!

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To the One who made available to me wisdom, righteousness, sanctification and redemption and because of Him I can do all things (I Corinthians 1:30, Philippians 4:13). Without the Holy Spirit guiding, leading, encouraging and protecting me during this process, none of this would be possible. I thank God for the fortitude to complete this task and may it be used for kingdom purposes.

My gratitude is heartfelt for Drs. Margaret and Peter Ferrara, Dr. Janet Hinds, Dr. William Larson, Dr. Yegan Pillay, Dr. Dwan Robinson, Dr. Edna Wangui and Ohio University professional staff too numerous to name for their tireless effort and unselfish commitment in helping me through this dissertation process.

I appreciate the children, parents, dedicated teachers and administrative staff in the school district which provided me an opportunity to share my passion for educating children and my ideas on how to impact their educational experience.

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Chapter One: Introduction

Background of the Study

Who should be teaching in classrooms and what are the ramifications of their selection? This is a question that has been formulated and the answer explicated since the beginning of the schooling process (Cruickshank & Haefele,1990; Darling-Hammond & Youngs, 2002). Proposed answers to the question are usually driven by the standards of the times and sadly reflect, in most cases, little to do with data driven and empirical evidence (Darling-Hammond, 2006; Darling-Hammond, Wise & Klien, 1999; Goldin, 2010). For example, the focus for the selection of teachers at one period in the past was on the manner in which a teacher should dress and other factors relatively obscure to instruction and learning (Foster, 1986). Emerging from more serious discussions of teacher selection are topics such as teaching requirements and standards, along with the identification of valid ways to measure effective instruction. The discussion of who should be teaching has also focused on the influence of the context. In some situations, the context appears to be neutral and in other situations it seems to have a significant influence. For example, the same standards appear to apply in different contexts, such as a single gender regular urban environment and a single gender regular suburban or parochial setting (Bruemmer, 2006). In other words, Bruemmer contends, the context of teaching should include the audience. Knowledge of the subject matter is of importance; however, who one is teaching to, including their learning characteristics is equally important. Adding to the discussion of who should be teaching are matters such as the

relationships between the gender-based instructional proclivities of the teachers and the gender of their students in a learning environment, which could be all-boy or all-girl.

Currently, there are several reforms taking place in public education**,** which appear relevant to the focus of this study. The reforms include the restructuring of curriculum matters, the development of authentic assessment measurements for both students and teachers, and the implementation of new or recycled school models and programs. However, the aforementioned reforms have less influence without the presence of highly-skilled, effective teachers in the classrooms (Darling-Hammond, 2006; Darling-Hammond, et al., 1999, 2002; Kemp & Hall, 1992; Ladson-Billings, 2009). In addition, research suggests that matching the right teaching style with the right student learning style can influence learning (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). For this reason, researchers have suggested that teaching and learning styles should be matched in order to enhance student engagement (Griggs & Dunn, 1984; Smith & Renzulli, 1984).

Students, as considered in this study, have been failing academically. For this reason, programs, which typically include instructional strategies have been proposed and initiated to address the issue of academic failure. The utilization of single gender learning environments represents one alternative to address the issue, particularly the reported disparity of academic achievement which exists between boys and girls (James, 2007, 2009). To further understand the impact of matching teaching styles to student learning, this study proposes to explore the instructional and organizational practices that are useful for a teacher who is considered to be a good fit in a single gender environment (Thomas & Chess,1977). While the manner in which student learning styles can be

matched with teacher instructional styles has been examined, no study has been identified in the extant literature regarding the ramifications of matching a teacher‟s gender-based instructional proclivity to a single gender student environment.

Purpose of the Study

This study is focused upon the identification of the organizational and instructional practices, which are used by teachers who have been selected to engage with students in a single gender environment and the learning results of the arrangement (Ferrara, 2009). More specifically, the purpose of the study is to ascertain the manner that these practices and the related learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities. For example, instructional practices could include the manner in which an educator uses instructional strategies such as delivery methods, questioning techniques, grouping strategies, and approaches to enhance time-on-task. The organizational practices could include the learning arrangement of the classroom, (i.e., arrangement of desk or other furniture, display of student work or displays in general). The study also is concerned with the learning outcomes that emerge from such an arrangement. Those learning outcomes may be reflected in a variety of ways such as documents, (i.e. student portfolios, artifacts, projects, and other displayed works). The students can also exhibit, via interviews, surveys, and dramatizations the knowledge and skills, which they have obtained.

While the results of considerable research are available regarding the implications of the alignment of a teacher‟s instructional style with a student‟s learning style, (i.e., auditory, visual or kinesthetic) (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984), little

or no studies have been reported regarding the relationship between a teacher‟s approach to pedagogy and the learning characteristics of that specific gender (Ferrara, 2009). The outcomes of this study also could lead to an enhanced understanding of the literature (Baron-Cohen, 2003; Berninger, Neilson, Abbott, Wijsman & Raskind, 2008; Eliot, 2009, 2011; Fine, 2010; James, 2007, 2009; Sax, 2005, 2009, 2010) that both purport and oppose the notion that boys and girls learn differently and for this reason may be served best by educational environments and instructional strategies that complement their genders.

However, in this study there is no intent to purport that all boys or all girls learn in the same manner. Children from either gender, according to the literature, exist who would benefit from nearly any teaching practice, regardless of the specific strategy that reportedly would work best with their own gender (Gurian, Stevens & Daniels, 2009). After all, some students appear to adapt to whatever influence is present in their classroom, (i.e. grasping an understanding in spite of their preferred learning style).

The ramifications of the theoretical bases of gender have not been addressed in this study. They include an assortment of gender theories found in the scientific literature (Anselmi & Law, 1998; Aries, 1996; Davies, 2002; Gergen, 2001; Howard & Hollander, 1997; Risman, 1998; Sabbe & Aelterman, 2007; Stanley, 2002). Gender in this study is used in a social context and refers to students being grouped for instructional purposes in a single gender learning environment, (i.e. all-boy or all-girl students, which includes behavior and performance). No other connotations about gender are exhibited in this study. A reason for this approach is that boys and girls do not all exhibit respectively boy

or girl learning characteristics and behaviors. Therefore, gender alone does not dictate a particular learning style that fits all boys or girls.

Description of Terms

The following terms are used throughout the document. The meaning of the terms may not be common to others outside of research or the field of education.

- Academic Watch: A designation by the department of education in the state in which the study has been conducted to indicate a school, school district, or community school that has not met Annual Yearly Progress (AYP), has a performance index score of between 70 to 79.9, and has scored between 31 to 49.9 percent in accordance with state indicators. There are a total of 26 state indicators; however, a school may only be held accountable for those which pertain to the school population, (i.e. a school which as a population of students in kindergarten to third grade would be accountable only for state indicators pertaining to third graders; math and reading achievement). All the scores, (i.e. state indicators, performance index score and AYP) are calculated based on student performance on state mandated test (Department of Education, 2012[1]).
- BOY: A Beginning of the Year assessment test, administered in the district of this study, to document student achievement. The original intent, which has only partially materialized has been to assess students‟ academic achievement in mathematics and reading. However, only

[1] Definition obtained from website, however, the location is omitted in order to maintain anonymity.

reading has been assessed. The assessment, as the name implies, is administered at the beginning of the academic school year.

- Case: The term case has been used interchangeably with the terms classroom and learning environment. The meaning of the terms has been used to refer to the participants (4 teachers and their students) and/or to describe the location of an observation.
- Classroom: The term classroom has been used interchangeably with the terms case and learning environment. The meaning of the terms has been used to refer to the participants (4 teachers and their students) and/or to describe the location of an observation.
- Continuous Improvement: A designation declared, by the department of education of the state in which the study has been conducted, to a school, school district, or community school that has been on academic watch and which has experienced improved growth for a given school year. Growth is determined by the concept of value-added and or improvement on performance index score, state indicators or AYP (Department of Education, 2012[2]).
- EOY: End of Year assessment in the district of the study. Used at the end of the academic school year (April-May) to assess the level of academic growth of students. The original intent had been to assess students at the end of the year in both mathematics and reading. However, district

[2] Definition obtained from website, however, the location is omitted in order to maintain anonymity.

officials dropped the assessment due to the recent implementation of common core state standards.

- Gender: Gender is this study is used in a social context. It refers to the subgroups, boys or girls, and includes social expectations in terms of performance or behavior (Ridgeway & Correll, 2004).
- Gender-based instructional inclination: The propensity of a teacher whose teaching practices lean toward the learning characteristics of a specific gender of students (Ferrara, 2009).
- Goodness of Fit Model: The concept of matching temperament preferences or traits with instructional and learning styles. It also involves matching the compatibility of a person‟s temperament with their surrounding environment (Chess & Thomas, 1977).
- Learning environment: The term has been used interchangeably with the terms case and classroom. The term's meaning has been used to refer to the participants (4 teachers and their students) and/or to describe the location of an observation.
- Measure of gender-based instructional propensity: A measurement of a teacher‟s instructional propensity with the use of a norm-referenced test (Ferrara, 2009)
- MOY: Middle of Year assessment of the district in which this study has been implemented. The middle of the academic school year (January-February) assessment is for the purpose of measuring the academic

improvement of students. The original intent was to assess students in both mathematics and reading, however, district officials made a change due to common core state standards. The assessment has only been administered in the area of reading.

- Sex: The term refers to the sexed body of a person, male or female (Mosby‟s Medical Dictionary, 2008). While such a common term as sex, according to convention, would not be included among the definition of terms in a dissertation, the defined meaning is specific to this study. In addition, there are other connotations of the term sex.
- Single gender environment: A whole school or classroom setting in which all the students are the same gender (sex) (i.e. all female, all male) (Morin, 2011).
- Title IX: A law that pertains to gender equity. The law must be addressed by institutions which receive federal funding (National Center for Educational Statistics, 2009).

Approach to Study

This study seeks to detect the manner in which learning is influenced when teachers are made aware of their gender-based teaching proclivities, the manner that these teachers organize and deliver instruction in a single gender environment, and the learning outcomes of this arrangement. A gender-based instructional proclivity pertains to the notion that teachers can be identified as being a "good fit" in an all-boy or an all-girl classroom environment. To pursue the objectives of this research, a case study, with a

mixed methods approach, was conducted in an urban elementary school with teachers who have been identified, based upon a norm-referenced survey, as having an inclination toward instruction for a specific gender (Ferrara, 2009). The study incorporated a quantitative analysis of the results of the district assessment to determine learning outcomes. The quantitative analysis involves a report of the results of the district mandated assessment in reading. The beginning of the year assessment is referred to as (BOY), middle of the year, (MOY) and end of year (EOY). The BOY and MOY have been administered at the time of this study. The assessment results have been posted in the district and have been made available by the building principal and reading specialist.

The choice of the school for the study reflects that, at the time of its selection, it was the only single gender learning environment within the district to which I, as the researcher, had access. Single gender instruction is being conducted in grades three through six of this Title I school, which is located in a city district in the capital of a Midwestern state. Forty percent of the population of the school is housed in single gender classrooms. However, single gender instruction involves sixty percent of the students in the four designated grade levels. For example, approximately two-thirds of the ninety students in the fourth grade are in a single gender classroom environment. Coeducational classes, which consist of students from both genders, exist at all grade levels, (i.e. pre-kindergarten through sixth, of the school being studied).

The school has a population of over five hundred students, of which seventy-one percent is African-American. In addition, the school offers English as a Second Language (ESL) instruction. Some of the ESL designated students are enrolled in a

single gender classroom. The ESL program serves over sixty students, whose primarily languages are Arabic, French, Somali and Spanish. Further, this educational facility has a preschool which serves regular and special needs students. The preschool program is one of the most popular programs parents utilize to *jump start* their child‟s educational experience. A waiting list exists for entrance into the program.

Organizational Framework

An attempt to implement a single gender learning environment, even given its legal establishment with the revision to Title IX, can be met with challenges (Chadwick, 2009; Ferrara & Ferrara, 2004; Jackson, 2002; Martino, Mills & Lingard, 2005). In fact, such challenges have occurred in the school in which this study is being conducted. Today‟s schools, according to Hoy and Miskel (2008)**,** need to be open social systems with four important internal elements, (i.e., structural, individual, political, cultural,) which work to influence organizational behavior**,** such as change. The schools are also regularly confronted with both rational and natural characteristics that influence such behavior (p.20). Rational and natural in this context refer respectively to the scientific management perspective identified by Frederick Taylor (1947) and the human-focus ideas of Mary Parker Follett (1924).

Schools have been labeled as being a social open system, due to their dependence on and influence that they receive from the environment, both external and internal**.** Public schools take input from the components of their environments, which include federal and state governments and their related agencies, elected boards of education, superintendents, teachers unions, and parental and community groups. These

organizations have sought to transform the school upon which this study is based, along with the other schools in the district**,** in order to produce desired end results. These objectives have included, increased academic achievement, closure of achievement gaps for certain groups of students, desegregation of schools, school closures, budgetary reductions, and increased graduation rates.

The decision to implement single gender education in the school being studied was influenced by and dependent initially upon a component of the internal environment. The influence emerged from the outcry of one teacher, who scrutinized the student data, concluded that single gender education should be attempted in the school, and then encouraged the district and school"s administration to make the idea happen. One aspect of the data, which seemed particularly significant to the teacher, was that the achievement level of the boys was particularly low.

The internal subsystems within an open system, such as the school in which the study is being conducted, influence the overall behavior of the organization; therefore considerable attention needs to be given to them in order to implement a desired change. It is through these internal subsystems, coupled with leadership, that transformation takes place, thus producing a desired end result. As with internal factors, the external environment also needs attention. Burke and Litwin (1992) have developed a model of organizational change based on the external environment as the impetus for change. Part of understanding the model lies in recognizing the external forces, (i.e. climate and culture), the environment and the style of leadership displayed in the organization. The model reflects the work of Burns (1978) regarding transformational and transactional

leadership, both of which are relevant to this study. The transactional leadership style tends to deal with a leader who maintains the status quo within the organization. When efforts are made to move the organization forward by a transactional leader, they are based upon transactions, extrinsic as opposed to intrinsic forms of motivation. Transformational leadership tends to be about producing change at more of a revolutionary pace. The motivation for the change tends be based upon intrinsic factors.

The kind of leadership, which has been used to make a case for single gender education and a change in the learning environment of the school being studied, has been both transactional and transformational. The change has been made in a manner, which appears to be parallel to the ingredients of the Burke-Litwin Model (1992), (i.e. attention to the environment, leadership, individual and organizational performance, culture, and vision and mission). As previously mentioned, one of the school"s teachers, who was working at the third grade level, experienced frustration with the reading results of her students. For example, in a class of 27 students, 24 were boys who had done poorly on reading, while the three girls had done satisfactorily. The teacher took her concern to the administration of the school, which began to work with the entire third grade teaching staff to come up with a solution to influence the academic achievement at that grade level in a more positive manner, which would be in accord with the mission of the school. The suggestion that emerged from the third grade teachers was to identify and implement an approach in which teaching was directed toward the learning characteristics of the gender of students.

The leadership style, which was employed by the administration at the early stages of giving consideration to and then developing a new learning environment, was primarily transactional in nature. The administration strived to maintain as much control and continuity as possible of the day-to-day operation. The concern about continuity reflected that the school year had already begun. To suggest the implementation of a change at that time could have created unneeded resistance. For that matter, a change would not prove prudent until all facts, data, and a better understanding of the facts pf the proposal had been discussed. The staff, who would be affected, would need to understand the ramifications of the proposed changes to the learning environment, including the rationale or "burning platform" leading to the change (Burke, 2008, p.277). While the implementation of the change to a single gender learning environment at the third grade level was approached in a deliberate manner, it was also addressed with amazing dispatch.

Two factors may have provided the leadership of the school, in which this study has been conducted, with the capacity to implement the change with such urgency. The climate, (i.e., a set of psychological priorities) of the work environment that is based on collective perceptions of the people in that environment (Litwin**,** et al.**,** (1978), and the culture, (i.e. values, assumptions, beliefs) (Schein, 1984, 2004; Taqiuri & Litwin, 1968) were both favorable. More specifically, the staff members have a mutual respect for each other"s professionalism and have demonstrated an inclination to work for the good of those being served, (i.e. particularly the students). In addition, the transformational leadership style, which has been demonstrated by the school"s administration, could be

characterized as being revolutionary, sudden and urgent, particularly with the assistance of the "burning platform" (Burns, 1978; Bass, 1999). Revolutionary in this situation, as the administration, along with the leadership from the teacher who initiated this endeavor, understood the need to do something not mandated in order to address a shortcoming with academic achievement.

The influence to address the shortcoming was not an authoritative order mandated by the board of education, superintendent, or parent group, but represented recognition by the teachers of the potential value of an instructional strategy, which had not been tried in any other school in the district. After the school year had started, a decision was made to move forward. In order for the change to take place in a timely fashion, the issue of urgency and an understanding of what the change would look like had to be conceived and implemented by the teachers, who were responsible for carrying out the initiative. Old ideas, assumptions and values had to change regarding task requirements and individual skills and abilities. The ideas, assumptions, and values, which needed to change, had to center on teaching in a different learning environment, one in which little to no preparation was available. Fortunately the capacity to engage in planning and implementation, while working on the job, emerged from the teachers.

The task of implementing a single gender environment necessitated a thoughtful approach by the administration. Policies and procedures had to be considered and presented to a district reform panel before the change could take place. However, the commitment of the third grade teachers for the change provided a basis of support for the change. The teachers exhibited an organizational culture of trust and a belief regarding

the capacity of the students to learn. The culture of the teachers, the leadership style of the administrators, along with the external environment, propelled the start of single gender learning within the same school year. The single gender learning environment was initiated in October, just two months into the start of the school year. In its first year of implementation, the learning environment consisted of one all-boy, one all-girl, and one mixed gender third grade classroom.

Organizational change is not an easy task, even when it is made under the best of conditions. The change in the school being studied was implemented in a manner that reflected flaws and mistakes. However, the transition was made with internal support. The end result fortunately has been that the change in the learning environment is sustaining itself. Currently, single gender learning classrooms exist in grades three through six of this school. This change of the learning environment, used to influence academic achievement now has been in place for six years. Determining the manner in which to measure the outcomes of the new learning environment has been ongoing for the last three years. The focus has been on the identification and the analysis of data, which appear to be relevant to the desired measure of student learning. The process in which organizational change took place in this setting may or may not be subject to replication in other districts and schools. After all, schools typically operate as open systems, the ramifications for organizational change tend to be influenced by the uniqueness of a school, including the influence of the leadership, the culture, the climate, and the external environment. Regardless, organizational change can be effective. In order to affect desired changes, leaders need to consider and utilize applicable theoretical

constructs (Hoy and Miskel, 2008). The desired outcome for the school in this study occurred as a result of the use of both transactional and transformation leadership, a complementary culture and climate, and useful external stimuli.

Significance of Study

Since 1972, with the creation of Title IX, much effort has been taken on the part of the federal government to ensure that all children, regardless of gender, receive equitable treatment. No longer can students be denied, based upon their gender, access to school programs. The Title IX provision has opened the door to equal access to participation in sports programs and other educational opportunities. Girls, who had previously been denied access to sports, such as football, can join the school team with the same rights and responsibilities as the boys, with exception of the existence of a team specifically for girls. The same rights and responsibilities holds true for boys to participate in sports traditionally reserved for girls, such as field hockey. In addition, the provisions in Title IX have afforded new academic opportunities. Girls and boys now have equal access to classes and programs which traditionally separated them, such as shop and home economics, and higher level math and science classes.

Changes to Title IX regulations were proposed in March, 2004, to include the legal establishment of single gender learning environments; however, it was not until October, 2006 that school districts were given the opportunity to implement single gender classrooms and schools for the purpose of improving academic achievement. The school, in this study, took advantage of this legislation to implement this instructional

strategy (single-gender learning environment) to address the troublesome data and learning outcomes.

More specifically, an urgency existed. The children deserved to be influenced by instructional strategies that could lead to desired learning outcomes (Ladson-Billing, 1994, 2009). The provision of such opportunities was supported by the existence of research that reported the successes and rationale for using such instructional strategies (Ferrara & Ferrara, 2004; Gurian & Stevens, 2005; Riordan, 1994; Rowe, 2000; Salomone, 2003; Sax, 2005). For instance, research has been conducted on the merits of matching teaching styles with learning styles (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984) and the ramification of the implementaion of single gender learning environments, as a viable option for improving academic levels of students (Ferrara & Ferrara, 2004; Salmone, 2003).

However, no study appears in the extant literature regarding the instructional, organizational, and learning ramifications which emerge from students being matched with a teacher with an identified gender-based instructional proclivity. In other words, little in the way of research outcomes exist to guide the manner in which teachers with specific gender-based instructional inclinations should be matched with students of a single gender. For example, could a teacher, whose gender-based instructional proclivity is compatible with the learning characteristics of boy learners, best provide instruction in a classroom with all boy learners and vice versa? This research seems significant for the following reasons.

- The instructional and organizational practices of teachers, who have been made aware of their gender-based instructional proclivities and who have been assigned to single gender classrooms have been identified, analyzed and reported.
- The relationships of gender-based instructional practices and student matching in a single gender environment have been identified, analyzed and reported.
- The learning outcomes of students who have been assigned to single gender classrooms with teachers who have been made aware of their gender-based teaching proclivities have been identified, analyzed and reported.
- The literature regarding single gender-based instruction and learning and teacher/student matching in a single gender environment should be enhanced as a result of the outcomes of this study.

To summarize, the study portends to contribute to an enhanced understanding of the relationships between gender-based teaching inclinations and students of the same gender, including the learning outcomes of such environments. This information can be useful to an enhanced understanding of teacher preparation, assignment, and professional development. For that matter, the results of the study can benefit the teachers studied, the children they serve, and the school and school district in which they engage in learning. For example, the study can contribute to the understanding of the instructional and organizational practices that are used by teachers who are considered a good fit in an all-

girl and an all-boy environment. It also can contribute to the learning outcomes of such an arrangement. In addition, the study can produce new questions and answers, which can be used to match teachers with students in a manner that will contribute to effective instruction and learning.

Research Question

Researchers have studied and identified the ramifications, (i.e. both positive and negative), of conducting single gender-based instruction (Barnett & Rivers, 2004, 2007; Eliot, 2011; Gibb, Ferguson, & Horwood, 2008; Haag, 1998,2000; Halpern, Eliot, Bigler, Fabes, Hanish, Hyde, Liben, Martin, 2011; Hilliard & Liben, 2010; James, 2007, 2009; Salomone, 2003; Sax 2005, 2009, 2010; Singh, Vaught, & Mitchell, 1998). The issue of matching student learning styles with specific teaching styles to maximize student achievement also has been studied (Constantinou, 2008; Hunt, 1971, 1972; Lage, Platt & Treglia, 2000). Further, studies have addressed the ramifications of matching the gender of teachers with students of the same gender (Dee, 2005, 2006). However, no study appears in the extant literature regarding the most effective manner to match a teacher‟s gender-based teaching proclivity with students of that gender. The question of who best should be teaching students of the same gender has not been addressed in the literature. This study has been focused on the information, which emerges out of an awareness of identified gender-based instructional styles. As a result, the following is the primary research question.

- In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to students in

single gender environments and what will be the learning outcomes in such an arrangement?

The study is not only focused on the information which emerges out of an awareness of the identified gender-based instructional styles but on the matching of the instructional style with the students of the same gender. As a result, the following are the secondary research questions.

- In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize the instructional environment to support student learning in a single gender classroom?
- In what manner will teachers, who have been aware of their gender-based teaching proclivities, deliver instruction to students in single gender environments?
- What are the learning outcomes of students who are of the same gender when matched with a teacher who has a known gender-based instructional proclivity?

The ramifications of matching students of one gender with a teacher who has a known gender-based instructional proclivity are discussed throughout this study, particularly in Chapters Four and Five. Regardless, no study appeared in the extant literature, prior to this study, regarding the ramifications of matching a teacher‟s gender-based teaching proclivities to single student gender-based environments. Such a matching and the ramifications appeared, at the advent of the study, to deserve further exploration and for this reason were a primary basis of this study.

Theoretical Framework

The purpose of this study has been to ascertain information, which can be used to enhance the understanding, (i.e. the theoretical framework of effective teaching and learning). More specifically, the study has been focused primarily upon the manner that instructional and organizational practices and learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities and assigned accordingly. This study has been focused upon the identification of the instructional and organizational constructs and practices, which have been used by these teachers, when engaged with students in a single gender environment.

The theoretical framework for this study has been born out of two researched concepts. The concepts pertain to matching teacher instructional styles with student learning styles (Dunn, 1984; Dunn & Dunn, 1978; Hunt, 1971, 1972; Joyce, 1984; Pervin, 1980; Smith & Renzulli, 1984) and the goodness of fit model (Thomas & Chess, 1977). Both concepts purport that learning can be nurtured with a good match between a teachers instructional style with a student‟s learning style.

According to the precept of the "goodness of fit model", in the context of single gender learning environments, effective learning emerges when the learning styles of children are matched with the natural dispositions of the teachers and the learning environment is favorable for student success. Therefore, a "goodness of fit" model, when applied in the context of single gender learning groupings, involves a complementary relationship between the learning temperament of the student and instructional disposition of the teacher in an environment which will support the interaction. The

environment would need to enhance learning for that particular gender of students. Plus, the gender-based instructional style of the teacher would reportedly need to be paired with the same gender of students and reflect the learning characteristics of the specific gender, (i.e. boy or girl learners).

Researchers have studied existing relationships between the environments, the characteristics of teachers, and the temperaments of students (Lerner, Lerner & Zabski, 1985; Plomin & Dunn, 1986; Wallander, Hubert & Varni, 1988). These research results support academic achievement gains through matching student learning style with the same teacher instructional styles. (Dunn, Griggs, Olson, Gorman & Beasley, 1995; Klavas, 1994; Spires, 1983). The outcomes of the studies have been that thoughtful matching will enhance student success. However, the relationship between single gender environments, the characteristics of teachers and the temperaments of students has not been reported in the extant literature, at least not prior to this study. For this reason, this study has been based upon the identification of the benefits or lack thereof of matching a teacher‟s gender-based instructional style with learners who are the same gender, with consideration of the implications of environmental conditions, (i.e. single gender learning environment). In other words, a study of organizational and instructional practices and the learning outcomes was implemented. This study has attempted to ascertain information regarding the practices and outcomes, particularly in the context of a single gender learning environment. Given the interest in knowing more about the manner in which teachers deliver instruction and students learn, the study has the potential of

contributing to the understanding of pedagogy (National Association for Single Sex Public Education, 2011).

Opponents of Single-Gender Education

A sizable amount of information exists, which supports the benefits of using single gender education in public school settings (Baron-Cohen, 2003; Berninger et al., 2008; James, 2007, 2009; Riordan, 1994; Sax, 2005; Sommers, 2000, 2001). However, there is also contradictory information to suggest that the single gender instructional strategy, which has gained acceptance in low and poor performing urban districts, is not an acceptable or effective way to educate children (ACLU, 2009, 2011; Barnett & Rivers, 2004; Eloit, 2011; Halpern et al., 2011; NOW, 2007; Smithers & Robinson, 2006). Specifics regarding the opposition are explored in detail in the literature review, located in Chapter Two. The inclusion of information regarding the opposition to the use of single gender education seemed important to enhance the authenticity of the study.

While the author of this study recognizes the existence of aggressive opposition to single gender education, it is perceived that benefit can be obtained from studying its aspects, (i.e. student and teaching matching), specifically the matching of a teachers gender-based teaching inclination with students of that gender in an attempt to understand what influence the matching has in terms of student learning outcomes, instructional and organizational practices. In addition, single gender learning environments, due in part to legislative measures in No Child Left Behind (U. S. Department of Education, 2004) and particularly the changes to the Title IX regulation, are a legal way to educate students in

public education. Therefore, any information which can be gleaned from understanding the implications of its use in educating children, appear to merit further study.

Delimitations of the Study

This study has been conducted in a large urban elementary school located in a Midwestern state. Prior to 2010-2011 school year, it was the only school in the district offering a single gender learning environment. Currently, the school district has implemented an all-boy middle school and an all-girl middle school. Regardless the results of this study are perceived to be only germane to single gender classes in the elementary school in which the study was conducted. The study is limited to the four teachers involved in the study and their students, who have been instructed in a single gender learning environment.

Summary

Debate currently exists concerning the merits of single-gender learning environments, particularly in public education. The idea of educating children in a single sex environment is not a new phenomenon (Gilbert, 2007; Tyack & Hansot, 1990). It has been available in parochial school and military settings far longer than its induction in public education. The rationale for single-gender learning environments is rooted in studies of brain-based learning differences between boys and girls and the academic crisis of failing students in low and poor performing schools and school districts (Baron-Cohen, 2003; Gurian & Ballew 2003; James, 2007, 2009; Sax, 2005). A plethora of information exists to justify both the implementation of single gender learning environments and the dismantling of its very existence (Barnett & Rivers, 2004, 2007; Eliot, 2011; Gibb,

Ferguson, & Horwood, 2008; Haag, 1998,2000; Halpern, Eliot, Bigler, Fabes, Hanish, Hyde, Liben, Martin, 2011; Hilliard & Liben, 2010; James, 2007, 2009; Salomone, 2003; Sax 2005, 2009, 2010; Singh, Vaught, & Mitchell, 1998). This information is described in the next chapter.

The purpose of this study is not to debate or refute such claims on either side of the spectrum, but to enhance the understanding of gender matching between teacher instructional proclivities and the learning characteristics of students of specific genders. After all, one salient question remains; who best should be teaching the students (Darling-Hammond, 2006). Every classroom deserves a teacher who can influence learning in that particular setting for those specific learners. The very nature of this study is to ascertain the manner in which matching influences instructional and organizational practices and student learning outcomes, particularly when teachers have been made aware of their gender-based teaching proclivities.

Researchers have suggested that teaching and learning styles should be matched in order to enhance student engagement (Griggs & Dunn, 1984; Smith & Renzulli, 1984) and influence student learning (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). However, no study appears in the extant literature regarding the ramifications of matching a teacher‟s gender-based teaching proclivity to a single student gender-based environment. Such a matching and its ramifications deserve further exploration. Information, which could be gleaned from understanding the implications of gender-based instructional proclivities, when matched with students of the same gender, may be helpful in answering the question of who should be teaching in the classroom.

Chapter Two: Review and Analysis of the Literature

Background

Teaching can be categorized by teaching styles (Grasha, 1996; Hunt, 1971). Teaching styles can be identified by the manner in which content is selected, instruction is delivered, students are assessed or tested for acquired knowledge, and students receive support (Ferrara, 2009; Lage, Platt & Treglia, 2000). When a teacher‟s instructional style does or does not match a student‟s learning style, there may be respectively an improvement or deterioration in the student‟s performance and a decrease or increase in the student‟s stress and dissatisfaction (Joyce, 1984; Pervin, 1980). A relationship also appears to exist between student learning styles and student genders (Dee, 2005, 2006). Studies have documented the differences in the manner in which girls and boys learn and the benefits of separating students for instruction into single gender environments (Baron-Cohen, 2003; James, 2007, 2009; Sax, 2005).

This study has been implemented, in large part, due to the emergence of concerns regarding student learning outcomes. During the 2009-10 school year, one of the teachers, in the school in which the study was conducted, discovered the achievement levels of the majority of the boys assigned to her classroom were below grade level in both mathematics and reading. The discovery of this data eventually led to a decision to separate the student by gender at the third grade level as a means of addressing the academic needs, particularly of the boys. More specifically, boys and girls were placed in separate classrooms in order to address the learning gaps.

The overarching premise of single gender education is to maximize learning potentials while minimizing distractions, such as boy/girl flirtation, gender competition, and sexual tension (Gurian, 2009; James, 2007, 2009; Sax, 2005, 2009, 2010). Research has revealed that in a single gender environment boys are less distracted and more motivated and girls also are less distracted and their confidence levels tend to increase (Datnow & Hubbard, 2002; Warrington & Younger, 2003). For that matter, single gender education has historically been perceived, as an effective way to educate children in private preparatory schools reserved for the elite (Gilbert, 2007; Tyack & Hansot, 1990). While the circumstances are obviously different, the success enjoyed in the private schools could serve as a portion of a rationale for educating children in a single gender environment in public school settings, particularly ones with low performing students (Gibert, 2007; Kuriloff & Reichert, 2003).

Since documentation exists regarding the differences in the manner in which boys and girls learn, perhaps attention should be given to determine if factors pertaining to teaching practices, including gender-based instructional proclivities, influence the differences in the ways that students learn (Sax, 2005). An instrument has been developed to determine the gender-based teaching proclivities of educators, regardless of their own genders (Ferrara, 2009). According to Sax (2009), learning is influenced when girls and boys are separated for instructional purposes and teachers are trained in gender specific instructional practices. For these reasons, this study has pursued information regarding the manner that instructional practices and learning outcomes are influenced when teachers are made aware of their gender-based teaching proclivities. Furthermore,

the study has focused upon the identification of the instructional and organizational approaches, which were used by teachers when engaged with students in a single gender environment. The study also has been concerned with the learning outcomes that emerge from such an arrangement. In that regard, considerable research is available regarding the outcomes of matching teachers‟ instructional styles with students‟ learning styles (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). However, less research appears to exist regarding the relationships between a teacher‟s approach to pedagogy, the learning characteristics of students of a specific gender, and the outcomes that emerge from such an arrangement (Ferrara, 2009). In response to these factors, the researcher of this study has studied the literature regarding the instructional and organization characteristics that have been used by teachers who have been identified as being a good fit in an all-boy and all-girl classroom environments.

In this chapter, pertinent literature has been reviewed from studies on the topic of single gender education and the phenomena associated with matching teacher instructional styles with student learning styles. This review contains an overview of the literature and has been organized into section titles as (a) Why Single-Gender Public Education (b) Title IX- Implications for Single Gender Education, (c) Title IX- Application to the Classroom, (d) Learning Differences, (e) Contrarian Perspectives, (f) The Phenomenon of Teacher and Student Matching, (g) Studies Relative to Teacher and Student Matching, (h) The Goodness of Fit Model and (i) A Summary. The literature review has been primarily guided by the statement of problem, significance of the study, including the following rationales:

- Historically, single gender education has been a part of the private school organizational structure. A description and discussion in this chapter seems important regarding the impetus that led to single gender education becoming a growing, public school learning strategy. While discussing the rationale for this instructional strategy, giving attention to the contrarian point of view also seem necessary, particularly since educating children has been primarily a coeducational venture in the past.
- After all, this study has attempted to address the manner in which teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to groups of students in single gender environments and to identify the ramifications of such a matching and the learning outcomes which emerge from the arrangement. In order to understand the issue of gender-based instructional proclivities, it is important to underscore what the current literature has reported in relationship to matching the instructional styles of teachers with the learning styles of students and the manner in which gender matters. What seems important to note is that limited research exists regarding matching gender-based instructional style with the gender of the student and who would be best teaching in a single gender environment.
- The issue of matching the gender-based instructional style of a teacher with the gender of students, when approached from a pragmatic perspective, can be rooted in the Goodness of Fit model, particularly the

works of Thomas and Chess (1997). Therefore, the model deserves inclusion in this literature review.

Why Single-Gender Public Education?

An article by Michelle Conlin (2003) offered a startling observation. She indicated today"s boy is much more likely to struggle in school than his father did and that boys are increasingly alienated from school. This sentiment is echoed in a recent book by Sax (2009), called *Boys Adrift*. The status of the education of males further demonstrates the veracity of a 2003 report that shows a drastic drop in boys" academic performance in U.S. schools (Newkirk, 2003). Similarly, a report by Conlin (2003) indicates that the student bodies of major college"s average more than 60 percent female, which may suggest more women and fewer men are completing high school and pursuing college. In response to that phenomenon, more colleges and universities are giving preferential treatment to male applicants during the admission process (US News and World Report, 2003). The U.S. Department of Education projected that by 2011; there would be 140 female graduates for every 100 male graduates. However, no new related data has been released as of the time of this study regarding the national graduation rates, particularly as they relate to gender. The projections reported for the 2010-11 and 2011-12 graduation years reflect national graduation rates by race and ethnicity, (e.g. African American and Caucasian)) and by special population, (e.g. students with disabilities), (U.S Department of Education, 2014). The U.S Department of Education"s projection is very close to the 60/40 split found in Conlin"s, 2003 report. Based upon Newkirk"s findings, Conlin"s report, and the U.S. Department of Education projections, the

possibility exists that boys are experiencing less success with academic matters. If these projections are accurate, districts, particularly urban districts and their schools, might be served to look at alternative methods to improve student learning and academic achievement for students; more specifically for the boy learners.

Although the plight for boys in public education may seem dim, according to the above mentioned information, a tangential matter appears alarming for girls in public education. Despite the fact that teenage pregnancy is no longer rising at alarming rates, the U.S. still continues to have the highest rate of teenage pregnancies and teen births in the developed world. This phenomenon is more common at coeducational schools than single gender schools (Bruce & Sanders, 2002; Burkowski et al., 2000; Pellegrini, 2002). Researchers have concluded that girls in single gender schools have just as many heterosexual relationships as girls at coeducational school. However the girls in single gender schools reportedly exhibit more control and demonstrate autonomy in those relationships; as a result appear less likely to experience unwanted pregnancies (Bruce & Sanders, 2002).

Another author/researcher has described four other factors driving the "new crisis" for girls in education (Sax, 2010). Those factors are sexual identity; cyber bubble (e.g. texting, Facebook, and other social networks); obsessions, (e.g. body weight, sports, and boys); and environmental toxins, (e.g. plastics and airborne pollutants). These new crises are perhaps influencing the academic success of girls in schools. In fact, some researchers contend that both boys and girls are academically disadvantaged, however, in different ways (Gurian, 2009; Sax, 2010). One eastern school has described the basis of

the decision that it made to implement a single gender learning environment. The decision was partially based on the documented advantages that girls seemingly have in such learning arrangements (Salomone, 2003).

Arguably, one of the disadvantages that girls have in education, is their under representation in areas perceived as being male-dominated (Ceci, Williams, & Barnett, 2009; Kerkman, Wise, & Hardwood, 2000; Su, Rounds & Armstrong, 2009). For example, girls are underrepresented in the areas of engineering, math, science, and technology. Sometimes this outcome is due to course-student matching, (i.e. the courses in which girls are placed and not placed). However, the placement of the teacher can also be a factor, (i.e. the instructional style of the teacher can be matched or mismatched with the gender of the students). The under representation of girls in some disciplines may also be due to the fact that girls are frequently not encouraged to take courses that will lead to a career path in computer programming engineering, or fields of medicine (Ferrara, 2009; James, 2009; Madigan, 2008; Rosenthal, London, Levy, & Lobel, 2011; Salomone, 2003; Sax, 2005). Furthermore, researcher, O`lafsdottir (1996), has documented that girls in single-gender schools and environments are more likely to explore nontraditional courses and careers than girls in coeducational schools. Arguably, these same rationales seemingly have provided the impetus for the implementation and continuation of single gender learning environments for the school in this study.

In the 1970s, a perspective existed that the best way to educate children was in coeducational settings. However, in the late 1990s, new information began to emerge to suggest single gender classes are beneficial learning environments for both boys and girls

(American Association of University Women, 1991, 1995; Pipher, 1994; Sadkar & Sadkar, 1995). New research and a political agenda, particularly the ramifications of Title IX, the statute that governed the legal creation of single gender educational environments in public education, were among the motivators for this modification in the school policies and practices (Strauss, 2006).

Title IX Implication for Single Gender Education

The (ESEA) Elementary and Secondary Education Act of 1965 was the catalyst for Title IX legislation. It was an initiative fostered under the leadership of then President, Lyndon B. Johnson, as an effort to attack poverty (Marshall & Gerstl-Pepin, 2005). The purpose of the bill was to improve the educational opportunities of disenfranchised and marginalized groups in this country. Those groups then and now still are primarily comprised of African-Americans, Hispanics, Latinos, Native American and other non-white ethnic groups. The ESEA legislation addresses other issues in education known as Title 1-VIII. However, Title IX specifically addresses the issue of gender discrimination in education.

The Democratic controlled Party in Congress, led by then Senator Bayh, was responsible for the introduction and passage of Title IX legislation (Kaufman, 2006, p.35). However, two significant forces helped fuel the fight for gender equity in education. First, new identity politics began to emerge. These politics began to underscore and enhance the public‟s understanding of the manner in which individuals and identities are shaped (Marshall & Gerstl-Pepin, 2005). Secondly, organizations began to form to address the issues of discrimination, which includes the issue of gender

discrimination. The Women‟s Movement and the Civil Rights Movement demanded reforms leading to policies and practices that are now part of the Title IX law.

The original version of Title IX (1972) outlawed sexual discrimination, particularly in an educational program found in a school, college or university that is receiving federal financial assistance (NOW, 2007; US Dept of Labor, 2011). However, a 2006 judicial decision pertaining to the law expands access to ten areas; including education and employment (NCWGE, 2003, 2008, Title IX, 2010). The particular part of the regulation, which paved the way for the legalization of single gender public education, deals with the learning environment. Prior to 2006, it was considered illegal to separate children by gender for educational purposes.

Title IX -Application to the Classroom

Title IX experienced a major revision when President Bush signed into law in 2002 the No Child Left Behind (NCLB). The law presented significant changes to the original Elementary and Secondary Education Act, which governed Title IX regulations. NCLB was built on "four common sense pillars;" institutional accountability, research based techniques guiding institutional decisions, expanded parental choice and local control (school districts), and flexibility (U.S. Department of Education, 2004 p.1). Changes to the portion of the Title IX regulation, which addressed issues in education, were proposed in March, 2004. Of those changes, the legal establishment of single gender classes and schools became possible in the fall of 2006 (Schene, 2006).

School districts, particularly large urban areas such as Chicago, Milwaukee and New York, were already separating students for instructional purposes based on gender,

prior to the passage of NCLB and its legalization in 2006; though, many of them were also being threatened with lawsuits for such bold tactics (Ferrara & Ferrara, 2004; Garrett v Board of Education, 1991; Hartocollis, 1998; Salomone, 2003). Today, separating children based on gender is declared legal only if it is used as an instructional strategy to promote learning. In other words, if students are separated by gender for any reason other than for an instructional purpose, it is illegal. For example, the idea of separating children based on gender for disciplinary reasons is not considered to be sufficient grounds for single gender learning environments, according to the 2006 ruling (Riordan, 1990; U.S. Department of Education, 2006).

As a result of the 2006 changes in Title IX, five hundred and forty-two public schools had adopted single gender learning environments (classrooms) by the end of the 2008-2009 school year. Of those, ninety-eight serve as a single gender educational options (school) for children, particularly children in low performing urban school districts (NASSPE, 2009). While single gender schooling initiatives are occurring, the practice is not new. For example, there were fourteen single gender public junior high schools and eleven vocational high schools operating in Manhattan, New York, in 1947 (Salomone, 2003). Thereafter, single education dissipated in New York until the 1990s when a pre-Title IX upsurge began. Former reporter, Ann Rubinstein Tisch was the spearhead of a new all girls‟ school, The Young Women‟s Leadership School, which opened in the summer of 1996 with opposition. In spite of the opposition, plans forged ahead and the school is still thriving today. According to Tisch, the initiation of the school was an effort to save females from the ills of society, such as pregnancy and a

poor education. Not even the earlier court victory, in which single gender schools in Detroit had been dismantled (Garrett v Board of Education, 1991) had enough influence to thwart the Young Women‟s Leadership School. Tisch knew the existing options for girls within the New York metropolitan area were dismal and if something was not done to influence the girls‟ schooling choices, poverty, among other issues would continue in future generations. “Hopelessness” would continue to be pervasive and future society would pay for it (Solmone, 2003 p. 116).

Today, the aspect of Title IX, which is currently receiving the most scrutiny, involves the learning environment (Halpern, Benbow, Geary, Gur, Hyde, & Gernsbacher, 2007; Halpern et al., 2011). Groups, individuals, and organizations are challenging the merits of educating children in a single gender environment (ACLU, 2009, 2011; American Council for CoEducational Schooling, 2011; Bigler & Signorella, 2011; Halpern, et al.,2007, 2011). For example, the Civil Liberties Union and The National Organization for Women have attempted to stop instructional practices and schooling processes, which, are based on single gender learning environments (ALCU, 2007). This advocacy seems sudden and somewhat surprising, as they were the very groups which have promoted the Title IX regulation at the time of its inception. These groups now purport that single gender learning environments are ineffective and are based upon a lack of evidence in regard to the learning differences of boys and girls. The new advocacy of these groups appear to reflect publicized recent research results that challenge the value of single gender education to address the loss of self-esteem among girls and a gender gap in mathematics and science.

While Title IX gives school districts the opportunity to create single gender learning environments, little oversight is in place to prevent racial separation (DuBois, 1935). Although the 1954 decision of Brown vs. The Board of Education dismantled the separation of students based on race, the practice is still happening today. However, the results and the intent of such a practice, whether deliberate or coincidental, has proven to be beneficial to one school, (Chicago‟s Urban Prep Academy) operating under the single gender learning environment format (Aasen & Bass, 2010). Schools and school districts, particularly large urban school districts, where the student population represents a significant number of minority students, appear to be taking advantage of this failure in oversight. The schools are becoming single gender, racial environments; not just single gender environments. This racial makeup, coupled with the single gender learning environment, may pose a whole new set of issues. Research not only indicates that males and females learn differently, but there is additional literature regarding the ramifications of race and the learning environment (Darling-Hammond et al., 1999; Kemp & Hall, 1992; Ladson-Billings, 1994, 2009).

In other words, the changes to the Title IX regulation, which had been designed primarily to influence single gender education learning environments, is silent about other related matters. The policy makers appear to have given no attention to the other pertinent issues, such as the racial population of learners, or who best is qualified to teach in a single gender environment. For example, single gender education in an all-male school with a predominately Eurocentric population can be different than in an all-male school environment populated by African Americans. In fact, research exists to support

the need for consideration to be given to the issue of culturally relevant teaching (Darling-Hammond et al., 2002; Ladson-Billings, 1994, 2009).

The research strongly suggests that no ethnic group should have their identities ignored during schooling processes. This suggestion could be interpreted as having an influence on the nature of the individual chosen to teach in single gender schools and or single gender classrooms. For example, attention might be given to the relationships between a teacher"s gender-based teaching proclivity, the race of the students, and the learning characteristics of the students (Ehrenberg, Goldhaber & Brewer, 1995; Ferrara, 2009).

Learning Differences

One of the prolific arguments driving single-gender education is the apparent differences in the manner in which boys and girls learn and the manner in which the brain works for each gender**.** Brain-based research suggests boys and girls learn differently (Baron-Cohen, 2003; Gurian & Ballew 2003; James, 2007, 2009; Sax, 2005). Research suggests that the chemicals, which influence the brain and in turn its functions, can be found in differing levels among girls and boys. In fact, some of the most compelling reasons purported for single-gender education are rooted in the differences between boys and girls, particularly as their dissimilarities influence the manner in which emotions are processed.

All of these differences have an effect on the manner in which each gender learns (Gurian, Henley & Trueman, 2001; Sax, 2005). In other words, these differences should be addressed and learning opportunities should be enhanced accordingly (Baron-Cohen,

2003; Breedlove, 2000; Gurian & Ballew, 2003; Gurian, Stevens & Daniels, 2009; Sax 2005).

The learning styles of boys and girls, according to Gurain, et al. (2003) are different in ten ways. One of the differences is that boys are more deductive in their reasoning. Girls, on the other hand, tend to be inductive in their reasoning. The girls are able to build connections and provide examples which help in the areas of writing and oral communications. Another example of the difference pertains to movement. Boys are stimulated (brain) by movement, which can help to manage their impulsiveness (Baron-Cohen, 2003; James, 2007; Sax, 2005). While movement is natural to boys in learning, such is not the case with girls. Boys need something to touch or to have chores to address within the classroom or school. In other words, boys need hands-on learning (McPhee,2007). Other differences in the manner in which boys and girls learn differently are in the area of verbal and graphic differences. According to researchers, boys tend to be mentally wired for spatial and mechanical processing, and girls" brains generally have greater verbal processing (Baron-Cohen, 2003; Halpern et al., 2007). The differences are reportedly due to the functions of the cortical area of the brain.

Researchers report a relationship between single gender learning environments and discipline (Gurian & Ballew, 2003; Riordan, 1990; Sax 2005). Sax (2005) contends educators would be served to recognize that boys naturally tend to be more aggressive than girls and the aggression needs to be channeled in a positive manner. For example, when boys are allowed to be involved in aggressive activities outside the classroom, such as rough physical touch, competitive games, and aggressive talk and gestures

(nonverbal), this type of behavior typically becomes more manageable in the classroom setting (Gurian, et al. 2009; James, 2007; Sax, 2005). In other words, educators can find ways of helping students to deal with behavior that appears natural to their gender and if addressed effectively will contribute their learning experiences (Sax, 2010).

Researchers contend children do better academically when not distracted by the opposite sex (Gurian et al., 2009; Sadkar & Sadkar, 1994). Several things can distract children when engaged in learning, which have been identified as boy and girl flirtation, sexual tension, gender competition, and ridicule (Bruce & Sanders, 2002; Gurian et al., 2009). These distractions appear to be minimized in a single gender environment. In a single gender classroom, teachers can concentrate on creating a learning environment for one, as opposed to two genders. Using gender specific instructional practices can be beneficial for the improvement of student-learning (James, 2007, 2009).

Bruemmer (2006) explains this difference, by rationalizing her approach to teaching in an all boy"s Catholic school, as not only being informed by theory and practice, but also by her "femaleness" (p.37). She further explains that in order to reach her all male class she has had to "use the students" basic biologic tendencies" to create a more effective learning environment that balances their preferences with her expectations. (p.38). In other words, Bruemmer is a female teacher who has purposely made changes to her teaching practices to meet the needs of male learners, due in part to the manner in which boys learn. In other words, Bruemmer (2006) has demonstrated the need for teachers to change their teaching styles in order to accommodate the needs of learners. Her role as a female teacher has been adjusted to meet the learning needs of the

boy students. The same approach would be needed if she was teaching in all-girl environment. Sax (2005, 2009, 2010) has echoed this point of view by indicating that teaching in a gender specific environment must be done in such a way that it impacts the learning characteristics of the gender of the students in the class.

Single gender classroom instruction can address another learning related difference, (i.e. the lag in academic achievement) (Gurian et al., 2009; James, 2007; Madigan, 2008; Salomone, 2003; Sax, 2009). One Australian study reports an improvement in English scores in single gender classrooms and the academic improvement for girls overall, as being greater than for boys (Mulholland, Hansen & Kaminski, 2004). In other words, the implementation of best practices, which are germane to specific genders, can have a positive effect on student learning (Gurian et al., 2009; James, 2007; Madigan, 2008; Salomone, 2003; Sax, 2009).

Contrarian Perspective to Single Gender Education

Although the use of single gender education is expanding, not everyone has expressed confidence in the merits of this instructional strategy **(**Halpern et al., 2011**)**. Particularly receiving scrutiny is the notion that boys and girls learn differently and for this reason should be the beneficiaries of different instructional approaches and learning environments. For example, several authors have questioned the merits of the research outcomes regarding the significance of the differences in learning styles between girls and boys (Baron-Cohen, 2003; Breedlove, 2000; Brizendine, 2008; Sax, 2005, 2009, 2010; Shaywitz & Shaywitz, 2001). Barnett and Rivers (2004) are critical of the works of various researchers/authors, particularly Baron-Cohen. Their contention with Baron-

Cohen‟s research is three-fold. They contend that the research lacks a well-designed research process, is riddled with researcher bias, and that the data collection process is questionable. A replication of the work of Baron-Cohn, which addressed the concerns offered by Barnett and Rivers, did not dispel or confirm the results.

Barnett and Rivers (2007), a scientist and a professor respectively, also contend that no compelling reasons exist to look at students‟ brains, eyes, or hardwiring as an underlying factors for academic issues. They contend that race and class are better factors to consider when attempting to address the learning gap. Statistics support the notion that students from families with low incomes are less likely than students from middle to high income families to graduate from high school. Therefore, race and class do appear to be worthy factors for consideration, in addition to the proposed matter of gender (Swanson, 2004).

The works of Gurian and his associates, which purport the value of single-gender education, is also questionable, according to Barnett and Rivers. They contend that the work of Gurian and his associates is not based on credible data and that it is for the purpose of pushing single-gender educational policy in terms of educating students. In summary, Barnett and Rivers ascertain that there is a plethora of literature which simply contradicts the results of the Baron-Cohen study.

Also critical of single gender learning environments are a group of eight researchers, (e.g. neuroscientists and psychologists), from the American Council for CoEducational Schooling. They suggest that “sex-segregated education is deeply misguided and often justified by weak, cherry-picked, or misconstrued scientific claims

rather than by valid scientific evidence" (Halpern, et al., 2011, p. 1706). This group appears to be extremely unwavering in its fight to preserve coeducational schooling experiences and to dismantle single sex learning environments. In fact, the group is urging the U. S. Department of Education, based upon the evidence that it has offered, to alter its stance on single sex learning. The work of the group has been criticized by proponents of single gender schooling options. The criticism can be found in a study titled *The Pseudoscience of Single-Sex Schooling*. However, critics purport that the study lacks new subjects and new research, but is instead a review of existing research, thus offering opinions, as opposed to research. Regardless of whether the criticism is in the form a report or study, it is being used to discredit the legitimacy of single gender schooling options (ACLU, 2011).

Halpern, who is one of the leading opponents in the fight against single gender education, has become an expert witness in two on-going courts cases (Halpern, et al., 2011). The testimony is being used to force schools to dismantle single sex learning environments. Halpern argues against the notion that boys and girls learn differently and in favor of the perspective that separating students, based on gender for instructional purposes, perpetuates gender stereotypes. Smithers and Robinson (2006) in their investigation of single gender education and development of a detailed review of the literature from various studies, including studies abroad, suggest that the evidence is "inconclusive" to support that positive effects emerge from single sex education. They sum up the merits of single gender education or any approach that involves separating

children for instructional purposes as "a matter of judgment," absent of conclusive evidence (p.31).

The American Civil Liberties Union (ACLU), as previously noted, is another entity that has taken up the fight against single gender education. On September 08, 2009, the ACLU filed a lawsuit in federal court against the Vermilion Parish School District (LA) challenging the district‟s sex segregation policy. The contention is that parents had not been given an option of other learning environments, such as coeducational education (ACLU, 2009). In October, 2011, as a result of the efforts of the ACLU and the ACLU Louisiana branch, the Vermilion Parish school district agreed to halt single gender learning environments through the 2016-2017 school year. According to ACLU counsel, it was the expert witness testimony of Halpern and others, who were able to dismantle some of the rationales for single gender education (ACLU, 2011).

Eliot (2011), another opponent of single gender education and a neuroscientist, contends there are no identifiable reliable differences in the manner that boys and girls learn. Therefore, Eliot proposes that the rationale for separating children for instructional purposes has no merit. Eliot further offers seven rationales that the proponents of single gender education have used and purports that the information has been misrepresented as a foundation for teaching children in separate environments.

Debate is still taking place regarding the use of a single gender instructional strategy, although the government has paved the way for its full implementation. More research appears to be needed. While the concept of single gender education has been around for a relatively long time; research does not exist regarding its effectiveness in

urban, rural, and non-religious settings, which are the primary locations in which the approach has been recently implemented.

With the influx of studies regarding the notion that girls and boys learn differently (Eliot, 2009; Fine, 2010), more research results appear needed regarding specifically the manner that gender instructional practices influence student learning, and the individuals who should be delivering the instruction. Regardless, more female teachers are present in classrooms according to the U S Department of Education (2010). Most teachers, man or women, tend to teach the way they were taught and in accordance to their gender (Bruemmer, 2006). In order to influence the achievement gap, teachers will need to understand the manner in which they teach and to modify it to be compatible with the learning needs of students (Gurian & Stevens, 2004, 2005).

Teacher and Student Matching

Researchers have documented the importance of student-teacher matching. The premise is that learning will occur, (i.e. knowledge will be acquired when a teacher‟s instructional style matches the style of the learner). More specifically, the content will be retained and the student will learn more effectively (Hunt, 1972; Lage, Platt & Treglia, 2000). For example, Joyce (1984) concludes that student learning will be enhanced when the instructional styles of teachers are matched with the learning styles of students. However, this concept of student and teacher matching has produced limited research in the area of matching student gender with a teacher who has an identified gender-based instructional proclivity. With an identified gender-based instructional proclivity, a

teacher reportedly has the propensity to teach comfortably in an environment with all boys or all girls and or toward a mixed gender of students (Ferrara, 2009).

An instrument, exists, which can be used to identify a teacher‟s gender-based instructional inclination (Ferrara, 2009). The Teaching Style Inventory uses a set of questions, which are specific to the practices that teachers use in the classroom when instructing, the physical characteristics of a learning environment, and the social interaction of teachers and students (Ferrara, 2009). Based on the score obtained on the inventory, identification can be made of the gender instructional inclination of the teacher (Appendix A). The gender of the teacher is not a factor in the survey. A man or a women teacher can have an identified gender-based instructional proclivity different from his or her gender respectively; (e.g. a woman can have a boy gender teaching inclination). According to the survey, a person, who has a mixed identified gender inclination, draws strength from being inclined to teach to both boys and girls in the same learning environment

Studies Relative to Teacher and Student Matching on Gender

A considerable amount of research results are available regarding the implications of the alignment of a teacher‟s instructional style with a student‟s learning style, (i.e. auditory, visual or kinesthetic) (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). Researchers have studied existing relationships between the environments, the characteristics of teachers, and the temperaments of students (Lerner et al., 1985; Plomin & Dunn, 1986; Wallander, et al., 1988). No study has been reported regarding the

relationship between a teacher‟s approach to pedagogy and the learning characteristics of a specific gender of students (Ferrera, 2009).

The outcomes of the studies have been that thoughtful matching will enhance student success. However, the relationship between single gender environments, the characteristics of teachers, and the temperament of students appears to be lacking in the extant literature. The results of this study hopefully will help to stem the gap that exists in the literature. No existing research has been reported regarding the alignment of students of a certain gender with a teacher who has a proclivity for teaching students of that gender. Therefore studying the learning ramifications of such an arrangement seems to be useful.

Although studies in which the effects of a teacher‟s gender inclination toward the delivery of instruction have not been found, there are several studies that examine the effects of a teacher‟s gender on student performance. One such study conducted by Dee (2005) proposes that students, who are instructed by teachers of the same gender, are inclined to have better academic outcomes. The ramifications of the study might be interpreted to propose that a need exists for teachers to modify their practices when addressing students of the other gender. If the findings of Dee‟s study would be identified as being conclusive, female teachers, who represent the reported majority of instructors, would need to make adjustments when addressing boy learners (U.S. Department of Education, 2011). Such adjustments may be similar to those practices demonstrated by Bruemmer (2006).

Ehrenberg, Goldhaber and Brewer, (1995) discovered that the match of a teacher‟s race, gender, and ethnicity and that of their students had little connection to the knowledge students gained; but had more to do with the teacher‟s subjective evaluation of the students. Further identified was that teachers tend to evaluate students of the same gender more highly than they do students of the opposite gender. For example, white female teachers evaluate white female students more highly than white male teacher evaluate white female students.

Holmlund and Sund (2005) conducted a study at Stockholm University in Sweden in which attention was given to whether the gender of the teacher affects the gender gap in school performance. The research findings reflected that the performance gap between male and female students is clearly elevated in subject areas where the teachers are predominately female. However, the overall conclusion of the study was that matching the gender of a teacher and students does not necessarily result in improved learning outcomes.

Francis (2005), author of *Teaching Manfully,* has conducted a qualitative case study on three male teachers in coeducational classes. The findings of the study pertain to the teachers‟ performance or style of teaching. The analysis is designed to understand the way that the teachers project their gender subjectivisms into the classroom environment. This study is borne out of the assumption that boys fair better academically if they are matched with a teacher who is a man. The other assumption in the Francis study, as well as this dissertation study, is that gender is not tied or connected to a sexed body, but to the actual performance (teaching style) in the classroom environment,

particularly in a single gender environment. Francis‟ (2005) assertion is that it is unwise to suggest that teachers, simply because they are man or woman are better teachers for students of the same gender. The outcomes of the research complement the premise of Francis, which provides evidence contrary to the notion that male teachers are better suited to teach boy students and that the performance of the teachers, whether masculine or feminine, is the factor that influences educational achievement.

Research outcomes also suggest that students perform better when there is a match between student characteristics and teacher characteristics in terms of gender and ethnicity (Carrington & Skelton, 2003). A study indicates that boys are better served by teaching styles and educational activities that are active, hands-on (kinesthetic) and have a foundation in male interests (McPhee, 2007). Other researchers have expressed mixed reactions to gender matches (Francis & Skelton, 2005; King, 2000; Sargent, 2001). A primary outcome of their research is that matching the genders of the teachers and students does not necessarily have a positive influence on the student‟s achievement or attitude (Ehrenberg et al., 1995). In addition, outcomes of other studies purport that the attitude of boys, as it relates to schooling, may be more positive when taught by a female teacher (Carrington, Tymms & Merrel, 2008; Sokal, Katz, Chaszewski, & Wojcik, 2007).

Halberstam (1998, 2005) suggests that teaching performance is related to something other than a person‟s biological sex or physical characteristics. The gender of the teacher is less important than the manner in which a teacher pursues the craft of instruction. The argument is that teaching performance or the manner in which one teaches has a greater influence on the achievement of students, as opposed to the gender

of the teacher. For example, a female teacher can effectively teach the concepts and skills of football, if delivered in a sound pedagogical manner. The gender of the teacher becomes secondary to the manner in which students are instructed.

In other reviews of the literature for this investigation, a number of authors have reported finding positive effects of teacher and student matching. The outcomes of Dunn‟s (1983) earlier studies reflect that student achievement, attendance, and motivation tend to be enhanced when the learning style of the student is matched with the teaching style of the instructor. In fact Dunn & Dunn (1978) concluded that learning may increase when students learn in a way which is natural for them. However, the contention is that matching (i.e. student learning style and teacher instructional style are aligned), does not necessarily guarantee effective teaching or academic success in all cases. On the other hand, teaching style and the personality of the teacher has been identified by Casey‟s (1993) as influencing student performance.

Other authors are not convinced of the merits of matching teaching style with student learning styles (Bonham, 1989; Davidson, 1990; Grasha, 1984). As a matter of fact, the contention of matching is challenged on the grounds that students may not be motivated academically by such a matching. Students, according to Bonham (1998), need to experience other instructional styles, which will increase their resilience and capacity to work outside of a teacher/student relationship, which seems comfortable to them.

In other studies, which examine the effects of single gender and coeducational learning environments on the gender gap in student achievement, the authors have

engaged in discussions regarding the limitations of the outcomes. The authors also provide recommendations for further research and practice (Gibb, Ferguson, & Horwood, 2008; Haag, 1998,2000; Halpern, Eliot, Bigler, Fabes, Hanish, Hyde, Liben, & Martin, 2011; Hilliard & Liben, 2010; Singh, Vaught, & Mitchell, 1998). One of the studies, a longitudinal study, offers significant differences in the gender gap (academics) based on schooling choices, as single gender or coeducational (Gibb, Ferguson, & Horwood, 2008). However, the limitations of the study raise additional issues, which suggest the need for additional research. For example, factors, which lead to gender differences in achievement at single gender schools, are proposed for exploration. The selection process of the students for such learning environments indicates a need for a stricter control on their background factors, which may or may not be responsible for increases or decreases in learning between the genders. The authors of the studies have suggested the need to confirm the findings.

Goodness of Fit Model

When the learning styles of children are matched with the natural dispositions of a teacher and the environment is favorable, a goodness of fit is produced. The Goodness of Fit model has been developed as a result of the work of Thomas and Chess (1977). These two psychiatrists reported that friction tends to arise when the characteristics or temperament of a student are not aligned with the demands of the environment and or the natural disposition of the teacher. In other words, if the characteristics of the student are out of sync with the environment and the natural disposition of the teacher, a negative impact can be experienced on the student‟s learning success. If the Goodness of Fit

model is used in a single gender setting, the learning characteristics of the student would need to be matched with the instructional characteristics of the teacher and the environment would need to be designed for the gender of the student.

The literature also suggests that boys and girls have different learning styles. Therefore matching the learning characteristics of students with the gender-based instructional proclivity of a teacher appears to make sense in order to maximize their learning potential. In other words, the notion that learning would be enhanced by matching a teacher‟s temperament to the learning style of a classroom of students in a single gender environment appears to reflect an example of the Goodness of Fit model.

Thomas and Chess (1977) have conducted additional studies to identify the influence of the alignment of the environment with the temperament of the child. The researchers have attempted to identify the influence on learning, when an alignment exists between the environment and the temperament of the student. A mismatch results when the alignment between the environment and the temperament of the student do not produce desired outcomes. The emergence of a mismatch results in the identification of two possible mitigating options. One option, which may be the most popular**,** is to modify the behavior of the student through the use of medications or behavioral modification techniques. The second option is to match the child with a teacher whose temperament or characteristics are aligned with the temperament of the students and the environment. Lewis‟ (2000) work confers the second solution as being a viable option. Based upon these findings, the Goodness of Fit model might be considered as a viable option when attempting to ascertain who should teach in a single gender environment.

Summary

Forecasts have been made regarding educational outcomes for both boys and girls, particularly in urban educational settings (Conlin, 2003; Newkirk, 2003; U.S. Department of Education, 2011). Boys appear less likely to attain the same level of schooling and learning as the generation before them, and for this reason they are less likely to attend college. Girls are attending college at a rate of sixty percent as compared to forty percent for boys. Girls are facing new challenges in schools, which seem to influence academic choices, (i.e. cyber bubble, sexuality, toxins) (Sax, 2010). Gurian et al., (2001) have reacted to the situation by proposing that both boys and girls are victims of gender disadvantages in schools. A resulting proposition to these dilemmas is that boys and girls should be provided with the option of a single gender learning environment.

Researchers have concluded that distinct learning differences exists between boys and girls. This outcome reflects both a neuroscience and physical perspective (Baron-Cohen, 2003; Breedlove, 2000; Brizendine, 2008; Sax, 2005, 2009, 2010; Shaywitz & Shaywitz, 2001). Girls mature physically faster than boys, including their brain functions (Hanlon et.al, 1999). However, the male brain is larger in size. It has more gray matter, which explains the reason that males rely more on their visual cortex (Baron-Cohen, 2003; Gurian & Stevens, 2004, 2005). Meehan (2007) contends the female brain is never at rest, therefore has the ability to take in more data, process more data, and to verbalize information quicker. Hormonal differences also account for differences in behavioral responses to the schooling process. Boys are more aggressive due to the levels of testosterone in their bodies, while girls‟ bodies are dominated by a chemical

called estrogen. The testosterone levels cause boys to be more active and competitive in the classroom. Being active and competitive can oftentimes be perceived as an indication that a boy cannot settle down long enough to grasp the information being taught, as such the behavior is often perceived as being disruptive to and hindering the learning process (Gurian et al., 2001; Gurian & Stevens, 2005; Rhodes, 2004; Sax, 2005).

The U.S. Department of Education has implemented, effective 2006, changes to the Title IX regulation. The changes have paved the way for the legal creation of single gender education in public schools. The purpose of the proposed changes to Title IX is to give public schools more options for innovation and parents more schooling choices, (i.e. vouchers for private schools, creation of charter schools, and single gender classrooms and schools). Single gender education is not a new schooling option. It has been a widely used instructional strategy in such settings as parochial schools and military bases. A single gender environment is a strategy that can be used to help public schools influence academic achievement, particularly among low or poor performing students. Two ways, which can be used to influence academic achievement, particularly among low and poor performing students in a single gender environment, are by eliminating distractions (Gurian et al., 2008; James, 2007, 2009; Sax, 2005) and by teaching specifically to the learning style of the gender of the students (Ferrara, 2009).

Although there is support for single gender education and the changes in Title IX regulation that allow for the legal creation of such a learning environment, they are not without challenges. Other researchers oppose this instructional strategy. For example, a 2010 reported article entitled "*Sex- Separation in Schools Detrimental to Equality"*,

stated separating students is detrimental to students and fails to show any educational improvements over coeducational settings (Penn State University, 2011). Moreover, evidence from another study conducted at Pennsylvania State University suggests that students in single gender environments are more likely to accept gender stereotypes (Hilliard & Liben, 2010).

Liben, (2010), the lead researcher and co-founder of ACCES, reported that in a classroom of pre-school children, after two weeks of the use of gender specific language by teachers, students demonstrated less interest in the opposite sex in terms of playing and showed stereotypical attitudes toward one another. Accordingly, "the choice to fight sexism by changing coeducational practices or segregating by gender has parallels to the fight against racism (Liben, 2010, p.1790)." In other words, Liben is comparing the ramifications of separating children by gender for instructional purposes to a plight of racism. Research and statements, such as Liben"s and others in opposition to single gender education, have attempted to discredit the merits of the instructional strategy and to promote the coeducational agenda, which is represented in most public school settings, today. However, a recent meta-analytic review of published studies on the threat of stereotypes to the academic gap between boys and girls suggests that other factors are contributing to the gap (Su, Rounds, & Armstrong, 2009).

Accordingly, the U.S. Department of Education (2009) conducted a comparison study of single gender schools and coeducational schools. The study found a scarcity of quality research outlining academic benefits for or against single gender schools when compared to coeducational schooling options. The conclusion of the U.S. Department of

Education study is that the results are mixed and inconclusive. The argument for coeducational schooling options is that it promotes diversity, equality and is preparation of real life, particularly in the workplace, and that educating children on the basis of sex segregating, has failed to provide scientific evidence for positive effects (ACCES, 2011; Barnett & Rivers, 2007; Helpren, 2011; Liben, 2010).

Regardless of what side of the spectrum; an opponent or a proponent of single gender education, a teacher needs to have access to instructional options to influence learning in a positive manner. Furthermore, the issue of who best should be teaching in a single gender environment has not been studied, particularly as it pertains to matching a teacher‟s gender-based instructional style with the gender of students and the manner such a matching influences learning. Such a matching and the learning ramifications appear to deserve further exploration, which has been the reason for this dissertation study.

Chapter Three: Methodology

Introduction

A school of thought exist that purports that a teacher‟s gender can influence teacher-student communications and in turn can lead to improved student achievement (Constaninou, 2008). For example, the findings of one study propose that most teachers react differently to boys and girls (Constaninou, 2008). The findings of another study suggest that gender is not a significant factor in student/teacher interactions (Carrington et al., 2008). Yet in another study, four-year-old boys, indicate a preference for a male teacher based upon gender stereotypes, as opposed to gender itself (Harris & Barnes, 2009). The four-year-old boys had concluded that a male would more likely be involved in their interests, namely sports and games. Research findings also suggest that matching the right teaching style with the right student learning style can influence learning outcomes (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). For this reason, researchers have suggested that teaching and learning styles should be matched in order to enhance student engagement (Griggs & Dunn, 1984; Smith & Renzulli, 1984). While the manner in which student learning styles can be matched with teacher instructional styles has been examined, no study appears in the extant literature regarding the ramifications of matching a teacher‟s gender-based instructional proclivity to a single gender student environment.

Single gender learning environments are being used throughout this country in an attempt to address the gaps in academic achievement among students and to lessen the academic disparity between boys and girls due to the alarming rates of academic failure,

particularly for minority students in large urban communities (Aasen & Bass, 2010; Salomone, 2003). This is a similar plight, which has existed at and at which an attempt has been made to identify and implement a resolve, as the urban school that has been selected for investigation in this study. For the decade prior to 2007, this school, which is located in a large metropolitan of a Midwestern state, had been designated by its state"s department of education, as being in "academic emergency". Although individual glimmers of academic success had occasionally emerged at the school, the students were still struggling. One of the findings is that boys had been failing at alarming rates in comparison to the girls. In response to these dismal academic outcomes and due the efforts of a transformational principal and a zealous teacher, the implementation of single gender learning environments began to form, one grade level at a time, beginning with the third grade.

However, grouping students based on gender alone, according to the literature, does not guarantee or constitute a successful learning environment (Riordan, 1990, 1994). Studies purport that academic successes emerge when student learning styles are matched with teacher instructional styles (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). Though, the idea of matching students with the same gender with a teacher who has a known gender-based instructional proclivity has not received the same level of documented research as has matching student learning styles with the instructional styles of teachers.

Therefore, a study of the instructional and organizational strategies that are used by teachers, who have an identified gender-based instructional proclivity, when matched

with students of a single gender, and the learning outcomes that emerge from the arrangements, is the focus of this research. The following primary and secondary research questions have been identified to guide the study. Therefore, a study of the instructional and organizational strategies that are used by teachers, who have an identified gender-based instructional proclivity, when matched with students of a single gender, and the learning outcomes that emerge from the arrangements, is the focus of this research. The following primary and secondary research questions have been identified to guide the study.

1. Primary question: In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to students in single gender environments and what will be the learning outcomes in such an arrangement?
2. Secondary questions:

- In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize the instructional environment to support student learning in a single gender classroom?
- In what manner will teachers, who have been aware of their gender-based teaching proclivities, deliver instruction to students in single gender environments?
- What are the learning outcomes of students who are of the same gender when matched with a teacher who has a known gender-based instructional proclivity?

The outcomes of this study hopefully will contribute to the identification of a conceptual model, which can be used for the development of optimal single-gender learning environments, including recognition of the types of teachers who are best suited to provide instruction in such arrangements. An isolated incident has occurred to suggest that such a model might be useful. The students in a single-gender classroom, who have been matched for four years with a teacher who has an identified gender-based instructional proclivity that matches with the gender of the students, have experienced a seventy-three percent increase on the state"s academic achievement test. In fact, the statewide designation of the school selected for this study, has improved, during this period, from "academic emergency" to "continuous improvement."

Self as Researcher

As the researcher of this study, I have a desire for students to experience effective learning endeavors and for teachers to have the knowledge and skills that can be used to address the academic needs of the students. The desire has contributed to my intent to conduct the study. My interest in the area of single gender instructional practices was developed first from parenting experiences. I currently am a foster parent with a local child-care advocacy organization and an educator in a large urban school district, although my parenting opportunities did not begin with fostering. I have parented two teenagers, one male and one female, who are now college graduates raising their own children. I have provided foster care since 2005. My first placement was a sibling set of boys, ages ten and twelve at the time of their assignment in my home. I began to parent these children like any caring parent would, with structure, activities, a loving and

supportive environment and a straightforward communication style. Straightforward in this context references the practice of "saying what I mean." This approach worked for the three of us.

Shortly, thereafter, my school initiated single gender learning environments in a grade level in which I teach. I was not part of the discussion that led to the decision to implement the instructional and learning strategy, nor did I receive training regarding the provision of instruction based on gender differences. I received by word of mouth that the third grade was moving to "single gender" learning environments. I had no idea what that meant for me, as a teacher. As a matter of fact, I believed initially that such an arrangement really would be of little to no importance to me, particularly as it pertained to the provision of instruction in my classroom setting. I assumed there would be no difference or adjustments to my teaching practices.

Once the students had been separated based on their genders, I began to witness visible differences in the manner in which boys and girls acted, communicated, and learned. I also began to view the same phenomena in my home. This time, I had a sibling set of girls, ages seven and nine, plus my daughter. The girls wanted to talk more, display more affection, such as having hugs and being in close proximity to me than had the boys. The boys" idea of affection had been a "high-five" and or a "hand-pound." One of the apparent differences in terms of their educational needs was that the boys had to be guided through the process of learning, while the girls were able to work independently. In fact, the girls became independent learners at an earlier age than had the boys.

Study and reflection regarding the gender differences has helped me to uncover my own personal subjectivisms as a parent and as an educator. I now recognize the learning differences, particularly in the educational setting in which the dissertation study took place. I have studied the differences in which boys and girls learn, from a practical and theoretical perspective. As a teacher and parent, I have applied the strategies in order to nurture the students in my school and the children in my home.

However, I recognize that my interest could have led to bias and could have interfered with the credibility of this study. For this reason, every effort was made to ensure that I refrained from allowing my judgments to interfere with an objective approach to the study. One strategy I used, has been to record my personal reflections in a journal; including my personal thoughts, ideas and observations of the setting. I now know, as a result of the completion and interpretation of a teaching style inventory form (Ferrara, 2009), that I have a proclivity to the learning style of boys, in spite of my gender as being a female. In fact, the gender of a teacher is not considered to be a factor in determining a person"s gender-based instructional proclivity.

My anticipation, while developing and conducting this study, has been that it would be beneficial to the teachers studied, the children taught, and the school and district represented. Another hope was that the study would provide plausible information regarding the instructional and organizational practices and the learning outcomes, which emerged from the work of the teacher participants in the study, who has been identified as being a good fit for an all-boy or an all-girl learning environment. Finally, an aspiration was that a greater understanding of optimized learning

environments would emerge from knowing the ramifications of matching all-boy and all-girl classrooms with teachers who understood their gender-based instructional proclivities.

Research Design

The primary goal of this study, as previously stated, has been to glean an enhanced understanding of the ramifications of matching the known gender-based instructional proclivities of teachers with single gender classrooms. In addition, the instructional and organizational practices and the learning outcomes, which have emerged from the alignment, have been investigated. To accomplish the goal, a qualitative research design was used, along with the integration of the results of a district-wide assessment in the classes involved in the study. This approach of using a combination of quantitative and qualitative investigative tools is also referred to as a mixed methodology. The quantitative research approach has been used as a means to document the learning outcomes on the district mandated assessment in reading. The standardized tests, which has been used to document the quantitative benchmarks, are called BOY (Beginning of Year) and MOY (Middle of Year) assessments. The researcher used the reported results of the assessments to document student achievement data. Academic growth or lack thereof was obtained from the report regarding the learning outcomes. No student information or other quantitative identifiers were used to track individual student growth. The purpose of using this research strategy was to pursue and articulate triangulation between the learning outcomes, which were captured

in the classroom through observations and artifacts, with the quantitative outcomes from the mandated assessments.

The qualitative research design could have been based upon one of five approaches. They are case study, ethnography, grounded theory, narrative, and phenomenology. This study was based upon a case study, in which the related factors were examined in depth and detail, with consideration of the context (Patton, 1990). As noted by Patton (1990), detailed case studies of an "unusual nature may generate useful information" (p.45). This study seemed unusual or at least unique, as no studies existed in the extant literature that addressed the ramifications of matching the gender of students with the gender-based instructional proclivities of teachers and identifying the instructional strategies and learning outcomes that emerged from such an alignment.

A qualitative case study can be an "intensive, holistic description and analysis of a single entity, phenomenon, or social unit" (Merriam, 2002, p.8)**.** A multiple case approach can be used when a researcher is interested in a same issue, but in different situations, which has been the intent of this study. In other words, the focus has been to study four cases (teachers and in a related manner with their students). Each of the teachers had an identified gender-based instructional proclivity. The plan for the study has been to match two of the teachers who were in a single gender classroom with students that have the same gender as the instructional proclivity of the teachers and to match the remaining two teachers in single gender classrooms with students who are opposite their gender-based instructional proclivity. The primary purpose for using such a design was to attempt to begin to understand the related complex social interactions that

likely have emerged from these arrangements; while preserving the basic characteristics of everyday life in a classroom setting (Stake, 1995; Yin, 1994). Generalizations and/or possible concepts are purported to and have emerged from the use of this design.

The research design involved an investigation, with the characteristics of a collective case study (Stake, 2000; Wells, 1996). The use of a collective case study provides for the investigation of the same issues or entities, with data from several sources. While the study has been focused upon the same primary issue, only four cases have been used. However, all of the teachers in the school had an opportunity to learn their gender-based instructional proclivities if they had participated in completing the "Teaching Style Inventory".

More specifically, this study sought to examine four teachers (cases) with an identified gender-based instructional proclivity, each of whom had been matched with students of one gender and to identify the organizational, instructional practices, and the learning outcomes which emerged from such an arrangement (Ferrara, 2009). Of the four teachers, the intent was to match one who has a gender-based instructional proclivity for boy learners with the same learners and match one who has an identified gender-based instructional proclivity for girl learners, with the same learners. The two remaining teachers were to be matched with students who had the opposite gender as their gender-based instructional proclivity, (i.e. boy learners matched with a teacher who has a gender-based instructional proclivity for girl learner and girl learners matched with a teacher who has a gender-based instructional proclivity for boy learners). The participating teachers had been selected based upon the results from the teaching styles inventory of which they

were requested to complete in a voluntary manner. In fact, the teachers were requested to complete a signed consent form confirming that their participation in the study was voluntary (Appendix H). Only the teachers who signed the form were considered for inclusion in the study. The outcomes of the completed instrument were used to identify the gender-based instructional proclivities of the teacher. Further delineation for the selection of the study subjects (i.e., the teachers), if and as needed, was based upon the length of their experience as teachers. Teachers who were teaching in coeducational classrooms, at the time the study was conducted, were not considered for participation in the research.

Based on the results from the "Teaching Styles Inventory" no teacher was identified as having a gender-based instructional proclivity for boy learners. Therefore, an amendment to the IRB process was submitted and granted to change the matching of the intended participants. While the primary focus of the study remained the same, matching a teacher who had a gender-based instructional proclivity for boy learners with the same gender of learners was no longer an option. Instead two teachers were matched with students who were the opposite of their gender-based instructional proclivity, (i.e. boy learners matched with a teacher who had a gender-based instructional proclivity for girl learner) and the remaining two classes of girls were matched with a teacher who had a gender-based instructional proclivity for girl learners.

Gaining Entry

The site of this study was a large elementary school in a Midwestern city. It is the only elementary school in the district that was engaged in single gender education at the

time that the study was initiated. Currently, I, the researcher, am an educator within the selected district and have been on staff at this school of the study for the past eight years, but not in a discipline that could be included in the study. Regardless, I have enjoyed a perceived effective rapport with the school‟s students, teachers, staff members, and community members.

In order to conduct the research, permission had been obtained from the school district superintendent and the building principal where the study was conducted (Appendix C). In addition to obtaining permission to conduct the study, the researcher gained permission to seek parent and student permission for participation in the study (Appendix D). This issue has been communicated to and documented with the IRB. Among other things, the school district has exhibited a commitment to advanced research and the understanding of new instructional and learning phenomena within its classrooms. The building principal also expressed support and an interest in the findings of the research study. In preparation for this study, permission had been obtained from the building principal to administer the Teaching Style Inventory, which was the instrument used to determine gender-based instructional proclivities. The author of the instrument, Margaret Ferrara, also granted permission for the use of the instrument.

The inventory contains twenty six questions, each of which has a Likert scale from 1 (least likely) to 6 (most likely). The following three factors are rated in the inventory based on the responses of the participants: organizational approaches based on the learning environment (LE), teaching strategies (TS), and social support (SS). The learning environment (LE) questions are used to identify characteristics that support

teaching and learning process, such as student engagement, noise, activity, energy levels, and student movement. Teaching strategy (TE) includes six variables related to instructional delivery practices, (i.e. student directed learning, teacher directed learning, cooperative learning, competitive learning, timed learning, and group work). Social support (SS) statements consist of the use of positive teacher comments, and the use of rewards, humor, and personal questioning.

There are thirteen girl questions and thirteen boy questions in the inventory. Four pertain to learning environment, three address social support, and six pertain to teaching or instructional strategies. Ferrara, per my request, coded the survey results and then returned the results to me. Results from the survey were shared with the participating teachers, in accord with the approval that had been obtained from the IRB. Twenty-six teachers took the survey strictly on a voluntary basis. Twenty-five surveys were returned and coded. One teacher completed the survey, however, withdrew it at the last moment due to pending retirement. Two of the respondents are not full time certificated teachers; one a long time substitute teacher who accepts considerable teaching assignments in the school setting of the study and the other respondent was a student teacher completing the requirements for a bachelor"s degree and license in elementary education.

No compensation was granted or other incentives offered in lieu of participating in the teaching style inventory. Based upon the results of the inventory, the teachers were asked to participate in the study. Four teachers were identified and their written permission to participate in the study was pursued and obtained. This occurred with IRB

approval and the completion of the needed forms and signatures prior to initiation of the collection of the data for the study.

Because I am personally involved in this learning environment, this study could be referred to as "backyard" research (Creswell, 2007; Glesne, 2006). Backyard research reportedly has its advantages and disadvantages. One of the advantages is the fact that a researcher has the opportunity to conduct a study in an environment with people, with whom useful rapport exists. This situation is convenient and it enhances issues associated with data collection, such as gaining trust. A disadvantage associated with this type of research is the matter of insider investigation, (i.e. the perception of colleagues that they are being spied upon, that their positions are being compromised, and that their privacy is being invaded). As a result of the disadvantages, researchers have cautioned against using such environments as backdrops for research (Creswell, 2007; Glesne & Peshkin, 1992). Despite the disadvantages, I chose to study my own organization. In order to lessen the perceived disadvantages, multiple strategies of validation or "trustworthiness" were employed to ensure the data collected were dependable (Lincoln & Guba, 1985).

Sampling Strategy

Researchers tend to select each of their cases "purposefully" (Patton, 2002, p.46; Creswell, 2007, p.125). "The logic and power of purposeful sampling….leads to selecting information rich cases for study in depth" (Patton, 2002, p.46). Information rich cases, according to Patton (2002), are those from which one can learn a great deal about issues of importance. Patton (2002) and Miles and Huberman (1994) have identified

sixteen different purposeful sampling strategies to help researchers select participants for their particular studies. Each strategy is unique and should be carefully selected in order to obtain a better understanding of the topic being studied.

The sampling strategy used in this study, was criterion-based. In this form of sampling, all cases must meet some form of criterion. In this case, all of the teacher participants have an identified gender-based instructional proclivity as identified by the teaching styles inventory (Ferrara, 2009) and have committed to be willing and open to observation and discussion of their instructional and organizational practices and learning outcomes. The instrument, as already mentioned, has been authenticated for validity and reliability (Ferrara, 2009) and permission for its use has been obtained from its author, (Appendix E).

Data Collection

The data collection process, in this study, employed methods that permitted triangulation. Triangulation involves the use of multiple methods and/or using multiple data collection methods (Glesne, 2006). Triangulation can contribute to the validity and the trustworthiness of the data. Four elements, (i.e. credibility, transferability, dependability, and conformability) need to be established in order to validate the trustworthiness of the study (Lincoln & Guba, 1985).

- Credibility pertains to "prolonged engagement in the field" (Glesne, 2006, p. 167). It was obtained in this study through the use of documents, artifacts, and surveys.
- Transferability involves thick, rich detailed descriptions of what has been

recorded in the field experiences, which was addressed by this researcher.

- Dependability pertains to an understanding by the researcher that the study results are subject to change and instability. This entity was accomplished by researcher reflexivity and the transparency of personal biases.
- In conformability, a process used to substantiate the value of the data, the researcher utilized a quantitative measure, when attempting to understand the learning outcomes. A comparison of the BOY assessment (beginning of the year) and the MOY assessment (middle of the year) were used to substantiate the level of learning growth.

Triangulation does not simply involve using multiple methods to collect data. It is an opportunity to "relate them so as to counteract the threats to validity identified in each" (Berg, 2001, p.4). Each source should complement the other sources. Complementary data was obtained by surveying the participating teachers and by observing and collecting information such as classroom designs, teacher-made tests, feedback comments, and other tangible documents that emerged from the study.

In order to ascertain a thick, rich, and detailed description of the context of single gender instructional practices and teacher/student matching, and to search for tangible information regarding the overarching research question, an open-ended questionnaire (Reflection, You, the Teacher) was used. The questionnaire can be found in the Appendix B. The questionnaire was developed by Ferrara. It is the second Ferrara-developed document to be used in this study. The questions in the instrument represent an avenue to get teachers to think about and respond with answers regarding their learning

environments, instructional strategies, (delivery methods), motivational strategies, and social support systems. The importance of the use of the questionnaire is that its results have provided data regarding the manner that teachers, who are aware of their gender-based instructional proclivities, organized and delivered instruction in a single gender environment. The questions were open-ended in nature. Only those teachers selected for the study were requested and completed the questionnaire.

The following additional approaches were used to understand the manner that teachers organize their classroom learning environments.

- The teachers were asked to write about the general arrangement of the classroom environments.
- In addition, diagrams, photographs, and videos were used to ascertain the manner that the teachers organize the learning environments.

While the open-ended questions on the survey are related to instructional strategies and the manner that teachers deliver instruction, the teachers also were asked to rate the frequency with which they use specific instructional strategies such as cooperative learning, direct instruction, inquiry, lecture/discussion, and student-led instruction. In addition, the teachers were asked the manner that they group the students for instructional purposes and the way in which they engage in questioning techniques. Observations were used to capture another perspective regarding the manner that the teachers delivered instruction to students. In order to create an in-depth data set regarding each of the four teachers, observations were pursued on various days and times.

Observations continued until a saturation of information had been obtained. I, as the researcher, conducted and recorded all the observations.

The quantitative data needed to document the learning outcomes of students were the results reported by the individual school on the district-wide assessment in reading**.** The purpose of using this quantitative measure was to identify the level of academic growth in the classrooms being studied in order to compare the levels of growth with the other information and data that had been collected in the study.

The original intent was to document the outcomes of the study organized as instructional, organizational practices and learning outcomes for an all-boy classroom matched with a teacher who has a gender-based instructional style for teaching boys; an all-girl classroom matched with a teacher who has a gender-based instructional style for teaching girls; an all-boy classroom matched with a teacher who has a gender-based instructional style for teaching girls; and an all-girl classroom matched with a teacher who has an gender-based instructional proclivity for teaching boys. However, no teacher in this study had a gender-based instructional proclivity for teaching boys. So, the two all-boy and two-all girl classrooms were matched, studied, and analyzed with four teachers with an instructional proclivity for girl learners.

Since the research took place in an environment, with which I was very familiar and because I have an established relationship with both students and teachers, I, as the researcher, attempted to be as unobtrusive as possible. This approach included prepping students to understand that my purpose in their classroom was different than when I am teaching in my learning environment. Regardless, I took detailed field notes, recording

teachers, students, and physical environmental conditions, the times of day, and any other information that unfolded, (i.e. a fire drill occurred ten minutes into a scheduled observation).

In summary, pictures of the design and layout of the learning environments were obtained to capture the ways in which the teachers organized their classrooms to support student learning. The survey was used to ascertain the manner in which the teachers reported having delivered instruction and the organizational practices that they had reported using to support student learning in a single gender classroom. Participant observations took place to collect data and record instructional and organizational practices. In addition, the results on the district mandated achievement tests, outcomes from teacher made tests, projects, writing samples, and other tangible information helped to substantiate and document learning outcomes. With each of the methods used to collect information, the issue of confidentiality was addressed. No subjects were identified by name and/or other identifiable marks. Identities were protected throughout the entire study.

Data Analysis

Data analysis is "the process of systemically searching and arranging all the materials accumulated to increase your understanding and to enable you to present what you discovered to others" (Bogdan & Bilken, 1998, 2003, p.160). The analysis includes working with the data; organizing it; breaking it into manageable synthesized units; searching for patterns, themes and categories; discovering what was important, what needed to be learned and what would be told. The desired end product of the study was

pursued based upon this process (Bogdan & Biklin, 2003; Glesne, 2006; Patton, 2002; Wolcott, 1994). In addition, the analysis was approached in a manner concurrent with the data collection (Bogdan & Biklen, 1998; Creswell, 2007).

In the case study approach, analysis begins by making detailed descriptions of the settings (context) and the cases (Creswell, 2007; Merriam, 2002). Pertinent forms of data analysis and interpretation advocated by Stakes (1995) were used. They are categorical aggregation, patterns, and naturalistic generalizations. Categorical aggregation (Creswell, 2007) refers to a search of the data for instances in which relevant meanings can be identified. The categories for this study include cooperative learning, desk arrangements, direct instruction, displays, small groupings, and supplies. The categories have been collapsed into themes, (i.e. organizational practices, grouping strategies, delivery/instructional practices, and teacher/student matching). Another focus of the data analysis was the pursuit of patterns and relationships between two or more categories. For example, an attempt was made to identify similarities and differences in each category. Themes for this study included classroom organizational and instructional/delivery practices, teacher/student matching, and learning outcomes. Tables and figures were developed to aid in the organization of the categories and themes. The report and analysis of the data and the tables and figures can be found in Chapter Four.

The search for generalizations in the data is an objective of the naturalistic approach that was used in this study. Generalizations emerged from the identification of various experiences constructed by the detailed descriptions of the actions and events unfolding and materials collected. The objective was to identify generalizations about

the cases (4 teachers in this case) in reference to the themes (Creswell, 2007); reporting the manner that each compares and contrasts in the context of single gender learning environments. A template developed by Creswell aided in coding the generalizations for this particular case study (Appendix F) (Creswell, 2007, p. 172).

Quantitative information was used to report the learning outcomes. The original intent was to record the results from the district"s mandated assessments in reading and mathematics to identify the level of academic growth. In addition, an intent existed to use the BOY, MOY, and EOY assessment results. Due to a change in the district"s assessment objective, only scores obtained in the reading and from the BOY and MOY could be used to identify the level of academic growth. The results are reported by school by the district. A comparison is reported in reference to the scores in order to document the levels of academic growth that had been achieved by the students.

In order to enhance the validity of the findings, the data collection continued by the researcher until data saturation occurred. In other words, new information was collected until the data, which was being obtained, became redundant and without further benefit to the study (Bogdan & Bilken, 1998). ATLAS. ti software, which is a reputable and widely used computer program for both analyzing qualitative and quantitative data, was the program that was used to help "the process of systemically searching and arranging all the materials accumulated, to increase the researcher"s understanding, and to enable the researcher, to present what had been discovered to others" (Bogdan & Bilken, 1998, p.172).

The ATLAS.ti program was the software of choice for this particular study because of its reputation for allowing data sources to be analyzed side-by-side in multi-window frames. This software allows an overview of the findings to be available at the same time from different data sources. The software has the reputation for handling graphics and audio recordings and generating conceptual diagrams. These features are complementary to the data analysis and interpretation model advocated by Stakes (1995) (i.e. categorical aggregation, patterns, and naturalistic generalizations) and the template developed by Creswell (2007).

Limitations of the Study

Control of the variables is typically challenging, if not impossible, in qualitative research in the field of social sciences, (e.g. education and sociology). This type of difficulty with the variables was experienced in this study. However the difficulty may have been mitigated, as the purpose of this study, from the researchers stand point, was to gain a deeper understanding of the application of gender-based instruction in the setting in which the research was being conducted.

Patton (2002) has indicated that there are no perfect research designs. He contends there are always tradeoffs. The same phenomenon was true for this research study. The following represent the limitations of this study. (a) Unforeseen Influences: Unforeseen circumstances can and do occur. Subject issues, time constraints, disadvantages of backyard research, (i.e. the issue of insider investigation: the perception of colleagues being spied upon, compromised position and or confidentiality), may have occurred, thus leaving the integrity of the study questionable. Every attempt was made to

adhere to sound research practices with the intended subject matters. The researcher documented detailed field notes describing the phenomenon, without prejudice, as it unfolded. (b) Matching conflict: One of the subjects selected for the study had originally been assigned to teach in an all-girl classroom. However, at the beginning of the school year, the class of students, due to enrollment issues, were organized into a mixed gender format. Initially, the gender of the students disqualified the teacher from participating in the study. Approximately a month into the school year and the data collection, the learning environment of the classroom was changed to all-girl, thus qualifying it for the study. The loss of students and a change of learning environment may have influenced factors such as the organizational and instructional approaches or learning outcomes in this case. (c) District testing: The school district, in which this study took placed, decided to alter the assessment test administered during the school year. Assessments were to be administered in both reading and mathematics in three cycles; beginning of year (BOY), middle of the year (MOY), and end of year (EOY). After the administration of the BOY assessment in reading and mathematics, the district nixed the administration of the MOY and EOY assessments in mathematics. In addition, the EOY assessment was entirely scuttled. Perhaps the assessment changes had an influence on the instructional practices. (d) Researcher connection to location: The researcher‟s closeness to the learning environment may have been a primary limitation. Every precaution was used as to avoid negatively influencing the data collection process. One precaution included avoiding side-bar conversations with teachers outside of the observations in order to reduce the possibility of such conversations influencing the phenomenon unfolding in the classroom.

(e) Researcher presence in the classroom: Children in this particular setting were accustomed to seeing the researcher in a different teaching capacity. Seeing the researcher in their classroom setting may have influenced certain aspects of the learning environment. Students often would display behaviors, which could have potentially influenced the learning environment, such as waving, speaking in a loud voice, or attempting to converse with the researcher during the observations. (f) Acknowledging the instructional proclivity in the beginning of the study: Revealing the instructional proclivities of the participating teachers may have influenced their choice of organizational and instructional practices, (i.e. the teachers may have been influenced to have conceptualize teaching in the manner in which the instrument indicates). This phenomenon also can be described as the Hawthorne effect.

Summary

To summarize, single gender learning environments have been gaining increased acceptance in public schools throughout this country as a result of multiple factors, including changes in Title IX regulations. This phenomenon has been especially true in settings in which there has been a decrease in academic achievement and single gender learning has been identified as a means to improve learning. This study has been focused on who best should be teaching in a single-gender learning environment. An exhaustive search has been made to explore the learning outcomes which emerge when students of a particular gender are assigned to a teacher whose instructional proclivity does and does not match their gender. It is hoped, the outcomes of this study have contributed to an understanding of single gender-based instruction, particularly the ramifications of

matching students of a specific gender with a teacher whose identified gender-based instructional proclivity is the same and or opposite.

To accomplish these goals, a qualitative research design was used, along with the integration of quantitative data reported by the individual school in which this study took place. This study was based upon a case study, in which the related factors were examined in depth and with detail, with consideration of the context (Patton, 1990), as a qualitative case study can be an "intensive, holistic description and analysis of a single entity, phenomenon, or social unit" (Merriam, 2002, p. 8)**.** Multiple cases can be used when the researcher is interested in a same issue, but in different situations, which is the manner in which this study was conducted. The primary purpose for using such a design was to attempt to begin to understand the related complex social interactions that likely emerged from these arrangements; while preserving the basic characteristics of everyday life in a classroom setting (Stake, 1995; Yin, 1994).

This study can be referred to as "backyard" research (Creswell, 2007; Glesne, 2006). Backyard research reportedly has its advantages and disadvantages. In order to lessen the perceived disadvantages, multiple strategies of validation (triangulation) or "trustworthiness" were employed to ensure the data collected was dependable (Lincoln & Guba, 1985). The sampling strategy, used in this study was criterion-based (Miles & Huberman, 1994). In this case, all participants had an identified gender-based instructional proclivity based on the Teaching Styles Inventory (Ferrara, 2009) and had reported being willing and open to observation and discussion of their teaching and organizational practices and learning outcomes.

Data analysis occurred concurrently with data collection. Pertinent data analysis and interpretation advocated by Stakes (1995) were used. However, a template developed by Creswell (2007) aided in the development of coding generalizations, themes and categories. A software program, (ATLAS.ti) aided in searching and arranging the materials in such a manner that allowed for understanding and presentation of findings.

Chapter Four: Results

Introduction

Debate exists regarding the merits of single gender learning environments, particularly in public education. The idea of educating children in a single sex learning environment is receiving considerable attention from scholars and practitioners who favor and oppose its use (Barnett & Rivers, 2004, 2007; Eliot, 2011; Gibb, Ferguson, & Horwood, 2008; Haag, 1998,2000; Halpern, Eliot, Bigler, Fabes, Hanish, Hyde, Liben, Martin, 2011; Hilliard & Liben, 2010; James, 2007, 2009; Salomone, 2003; Sax 2005, 2009, 2010; Singh, Vaught, & Mitchell, 1998). The rationale for single gender learning environments is rooted in studies of brain-based learning differences between boys and girls and the reported critical level of students who are failing in US schools (Baron-Cohen, 2003; Gurian & Ballew 2003; James, 2007, 2009; Sax, 2005, 2009, 2010). Those in opposition to a single gender approach refute claims and suggest other means to address the crisis of failing children and schools and to be attentive to the so called brain-based learning differences between boys and girls (ACLU, 2009, 2011; American Council for CoEducational Schooling, 2011; Bigler & Signorella, 2011; Halpern, et al.,2007, 2011).

The purpose of this research study has been to enhance the understanding of the effects of single gender education, particularly when a classroom with students of the same gender are matched with a teacher with a known gender proclivity for instruction. The study has not been conducted to engage in debate regarding the value of single gender education. This research sought to understand the organizational and instructional

approaches and learning outcomes, which emerge from matching a teacher with a known instructional proclivity with a classroom of students of one gender. In spite of the contradistinctions of either side of the debate regarding single gender education, research suggests that matching the appropriate teaching style with the appropriate student learning style can influence learning (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). For this reason, researchers have suggested that teaching and learning styles should be matched in order to enhance student engagement (Griggs & Dunn, 1984; Smith & Renzulli, 1984). To further understand the impact of matching teaching styles to student learning, this study explored the instructional and organizational practices that are useful for a teacher who is considered to be a good fit in a single gender environment (Thomas & Chess, 1977) and the learning outcomes which emerged from such an arrangement. While the manner in which student learning styles can be matched with teacher instructional styles has been examined and reported, no study has been identified in the extant literature regarding the ramifications of matching a teacher‟s gender-based instructional proclivity with a group of students of one gender.

In that regard, this study focused upon the identification of the organizational and instructional practices, which were used by four teachers who had been selected to engage with students in single gender environments and the learning outcomes of the arrangements. More specifically, the purpose of the study has been to ascertain the manner that these practices and the related learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivity (Ferrara, 2009).

The researcher applied a mixed methods approach to record the organizational and instructional approaches utilized by the teacher participants in the study and the learning outcomes which emerged from a single gender learning environment. Quantitative and qualitative data were collected and recorded by the researcher. The quantitative data consist of information obtained from the district assessments, originally administered three times a year at all grade levels. In this study, the data collected reflects the scores obtained from the beginning of the year (BOY) and middle of the school year (MOY) assessments, in the subject matter of reading, and in the fourth and fifth grades.

The chapter has been organized with the following titles (a) Brief Introduction of the Case Studies (b) Findings- Research Question One- Organizational Approaches (c) Findings- Research Question Two- Instructional Approaches (d) Findings- Research Question Three- Learning Outcomes, and (e) Summary.

The following research question and secondary questions have guided this study:

1. Primary question: In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to students in single gender environments and what will be the learning outcomes in such an arrangement?
2. Secondary questions:

- In what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize the instructional environment to support student learning in a single gender classroom?

- In what manner will teachers, who have been aware of their gender-based teaching proclivities, deliver instruction to students in single gender environments?
- What are the learning outcomes of students who are of the same gender when matched with a teacher who has a known gender-based instructional proclivity?

Brief Introduction to the Case Studies

After the receipt of the approval of the Institutional Review Board (IRB) and the administration of the Teaching Styles Inventory, four cases were identified. Each case involved a teacher and her classroom. Based upon the results of an examination of twenty-seven possible teacher participants, who had volunteered to complete the survey and who were teachers in the school in which the study was going to be conducted, only six subjects were identified as meeting the criteria of the study. To meet the criteria for the study, teachers had to be willing to complete the Teaching Styles Inventory (Ferrara, 2009), which identified their gender-based instructional proclivities, and the reflections survey titled, Reflections You, The Teacher, which was utilized to identify the instructional and organizational approaches that were reportedly being used by the teacher participants in this study.

However, one of the six participants did not teach a core subject such as mathematics or reading, the significance of which is that a quantitative learning score, which is one of the primary variables of the study, could not be obtained for the students of this teacher. Another one of the five remaining potential participants had her teaching

assignment temporarily changed in the process of the dissertation study, thus disqualifying her for participation for the first month of the study. Originally, she was assigned to an all-girl learning environment. However, due to enrollment issues, the learning environment of her classroom was changed to a mixed gender learning environment. Conversely, after the study began, her teaching assignment changed from the mixed gender class, back to the original all-girl learning environment. Thus, she then qualified to participate in the study. Her participation in the study began approximately one month after the data collection process was underway.

Based on the outcomes of the administration and interpretation of the Teaching Styles Inventory, (Ferrara, 2009), no teacher was identified as having a gender-based instructional proclivity for boy learners. Therefore, the matching was changed with the approval of the dissertation committee and the IRB. Specifically, two teachers who have an identified gender-based instructional proclivity for girl learners were matched with students of the same gender and the remaining two teachers who also have an identified instructional proclivity for girl learners were matched with students of the opposite gender, (i.e. girl learners have been matched with two teachers who have gender-based instructional proclivities for girls, and boy learners have been matched with a teacher who has a gender-based instructional proclivity for girls). The matching did not change the research questions; nor did it change the research design. Each of the four cases occurred at the fourth and fifth grade levels.

The following is a description of the four cases, (i.e. four teachers and their classrooms) who were selected for the study. The names were selected by the

participants, upon the request of the researcher, in order to protect their identity. Two of the pseudonyms begin with a first name and two begin with "Mrs." They reflect the choices of the four participants and while not consistent have been maintained to pursue authenticity with the study.

- Christina Swamp is a fourth grade teacher who has been assigned to an all-boy learning environment. She is Caucasian, newly married and in her mid-thirties in age. She has been teaching for twelve years. She has three years of teaching in a single gender learning environment. Her background is in special education, with a master"s degree in curriculum and instruction. She has a gender-based instructional proclivity for girl learners. However, she has been assigned to boy learners. She has been in her current assignment (all-boy) for two years. The racial profile, in this classroom, is seventy-eight percent African-American and twenty-two percent Caucasian. According to federal poverty levels (FPL), ninety-one percent of the students in this class qualify for participation in the free and reduced lunch program.
- Mrs. Smith is a fifth grade teacher. She has been assigned to an all-boy learning environment; however, she has a gender-based instructional proclivity for girl learners. She is African-American, in her mid-thirties in age and has an extensive background in working with inner city students. Her former teaching assignment was an elementary setting in Chicago Public Schools. She has been on staff, for three years at the school where

the study has been conducted. This has been her second assignment in a single gender learning environment. The racial profile in this classroom is seventy percent African-American and thirty percent Caucasian. According to federal poverty levels (FPL), ninety percent of the students in this class qualify for participation in the free and reduced lunch program.

- Mrs. Nelson is a fourth grade teacher. She has been assigned to an all-girl learning environment, which became a mixed gender environment at the beginning of the school year and then was switched back to being an all-girl environment after six weeks. After the six-week period and changes in the fourth grade enrollment, the teacher was assigned again to an all-girl learning environment, with the same girls in which she began the year. The teacher has a gender-based instructional proclivity for girl learners and has been matched currently with students of the same gender. She is Caucasian, and in her early forties. The racial profile in this classroom is fifty percent African-American, twenty-five percent Caucasian, and twenty-five percent Pacific Islander. According to federal poverty levels, (FPL), all of the students in this class qualify for participation in the free and reduced lunch program.
- R. Burgandy is a fifth grade teacher. She has been assigned to an all-girl learning environment. She has an identified gender-based instructional proclivity for girl learners. She has been assigned to an all-girl learning

environment for the past three years. She is Caucasian and in her mid-forties. R. Burgandy has been teaching for seventeen years, the last eight years in the school where the study was conducted. The racial profile in this classroom is sixty percent African-American and forty percent Caucasian. According to federal poverty levels, (FPL), all of the students in this class qualify for participation in the free and reduced lunch program.

Findings- Research Question One- Organizational Approaches

To ascertain the manner in which the four teacher participants of this study have organized the instructional environments and their students in order to provide support for a single gender classroom, the researcher visited, watched, and took notes over an extended period of time. In addition, the results from the reflections survey (Reflection You, the Teacher) were given careful consideration and compared with the outcomes of the classroom observations. The survey was developed by Ferrara (2009). The questions in the instrument represent an avenue to challenge teachers to think about and respond with answers regarding their learning environments, (physical characteristics of the environment and groupings for learning), instructional strategies (delivery methods), motivation strategies, and social support systems.

The organization of each of the classrooms were discovered by the researcher to be basically the same. Each of the classrooms had nearly identical furniture. The common design was long tables, which housed four to six students per table. There were a few single tables in each classroom and or individual student desks, (i.e. chair attached

to a table top). Teachers had little control or opportunity for creativity with the organization of the furniture in their rooms; a factor that may have influenced their approaches to address the individual learning needs of the students. However, all of the teachers added personal touches to their rooms in order to enhance the learning environment. Those personal touches included adding pink chairs and magazines which have girls on the cover in the all-girl room of R. Burgandy; blue rugs, bean-bag chairs, and books appealing to boys in Christiana Swamp"s all-boy classroom; purple and pink wall coverings and bulletin boards in Mrs. Nelson"s all-girl room; and car and sports-related books, wall coverings, and equipment in Mrs. Smith all-boy classroom.

In terms of the teachers" workspace/desk, the furniture had a common design of table space attached to the perimeter of the room. The teachers designated other areas as workspaces. For example, other movable tables were obtained and served as teacher workspaces or spaces for students. Although the reflections instrument was designed to ascertain the manner that the teachers respond to the demands of the classroom, (physical characteristics of the environment and groupings for learning), instructional strategies (delivery methods), motivation strategies and social support systems), the instrument did not ask if the characteristics related to the design and/or the furnishings in the classroom had an impact on the ways that the teachers organized students for learning. The layout and design of the classroom have been captured as a pictorial, which can be found in Appendix G.

Based on the results from the reflections survey (Reflection You, the Teacher), which was used to ascertain the practices the teachers used to support student learning in

their single gender classroom, the organizational arrangements (non-furniture) in the four classrooms was found to reflect both similar and different approaches, regardless of the gender of the students. When it came to organizing students for learning, the approaches were rather similar. In the all-boy single gender learning environments, Christina Swamp, self-reported that the boys in her classroom had a choice about the classroom arrangement, which was typically influenced by the nature of the project they were addressing, whereas Mrs. Smith, self-reported her organizational approach when grouping students for learning was handled in three different ways.

- Groups were fixed, particularly in reading. This grouping only was changed if the reading levels changed.
- The groupings of the boys were often organized for learning in pairs.
- The boys were organized for learning based on table groups, which were based upon where the boys chose to sit, their interests, and their social connections. The boys were encouraged "to work with their friends".

In summary, the common organizational approach for the all-boy learning environments involved the use of groups based on social and thematic connections, such as choice of the students or the nature of the project.

The manner in which the students were organized for learning in the all-girl environments, as reported by the two teachers, were similar to the responses that had been received from the teachers of the all-boy learning environments. R. Burgandy (single gender girls) and Mrs. Nelson (single gender girls) reported that they had organized the students randomly and/or in pairs for learning. R. Burgandy stated this

organizational approach was usually determined from the student results obtained from short cycle assessments. Short cycle assessments (SCA) are teacher-made or district-mandated assessments designed to provide academic feedback to both the teachers and students. The purpose of the assessments is to determine grouping strategies for learning and pacing strategies for selecting academic materials. The results from the short cycle assessment can result in the determination to maintain or change the manner in which students are grouped for instruction. R. Burgandy also stated, some students required being separated from other students. However, Mrs. Nelson stated that the arrangement regarding the manner in which the girls were organized for learning tended to change approximately three times during a semester.

No information was obtained from the Reflection Survey regarding such student arrangement changes. Patterns regarding the manner that the students in the four classrooms in the study had been organized emerged after numerous classroom observations by the researcher (Table 1). One common organizational approach emerged in each case study (i.e. whole group). All four teachers approached the organization of the students from a whole group perspective. All of the teachers exercised this organizational approach (whole group) to support the instructional strategy (lecture/discussion). The use of the whole group approach reportedly reflected the assumption that all students would be served to be given at the same time identical educational materials, regardless of their educational levels (McLaughlin and Allen, 2009).

The all-girl classes appear to have reflected the most variety regarding the use of various approaches for organizing students for learning. The manner in which the all-girl classrooms were organized for learning differed in each classroom with the exception of the use of whole group instruction. The manner in which the teachers organized the classrooms for learning had one particular distinction. While both teachers used randomly grouped pairs and individual places, R. Burgandy approached instruction with differentiated learning.

Differentiated instruction is an instructional strategy that it being widely used as a method of teaching students at various academic levels. Differentiated instruction is used to structure the curriculum materials and activities to meet the needs of the individual learner and organize the learning environment to accommodate individual needs (Tomlinson, 2003.) This instructional strategy appears to have been the most commonly used organizational approach in the all-girl classroom of R. Burgandy. During my observations of two of the other classrooms (Nelson and Swamp) little evidence appeared to exist of the use of differentiated instruction. The exception was that a form of differentiated instruction, using small groups, existed in the class of Mrs. Smith.

Table 1

Organizational Approaches All Cases - Self-Reported (x) and Observations (o)

	Random	Teacher selection	Social group	Student choice	Paired	Small groups	Work alone	Movement	Fixed	Whole group
Nelson (girls)	x&o	o			x&o					o
Burgandy (girls)	x&o	o			x&o	o	o		o	o
Swamp (boys)			x&o	x&o	o			o		o
Smith (boys)			x&o	x&o	x&o			o	x	O

Findings- Reacher Question Two – Instructional Approaches

Research Question Number Two was designed to ascertain the manner in which the teachers had been made aware of their gender-based proclivities, particularly as they pertained to the delivery of instruction to students in a single gender learning environment. The findings were derived from observations conducted by the researcher in the classroom settings of the participating teachers and the responses of the teachers to the reflections survey (Reflection You, The Teacher). In that regard, the reflection survey asked teachers to rate the frequency with which specific teaching strategies were used during the course of a week. Those strategies include direct instruction, inquiry, cooperative learning, lecture/discussion, student-led instruction and other.

Direct instruction is an instructional practice that is teacher directed, usually to a small group of students in a face-to-face manner. Skills are usually broken down into small units (Carnine, 2000). According to the results of the reflections survey, this instructional practice is dominate in two of the single gender classes, one boy (Mrs.

Smith) class and one girl (Mrs. Nelson). Both teachers report this strategy is used seventy-five percent of the time in one week. Interestingly, gender does not appear to have been a factor for the use of this instructional strategy.

Inquiry-based instruction is another practice listed on the survey as an option for the delivery of instruction and pursuit of learning. Inquiry-based instruction is rooted in the works of John Dewey (1997) and the use of the Socratic approach of inquiry in order to stimulate the learning experience of the students. The approach is designed to allow students to think and derive meaning to questions and to develop their own answers to the questions; leading hopefully to additional follow-up questions. This instructional method is student-driven. The teacher acts as a facilitator.

R. Burgandy (all-girl classroom) and Christiana Swamp (all-boy classroom), self-reported the use of the inquiry based approach seventy-five percent of the time in one week. Both of these teachers have a gender-based instructional proclivity for girl learners. As with direct instruction, inquiry-based reportedly is used frequently regardless of the gender of the students.

Cooperative learning is an instructional strategy in which students are grouped in preferably small teams, ideally with students of different academic abilities, whereby using a variety of learning activities to improve student understanding of a subject (Slavin, 1990). The goal of each team of students is to learn what is taught and to help fellow teammates learn, thus creating an atmosphere of achievement and accountability. This instructional strategy was reported to have been used seventy-five percent of the

time in one week in the all-boy class of Christiana Swamp and the all-girl class of R. Burgandy.

The teachers reported their use of the instructional approaches for one week periods; the significance of which makes feasible that Burgandy and Swamp could report using inquiry-based and cooperative learning each for the seventy-five percent of the time. Both teachers have a girl instructional proclivity and one had an all-boy class and the other had an all-girl class, which suggests that the value of the cooperative learning strategy is perceived in these two cases as being of value to both genders.

Lecture/discussion is another instructional strategy reported as a means of teaching content knowledge to students. It is derived out of the concept of lecturing, which represents the teacher simply communicating to students the information to be learned (Lowman, 1987). An assumption of the lecture/discussion approach is that the students are very much involved in the exchange. The teacher purposely encourages students to comment or justify their responses and to express their concerns. The lecture/discussion class typically begins with the teacher speaking for a short period of time, then stimulating a few minutes of discussion around a key point in their presentations. During the discussion, the goal is for the teacher to offer brief elucidation or integration between students‟ comments, with the students dominating the talking. This instructional approach was reported as having been used to deliver instruction to students in one class, the all-boy classroom (Mrs. Smith).

Based upon several classroom observations, no one strategy was identified as being preferred for a specific gender of students by the participating teachers, all of

whom had known gender-based instructional proclivities for girls. In other words, the manner in which the teachers delivered instruction was as varied as the gender of students. However, one method was common among all of the learning environments, (e.g. lecture/discussion). While the use of cooperative learning was observed in the all-girl classrooms of R. Burgandy and Mrs. Nelson, it was only found in the all-boy classroom of Christiana Swamp, not the all-boy classroom of Mrs. Smith.

The juxtaposition within the context of instructional approaches reflected differences within the all-girl classes. For example, the dominate instructional practice, as observed in Mrs. Nelson‟s class was the "Other" category. This instructional approach involves the use of visual arts, music, and movement. Visual arts, the use of music and movement are rooted in the concept of kinesiology. The belief is that students learn by using movement and sensory mechanisms. The assumption is that people are able to learn and retain information by the connections to other areas of the body, besides the brain (Burzynska, Chaddock-Heyman, Voss, Wong, Gothe, 2014).

In the other girl‟s learning environment, (R. Burgandy) the pervasive instructional practice was differentiated instruction (Table 2). The goal of this strategy is to provide instructional practices that individual learners need in order to be successful. The curriculum materials and activities are obtained and structured to meet the needs of the individual learner and to organize the learning environment to accommodate their needs (Tomlinson, 2003). In other words, the same content might be taught at the same time in the same classroom using multiple approaches. For example, reading may be the content. However, one group of students may be working on vocabulary and creating elaborate

stories using specific words, while another group may be working with the teacher on word recognition and phonemic awareness.

Table 2

Common Instructional Strategies Girl Learners Self-Reported(x) and Observations (o)

	Lecture discussion	Use of technology	Direct instruction	Cooperative learning	Differentiated instruction	Inquiry	Other
Nelson	o	o	x				o
Burgandy	o	o		x	o	x	

After observing the manner that the teachers, who had been made aware of their gender-based instructional proclivities, delivered instruction, the boy-learning environments appear to have been different from the girl-learning environments. The manner in which instruction was delivered in the all-girl learning environments involved distinct methods. Yet, the form of instructional delivery was similar in the boy learning environment. It involved primarily the lecture/discussion. Although the lecture/discussion strategy dominated in the all-boy classes, the teachers used multiple instructional strategies within the same context of teaching and learning. In other words, within the same lesson focus, other instructional strategies were used (Table 3). While lecture/discussion was the primary approach, the teachers occasionally switched to other instructional strategies such as inquiry, cooperative learning, direct instruction and/or the use of technology.

Table 3

Common Instructional Strategies Boy Learners Self-Reported(x) and Observations (o)

	Lecture discussion	Use of technology	Direct instruction	Cooperative learning	Differentiated instruction	Inquiry	Other
Swamp	o	x&o		x&o	o	x	
Smith	x&o	o	x				

The lecture/discussion method of delivering instruction was observed as being a common practice in each of the four cases. However, it particularly was used most frequently in the all-boy learning environments. Along with the use of this instructional strategy, constant movement in the all-boy learning environments was considered to be acceptable and was a common organizational practice. Moving from place to place or engaging in activities was the norm in all-boy classrooms. The boy students were not expected to ask permission; as they seemingly moved at the appropriate time and place.

In the all-girl classroom of R. Burgandy, the students were basically organized in groups or pairs, as directed by the teacher. This organizational approach appears to have been selected by the teachers to organize the learning of the girls based upon their styles and needs. On the other hand, Nelson, in the other all-girl classroom used movement, not as an organizational strategy as observed in the all-boy classes, but as an instructional strategy to probe the students for information or understanding of knowledge. For example, large pieces of paper were attached to a wall and students were given small Post-It-Notes and asked to respond to prompts embedded within the learning environment.

Finding- Research Question Three- Learning Outcomes

Research Question Number Three was designed to ascertain and document the learning outcomes of students of one gender when matched with a teacher of a known gender-based proclivity. This question involved a quantitative measure in that the researcher used the results from the district mandated assessments to record academic gains or lack thereof in reading. The original intent of this research question was to obtain also the quantitative results from the district"s mathematics assessment. However, the district nixed further use of the assessment due to new testing standards anticipated for the 2015 school year.

The learning outcomes, within the context of the learning environments, are documented from observations and documents produced by the teachers and students. These documents included written assignments, individual projects, class projects, dramatization, verbal responses, and daily assignments in the form of notebooks. According to the results of R. Burgandy"s class for the BOY and the MOY assessments, twenty-five girls completed both assessments. Roughly, forty-four percent tested in the well below and below the benchmark categories, while twelve percent met the benchmark on the BOY assessment.

Benchmark, in this context, is the standard of the assessment, which indicates that a student has mastered the learning materials for that specific grade level and subject matter. Below the benchmark and well below the benchmark are terms that have been used to designate two levels at which students had failed to exhibit the expected basic skills and knowledge on the assessments.

In addition, forty-eight percent of R. Burgandy‟s students tested well below the benchmark, twenty percent were below the benchmark and thirty-two percent met the benchmark on the MOY assessment. The results document an improvement in learning outcomes. Although there is a slight increase (four percent) in girls in this particular class testing well below the benchmark, there is a twenty percent increase in girls, who met the benchmark and a twenty-four percent decrease in girls who scored below the benchmark (Figure 1).

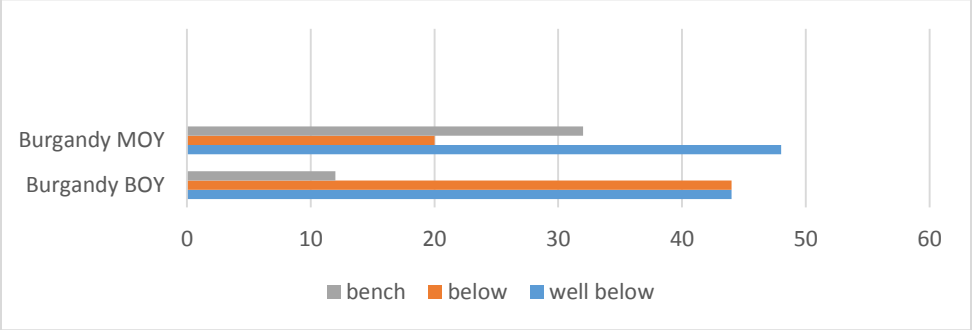

Figure 1. Quantitative results, R. Burgandy (girls)

Mrs. Nelson, who has been matched with students (girls) the same as her gender-based instructional proclivity, assessed twenty-three students on the BOY assessment and nineteen on the MOY assessment. The differences in the number of students assessed in the two assessments represents attrition in class size, (i.e. mobility, absenteeism, and the reorganization of the class). According to the results on the BOY assessment, twenty-two percent scored well below the benchmark, nine percent below and sixty-nine percent achieved the benchmark standard. The MOY assessment data represents five less

students than the scores recorded on the BOY assessment. Twenty-six percent scored well below the benchmark, twenty-one percent below the benchmark and fifty-three percent achieved the benchmark standard on the MOY assessment. The comparison represents a decrease in learning outcomes; four percent more girls scoring well below the benchmark, twelve percent more girls in below the benchmark and sixteen percent less students who achieved the benchmark (Figure 2).

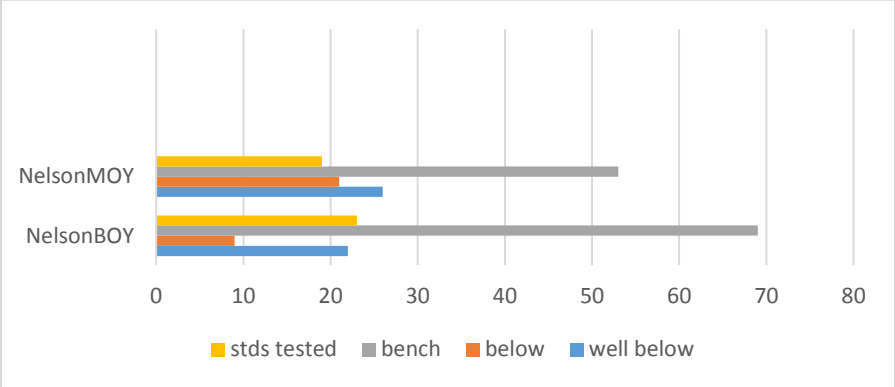

Figure 2. Quantitative results, Nelson (girls)

The student results of Christina Swamp‟s class appear to represent growth in the reading outcomes. Twenty-eight of the boys were tested on the BOY and the MOY assessments. Fifty-three percent scored well below the benchmark, eleven percent below the benchmark, and thirty-six percent achieved the benchmark standard on the BOY assessment. Forty-three percent scored well below the benchmark on the MOY. This number represents an eleven percent decrease in the number of students who are well below benchmark standard; a significant improvement from the BOY to the MOY assessment. Seven percent of the boys in this specific class scored below the benchmark

and fifty percent achieved the benchmark. Fourteen percent more boys mastered the benchmark from the BOY to the MOY assessment (Figure 3). The scores from the BOY to the MOY represented an increase in learning outcomes in reading for this particular class.

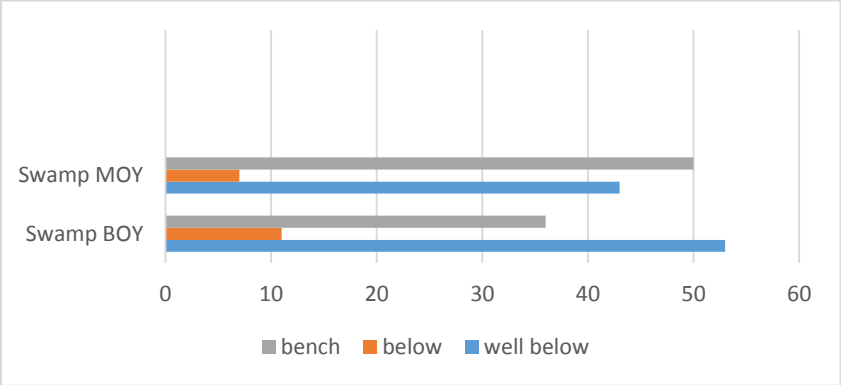

Figure 3. Quantitative Results, Christina Swamp (boys)

The student outcomes in Mrs. Smith‟s case study represented an increase in the district assessments. Twenty-four students were tested on the BOY assessment and twenty-six students were tested on the MOY assessment. The increase is a result of two students enrolling after the administration of the BOY assessment. On the BOY assessment, the results indicate fifty-four percent scored well below the benchmark, forty-two percent scored below the benchmark, and four percent achieved the benchmark. In comparison on the MOY assessment, fifty percent scored well below the benchmark.

These outcomes represented a four percent decrease, which in this case represents an improvement, in the number of students whose assessment scores have resulted in their movement from the lowest category. Thirty-five percent scored below the

benchmark; thus a seven percent decrease occurred in the number of boys, who scored below the benchmark. Fifteen percent achieved the benchmark on the MOY compared to the BOY. This represented an eleven percent increase in boys achieving the benchmark (Figure 4).

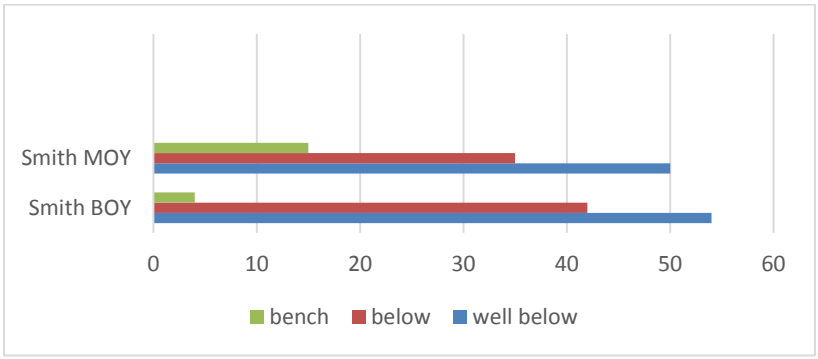

Figure 4. Quantitative results, Mrs. Smith (boys)

Summary

This study, as previously mentioned, has been focused on the identification of the organizational and instructional practices, which have been used by four teachers with known gender based instructional proclivities, who have been assigned to engage with students in single gender environments. Also included in the study has been an identification of the learning outcomes of the students in the classes (Ferrara, 2009). More specifically, the purpose of the study has been to ascertain the manner that these practices and the related learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities.

The organizational and instructional approaches, which have been applied in each of the case studies, have been observed documented. Similarities and differences have been found to exist among students of the same and the opposite genders. In other words, differences and similarities appear to have existed in the all-boy learning environments and at the same time those same characteristics appear to have existed in the all-girl environments. No organizational approach, instructional approach, or documented learning outcome in this study has been found to be gender specific. What has been applied in the all-girl learning environments has appeared to be applicable to the all-boy classroom settings, in spite of the gender-based instructional proclivity of the teachers.

Similarly, the learning outcomes evidenced in the study based on the quantitative district assessment scores, indicate an increase in academic growth, specifically in the areas of reading in three of the four case studies. This finding appears to suggest that a relationship may exist between the gender-based instructional proclivity of teachers and single gender students. However, the relationship exhibited in the study reflected that teachers with a gender-based proclivity for girls can have a positive influence on the learning outcomes of both boys and girls.

Chapter Five: Discussion, Summary and Recommendations

Discussion

A description and discussion of the outcomes of this study will be offered first in this chapter to be followed by recommendations for future practice and research, particularly as they pertain to the implications of the study. This study has been focused upon the identification of the organizational and instructional practices, which have been used by teachers, who have been selected to engage with students in a single gender environment and the learning results that have emerged from such an arrangement (Ferrara, 2009).

More specifically, the purpose of the study is to ascertain the manner that these practices and the related learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities and the manifestations of the proclivities in a single gender classroom. In order to identify and discuss the ramifications of matching students of one gender with a teacher who has a known gender-based instructional proclivity, the researcher needed to detect and gain an understanding of the commonalities among the case studies (4 teachers and their classrooms), particularly as they pertained to the focus of the study (Creswell, 2007). The commonalities were pursued with an attempt to compare and contrast the elements of the case studies, as they related to a single gender learning environment.

The attempt to determine the ramifications of matching students of one gender with a teacher, who has a known gender-based instructional proclivity, has experienced challenges in this study. To initiate this portion of the study, the researcher searched the

data for instances in which relevant meaning could be identified in three areas. The areas or themes included instructional organizational practices, delivery/instructional practices, and learning outcomes. The researcher searched the data for patterns and relationships; with the intent of identifying similarities and differences and generalities among and in each theme.

The organizational approaches identified and analyzed in all four cases (classrooms) exhibited similarities and differences. As previously mentioned, the teachers in this study had little control or opportunity for creativity when the structure of the classroom and its furnishings, particularly as they might be organized to enhance learning. The only exceptions pertained to adding personal artifacts to the room. Each of the four classrooms had the same furniture and fixtures; some of which are attached and unmovable, (i.e. teacher‟s work space, student cubbies; which is where they place their personal items).

The teachers had far more opportunities to organize classroom and learning activities. However, organizational similarities emerged that appeared to be based upon the genders of students. For example, the teachers, in both the all-boy environments, organized the students for learning in a similar manner. In addition, the boys appear to have had some choices regarding who they would work from a social context. In addition, the boys had freedom to work in any space within the learning environment, (e.g. floor, at a table, standing or gathered together in a corner of the room). The boys, were observed, during the study, as moving regularly with the acceptance of the teachers.

In fact, movement was commonly viewed and is considered to be an acceptable organizational approach for all-boy classrooms.

However, similar levels of movement were viewed as being acceptable in only one of the two girl classrooms and only as an instructional approach. While movement was witnessed as being acceptable in one of the all-girl classes, there generally was less movement in both of these classes compared to the two all-boy classrooms. Among the two teachers of the all-girl classes, one teacher organized the students based upon academic similarities and the other teacher organized them based upon random selection. The practice of students working together in a cooperative manner was witnessed in all four classes in the study. Another common organizational approach, which the teachers used to group students for learning, involved pairs and in at least two cases (one all-boy and one all-girl learning environments) the assessment outcomes were analyzed and the outcomes influenced the selection and utilization of the approaches to instruction and learning.

The organizational approaches used in each of the classes were based upon their perceived effectiveness for the students, regardless of the gender-based instructional proclivities of the teachers. In fact, the students, when presented with instructional approaches that were relevant to their needs, responded well, even in the classes in which the gender-based proclivities of their teachers did not match their own genders. This results suggest that instructional approaches and learning outcomes may not be significantly influenced by matching the gender instructional proclivity of a teacher with the gender of the students. In other words, the students in all four case studies

(classrooms) appear to have responded well to the instructional techniques of their teachers, regardless of whether there was a gender match.

The approaches to instruction used by the teachers, who as reported knew their own gender-based proclivities, were witnessed to be both similar and different in the all-boy and the all-girl learning environments. The lecture/discussion strategy was used in each of the four cases (classrooms). While the approaches used in the all-boy classroom environments were generally similar, different approaches were used in the all-girl environments. The teachers in the all-boy classes typically used the lecture/discussion approach. However, the teachers also would use simultaneously other approaches, particularly if they appeared to be needed in order to enhance the boys‟ learning. The students, with the two teachers who had non complementary gender-based proclivities, experienced similar instructional approaches. However, the students who had teachers with complimentary gender-based proclivities did not experience similar instructional approaches.

More specifically, all the teachers in this study have a gender-based instructional proclivity for girl learners. However, the teachers assigned to the two all-girl classes utilized different instructional approaches, while the teachers assigned to the two all-boy classes utilized similar instructional approaches. Given the positive manner that the students in the four case studies (two all-boy and two all-girl) responded to the girl-based instructional proclivities of the four teachers, the ramifications of matching do not appear to have had a major influence on instruction and learning in this study. What seemed to

be of most importance was that the students were being taught in a manner that was attentive to their learning needs.

The data from the study suggests that learning progress was being made in three of the four case studies and possibly even in the fourth case study. Students in three of the four classes demonstrated academic growth, based upon the study"s quantitative data. The learning progress in the fourth study was difficult to measure, as the group of students who took the beginning of the year assessment (BOY) did not have the same make-up as the group who took the middle of the year assessment (MOY). This particular class was a mixed gender group of students at the time of the beginning of the year assessment and organized into an all-girl format one month later. The boys did not participate with this group of girls at the time of the middle of the year assessment. However, the girls in the class remained the same from the beginning of the year through the middle of the year assessment.

The data-based documentation that learning was occurring in at least three of the four classes was complemented by the qualitative data obtained by the researcher. For example, the researcher documented learning outcomes of students from several sources, such as math journal entries, presentations, student projects, and written assignments. The quality of the work found in these student samples provided evidence that learning was occurring in each of the four case studies. However, greater gains appear to have been made among the students who had been matched with a teacher of the opposite, as opposed to the same, gender-based instructional proclivity.

Of significant importance to the purpose of this study and as previously noted, the students who were matched with teachers of the same gender-based instructional proclivity did no better than the students who were matched with teachers of the opposite gender-based instructional proclivity. Interestingly, the students who were matched with teachers of the opposite gender-based instructional proclivity tended to achieve academically better than the students who were matched with teachers of the same gender-based instructional proclivity.

These results of the study appear to give support for consideration to the contrarian perspectives of gender-based learning, which have been offered by the ACLU (2009, 20110), American Council for CoEducational Schooling (2011), Bigler & Signorella (2011) and Halpern, et al. (2007, 2011). The perspectives purport that separating students based on gender will not enhance learning, but instead perpetuate gender stereotypes. These perspectives also appear to coincide with the absence from the literature of a study that supports the value of matching a teacher‟s gender-based instructional proclivity to a single gender student environment.

The results of this study may however add to the literature regarding single-gender education, particularly the organizational and instructional strategies that teachers practice in such a learning environment. Perhaps the results of matching a teacher, who has a known gender-based instructional proclivity, as was done in this study with students of one gender may add to the literature. At the least, the results may offer a resource regarding ways to meet the learning needs of failing students, who are primarily Africa-American and who are from a large urban metropolitan area in the Midwest (Crockett,

2014). The results of the study may also offer indirectly support for the contrarian perspectives that purport that gender-based instructional practices are of little value and may even be detrimental in some circumstances to instruction and learning (Halpern, et al., 2011).

The Future

The outcomes of this study have provoked thoughts about where to go next with research and practice. The thoughts will be offered next in this chapter. For example a suggestion is being made that attention be given to researching the relationships between teaching practices, including gender-based instructional proclivities, and the differences regarding the manner in which boys and girls learn, particularly since research outcomes suggest that they learn in different ways (Sax, 2005). According to Sax (2009) learning is influenced when girls and boys are separated for instructional purposes and teachers are trained in gender specific instructional practices. For that matter, this study sought to ascertain the way in which instructional practices and learning outcomes are influenced when teachers are made aware of their gender-based teaching proclivities and placed in single-gender classrooms. Furthermore, the study focused upon the identification of the instructional and organizational approaches, which are used by teachers when engaged with students in a single gender environment. The study also was concerned with the learning outcomes that emerge from such arrangements.

Noticeably significant gender specific, instructional strategies failed to emerge from this study, which has been focused on the organizational and instructional approaches that teachers use in single gender learning environments. In other words, no

markedly different approaches to instruction and organization, which are specific to gender, emerged from this study. The two teachers whose gender-based instructional proclivity complemented the students to whom they had been assigned and the two teachers whose gender-based instructional proclivity was the opposite of the students to whom they had been assignment used rather similar instructional strategies and approaches, with only minor differences. The quantitative learning outcomes, with the exception of one class, were also similar for each of the two sets of students. The outcomes for the class that represented the exception probably reflected a change that occurred to the make-up of the group of students between the time of beginning-of-the-year and mid-year assessments.

Regardless of the results of this study, further investigations regarding the gender-based instructional proclivities of the teachers and the students to whom they are assigned appear to be needed, particularly as they pertain to research and practice. Such studies could pursue teacher preparation regarding single gender-based learning practices; the manner in which the brains of boys and girls learn differently; the instructional practices and organizational approaches that work best for boys and girls; and the ways in which to designate the curriculum, regardless of the gender setting (James, 2009, 2010; Sax, 2012, Salomone, 2006; Sommers, 2013; Tomlinson, 2013).

This study recorded the differences and similarities of the various organizational, and instructional practices that each of the four teachers practiced in their respective learning environments and the learning outcomes gained from such approaches. However, further research may produce tangible information regarding the best path to

prepare teachers who choose to teach in such an environment. While legislation (i.e., Title IX) paved the way for single gender learning environments and the need for related instructional strategies, the manner in which they are approached needs to be answered from a research perspective, regarding the preparations that need to be made in teacher education programs. In addition, the results of further research is needed in order to support, to refute and/or to influence this nearly new phenomenon in public educational urban settings.

Recommendations

Research continues to provide useful information regarding the practices and factors that can influence a student‟s academic success. A recent documented report from Great Britain highlighted gender specific strategies and successful practices which produced positive results for boy learners (Boys Reading Commission, 2012). Another study was conducted at Stockholm University in Sweden in which attention was given to whether the gender of the teacher affects the gender gap in school performance (Holmlund and Sund, 2005). The findings of this study showed that the performance gap between male and female students is clearly elevated in subject areas where the teachers are predominately female. However, the overall conclusion of the study is that matching the gender of a teacher and student does not necessarily result in improved learning outcomes.

In other studies, which have examined the effects of single gender and coeducational environments on the gender gap in student achievement, the authors have engaged in discussions regarding the limitations of the outcomes. The authors also have

provided recommendations for further research and practice (Gibb, Ferguson, & Horwood, 2008; Haag, 1998, 2000; Halpern, Eliot, Bigler, Fabes, Hanish, Hyde, Liben, & Martin, 2011; Hilliard & Liben, 2010; Singh, Vaught, & Mitchell, 1998). One of the studies, a longitudinal study, offers findings regarding significant differences in the gender gap (academics) based on the ramifications of single and multi-gender schooling choices (Gibb, Ferguson, & Horwood, 2008). However, the limitations of the study and this particular study raise additional issues, which suggest the need for additional research. For example, factors which lead to differences or the lack thereof in achievement at single gender schools need to be explored. The issue of gender matching in the context of gender-based instructional proclivity should be also explored. There appears to be limited research regarding the implications of matching one gender of students with an instructor who has an identified gender-based institutional proclivity. The process of selecting students for such studies suggests a need for the use of stricter controls on their background factors, which may or may not be responsible for increases or decreases in learning between the genders.

More specifically, recommendations for further research have emerged from the findings and limitations of this study. The recommendations reflect a research perspective and a pragmatic view point for the obtainment of a greater understanding of the organizational and instructional practices in a single gender learning environment.

Recommendations/pragmatic.

1. Ongoing professional development for all staff members involved in single gender learning environments: Research is continuing in the area of

single gender learning environments, from both ends of the spectrum, (i.e. contrarian, those against single-gender learning environments and proponents of single-gender learning environments). The administrators and teachers of the districts, which choose to use a single gender approach, would be served to investigate the approach thoroughly and participate in relevant professional development. The need for ongoing professional development seems evident, as apparent negative ramifications have emerged from its absence in the district in which the study was conducted. After all, professional development is needed for an instructional strategy to become part of a school community (Simm, 2010).

2. Creation and regular meetings of a professional learning community consisting of the teachers who are engaged in single gender instruction: Such an approach would mirror the reported importance for a professional development community and would give the participating educators a platform upon which to communicate about issues, concerns, and best practices that are germane to gender specific learning environments.

3. Housing classrooms of a specific gender in close proximity to each other: Among other things, all-boy classrooms tend by nature to be noisier than all-girl classrooms. Organizing the all-boy classrooms together and away from the typically quieter all-girl classrooms should contribute to a more effective learning environment for the teachers and students of both genders.

4. The type of principal leadership style will almost certainly play a key role in the continuation in the use of single gender learning in the school in which the study was conducted: The formulation of the single gender learning environment in the school of the study took a transformational principal leader and the insight of one teacher who was willing to look beyond the norm for the purpose of identifying an instructional approach that might help the students, who were failing to experience academic gains. Research contends the appropriate style of leadership can transform the culture and climate of an organization (McGuire, Palus, Pasmore, Rhodes, 2009). New leadership has been introduced in the school of the study, effective the 2014-15 school year. The leadership style of the new principal has not yet reflected the characteristics, which appear necessary to lead, maintain or sustain change within the culture and climate of this organization. The maintenance of the single gender learning environment for this year reflects that the approach had already been solidified, prior to the arrival of the principal. If the single gender learning environment is going to remain in this school in the future as a possible viable alternative for failing, predominately African-American, economically disadvantaged students, a relevant leadership style will need to emerge. A participatory style of leadership, one in which goal setting and problem solving are shared with a team of those affected the approach and outcome, would appear to an ideal manner to serve the school during this critical time of

leadership transition (Salahuddin, 2011). A participatory leadership style could best facilitate the principal in establishing a productive organization, particularly since she is new to the school and the school district. The leadership approach could help provide the principal with the obtainment of the knowledge needed to understand and provide leadership for the organization.

Recommendations/research.

1. Ongoing pursuit and use of research regarding the use of single gender classroom learning environments: The use of well-researched practices, which are relevant to single gender learning environments, can enhance the likelihood that the students will grasp the content and skills being studied and be successful with the assessments and other benchmarks of the quality of instruction and learning (Gurian et al., 2009; James, 2007, 2009; Madigan, 2008; Salomone, 2003; Sax, 2009).

2. Seeking research outcomes regarding the work of teachers who have known gender-based instructional proclivities toward a specific gender of students: An exploration of the manifestations of such practices may provide support for and an enhanced understanding of the manner that single gender instruction can be successfully practiced. In addition, recognition of the results of the research may lead to teachers making effective adjustments to their classroom practices (Dee, 2005)

Implications Related to the Study

The results of considerable research are available regarding the implications of the alignment of a teacher‟s instructional style with a student‟s learning style, (i.e., auditory, visual. or kinesthetic) (Dunn, 1984; Hunt, 1972; Smith & Renzulli, 1984). Researchers have studied existing relationships between the environments, the characteristics of teachers, and the temperaments of students (Lerner et al. 1985; Plomin & Dunn, 1986; Wallander, et al., 1988). However, the relationship between single gender environments, the characteristics of teachers and the temperament of students appears to be lacking in the extant literature. For that matter, no existing research has been reported regarding the alignment of students of a certain gender with teachers who have a proclivity for teaching students of that gender. Therefore, studying this relationship and its value to instruction and learning seems important. For that matter, the results of this study hopefully have contribute a marginal amount information to this gap in the literature.

Potential implications from the results of this study portend to be useful for the future: First, the obtainment of more information about the ramifications of the four cases could be helpful. For example, observations and documentation of the resulting information could contribute to an understanding of the ways that single gender learning is best implemented. The obtainment of such information could also be useful, particularly regarding the teachers in this study who looped with their current students and the teachers who continued to teach in a single gender learning environment and were matched students of the same and opposite genders. The practice of looping had

used in two of the four cases. A study of the practice may offer additional understanding regarding its influence on single gender learning environments, particularly the learning outcomes that emerge from such environments.

A thoroughly understood approach to single gender learning would enhance the likelihood that it was being implemented in a thoughtful and effective manner. For example, the stakeholders should be aware of the relationship of single gender learning to brain-based learning characteristics. The stakeholders also would be served to know that instructional and organizational strategies when implemented correctly, can work for either gender of students. Finally, the stakeholders should be made aware of the intent and purpose for the use of a single gender learning environment. For that matter, professional development could be used as a forum for teachers and administrators to voice opinions regarding single gender education, share related best practices, and receive the latest researched information, both positive and contrarian perspectives.

A commitment has been made in the district in which the study was conducted and in other districts to single gender learning. The commitment could be augmented by the involvement of university scholars of single gender education. The involvement of the scholars, among other things, could improve the likelihood that future teachers would be knowledgeable about the use of single gender learning. In a complementary manner, teachers who have been assigned to single gender classrooms, need to have been prepared to address the responsibility. For this reason, the preparation of aspiring teachers and the professional development of current teachers regarding single gender instruction seems very important. The existing mixed perspectives of scholars and practitioners regarding

the value of single gender instructional approaches will hopefully nurture the need for continued research, the ongoing use of the practice of single gender instruction and learning, and finally to greater credence or reduced credibility regarding the value of the approach.

In summary, the purpose of this study has been to pursue information that will contribute to an enhanced understanding of single gender instruction and learning, particularly the relationships that emerge when teachers with known gender instructional proclivities are matched with students of the same gender. Due to extenuating circumstances, the study also focused upon the relationships of such teachers when matched with students of the opposite gender. In addition, the purpose of the study has not been to debate or refute claims about single gender approaches. Regardless, the primary matter, upon which the study has been built, is the identification of the teachers who should be assigned to classrooms and students to best meet their needs (Darling-Hammond, 2006).

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Appendix A: Teaching Styles Survey

In each statement, **circle** the number that reflects your classroom practice. Please answer thoughtfully. Thank you.

In the continuum 1-6, one (1) <u>least likely</u> reflects your preference and six (6) <u>most likely</u> reflects what you prefer and do in your classroom.

Name: _____ Your Gender: Male Female

Your Classroom Grade: _____ Subject Area: _____

Given the three choices below, in which classroom would you most prefer to teach?

_____ an all boys‟ classroom _____ an all girls‟ classroom _____ a mixed classroom

---

1. I encourage quiet student conversation.

   Circle One: 1 2 3 4 5 6

2. I don‟t mind some student noise distractions.

   Circle One: 1 2 3 4 5 6

3. I encourage students to use their own initiatives in completing assignments.

   Circle One: 1 2 3 4 5 6

4. I promote and enjoy high levels of team competition.

   Circle One: 1 2 3 4 5 6

5. I am careful about asking a student what is going on in his/her life.

   Circle One: 1 2 3 4 5 6

6. I prefer classroom assignments that involve creative projects.

   Circle One: 1 2 3 4 5 6

7. When I teach, I tend to talk a lot.

   Circle One: 1 2 3 4 5 6

8. I prefer that my students stay in one place instead of moving around in the classroom.

   Circle One: 1 2 3 4 5 6

9. I allow my students to gather in informal learning structures in my classroom.

   Circle One: 1 2 3 4 5 6

10. I give my students rewards (e.g., extra points, goodies) to motivate them to learn more.

    Circle One: 1 2 3 4 5 6

11. I can characterize my classrooms as social groups.

    Circle One: 1 2 3 4 5 6

12. I support my students but refrain from asking them personal questions.

    Circle One: 1 2 3 4 5 6

13. I talk less than my students do in my classes.

    Circle One: 1 2 3 4 5 6

14. I use a lot of quick question and answer responses during my classes.

    Circle One: 1 2 3 4 5 6

15. I am very calm and patient with my students.

    Circle One: 1 2 3 4 5 6

16. I often give my students more time to complete assignments and homework.

    Circle One: 1 2 3 4 5 6

17. I keep my students on task to make sure they finish their work within the allotted time.

Circle One: 1 2 3 4 5 6

18. My classroom activities are timed but I often give students more time if they need it.

Circle One: 1 2 3 4 5 6

19. I encourage my shy students to express themselves when I call on them.

Circle One: 1 2 3 4 5 6

20. I prefer my students to be highly energetic while learning in my classroom.

Circle One: 1 2 3 4 5 6

21. I don‟t mind if my students complete their learning tasks while they are active.

Circle One: 1 2 3 4 5 6

22. I provide my students with direct feedback and corrections.

Circle One: 1 2 3 4 5 6

23. I use humor in a teasing way to help my students deal with learning challenges and personal conflicts.

Circle One: 1 2 3 4 5 6

24. I don‟t mind a high student “noise” level in my classroom.

Circle One: 1 2 3 4 5 6

25. I make certain that my students are given complete instructions and answer any questions they may have before classroom activities begin.

Circle One: 1 2 3 4 5 6

Thank you for completing this survey.

Appendix B: Reflection Questionnaire (Reflection You, the Teacher)

Your Name _____ Grade/Content Level _____

One of the ways to develop a powerful understanding of your teaching style is to think about your classroom (learning environment), your motivation strategies (social support) and your teaching strategies. It is even more effective if you match this to an observation from another teacher or administrator.

I hope that you take the opportunity to take part in this reflective process from a two-point perspective.

Feel free to write this reflection in your own style (words, phrases, sentences)

Learning Environment

- Where are your supplies housed? Student backpacks? Student jackets?
- How are your student desks arranged? Are there any teaching support materials on student desks? (describe)
- Where is your teacher's desk? What is on your teacher's desk?
- How many bulletin boards do you have? What are typically on these boards?
- Describe the displays in your classroom? Are they changed or usually there for the year?
- Where do you post your students' work? What type of work do you post in the classroom? Is it kept current?
- Where do you store your teaching material (books, notebooks)
- Where do students put their completed work?

- Do you use student notebooks? Notebook checks? Notebook tests?

Social Support

- What are some typical phrases you use to praise students?
- To what degree do you ask students personal questions about their lives?
- How often do you use extrinsic rewards (e.g., stickers, stamps,) on student work?
- Describe what you typically write on students' work (Words Grades).
- Do you use team points? Are they posted? Individual points? Are they posted?
- How often do you write positive notes home to parents? Positive phone calls?
- How often do you use food/beverages as positive motivation? Class rewards?
- How frequently do you post grades on the Renweb?
- Describe any other techniques you use for positive reinforcement.

Teaching Strategies

Rate how frequently you use these teaching strategies on average in a week? (Circle one)

- Direct instruction 100% 75% 50% 25%
- Inquiry 100% 75% 50% 25%
- Cooperative Learning 100% 75% 50% 25%
- Lecture/discussion 100% 75% 50% 25%
- Student led instruction 100% 75% 50% 25%
- Other (specify) 100% 75% 50% 25%

Questioning Strategies

(In terms of 100%, rate how frequently you use these strategies on average **in a week**? Write in your percentage.

- Round robin?
- Cold calls?
- Hand raising?
- Class sticks?
- Other (specify)
- Use of Time
    - Count-down clock
    - Time on board
    - State time frame/stick to time stated

Grouping Strategies

Describe your typical grouping strategies

- Fixed (set and does not change during the semester)
- Random (set up for the day)
- Pairs (set up by seating arrangement)
- Changed at least three times during the semester
- Other details about grouping decisions:

Rate to what degree you use the following teaching strategies: (1-very little to 6-a great deal)

- Spatial activities 1 2 3 4 5 6
- Cooperative games 1 2 3 4 5 6
- Competitive games 1 2 3 4 5 6
- Individual 1 2 3 4 5 6
- Group 1 2 3 4 5 6
- Drama 1 2 3 4 5 6
- Visual Arts (e.g., drawing) 1 2 3 4 5 6
- Movement (e.g,, dance) 1 2 3 4 5 6
- Music 1 2 3 4 5 6
- Use of Technology 1 2 3 4 5 6

Rate to what degree you use the following technology supports for teaching (1-very little to 6-a great deal)

- Smart board or sympodium 1 2 3 4 5 6
- Elmo 1 2 3 4 5 6
- Overhead 1 2 3 4 5 6
- Computers 1 2 3 4 5 6
- Films 1 2 3 4 5 6
- PowerPoint 1 2 3 4 5 6
- Film clips 1 2 3 4 5 6
- Other (please specify) 1 2 3 4 5 6

- Suggest other techniques that were left out of this reflection.

What are specific strategies that you specifically use when you teach boys based on adjustments in your learning environment?

What are specific strategies that you specifically use when you teach girls based on adjustments in your learning environment?

What are specific strategies that you specifically use when you teach boys based on adjustments in your social supports?

What are specific strategies that you specifically use when you teach girls based on adjustments in your social supports?

What are specific strategies that you specifically use when you teach boys based on adjustments in your teaching strategies?

What are specific strategies that you specifically use when you teach girls based on adjustments in your teaching strategies?

Thanks – Dr. Margaret Ferrara (ferrara@unr.edu)

Appendix C: School Administration Official Letter/Consent Form

A Study of the Instructional and Organizational Approaches and Learning Outcomes from the Alignment of Students of the Same Gender with Teachers Who Have a Known Proclivity for Working with Students of One Gender

Carletta Griffis-Anderson, Doctoral Program

Ohio University, Educational Administration

I am requesting permission to conduct a study at [redacted]. The focus of the study is upon the identification of practices, which are used by teachers who have been selected to engage with students in a single gender environment and the learning results of the arrangement. More specifically, the purpose of the case study is to ascertain the manner that instructional and organizational practices and learning outcomes are influenced when teachers have been made aware of their gender-based teaching proclivities.

[redacted] has been invited to participate in the research study concerning the identification of organizational and instructional practices, which are used by teachers who have been selected to engage with students in a single gender environment and the learning outcomes of that arrangement. [redacted] was selected because at the original writing of the dissertation topic, it represented the only school in the district using this instructional strategy. If you approve the participation of your school and agree to the school"s cooperation in obtaining public records information, i.e. pre test, post test score of 3rd grade OAA information for current school year, district assessments, school demographics, i.e. gender/race, **the photography of artifacts, i.e. student work samples, and video and audio taping of participates**, I will proceed to contact the appropriate teachers to request involvement. **I will also proceed in obtaining permission from parents and students seeking their involvement in the study**.

This study is being conducted by Carletta Griffis-Anderson under the direction of Ohio University, College of Education, Educational Administration, Dr. William L. Larson, Chair.

Explanation of Study

This study is being done to ascertain in what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to students in single gender environments and what will be the learning outcomes in such an arrangement?

Risks and Discomforts, Benefits

No risks or discomforts are anticipated. It is my hope that this study will benefit the teachers studied, the children they teach and the school district represented. It is also my hope the study will provide plausible information on the instructional and organizational practices and the learning outcomes which emerge for a teacher who is considered a good fit in an all-boy or all-girl learning environment. It is my firm desire for this study to produce questions and answers during the matching process to help administrators and teachers address issues before teaching any child begins, whether boy or girl. Perhaps if we know the learning differences of both boys and girls and match them with a teacher who understands the differences and has an instructional inclination toward that specific gender, optimal learning may take place.

Confidentiality and Records

The study information will be kept confidential and private. Any information which may be published will not contain any information which may identify subject participants or individual students. Research records will be secured in a locked storage at researcher"s home, backed up on a USB flashdrive and password protected.

Additionally, while every effort will be made to keep study related information confidential, there may be circumstances where information must be shared with:

- Federal agencies, for example the Office of Human Research Protections, whose responsibility is too protect human subjects in research;
- Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU.

Compensation

No compensation will be provided**. No funds have been set aside by Ohio University to compensate anyone in the case of injury.**

Contact Information

If you have any questions regarding this study, please contact Carletta Griffis-Anderson, Researcher at griffis38@yahoo.com or 614.736.1507 or William L. Larson, Ph.D./Advisor at larsonl@ohio.edu or 740.597-1324.

Statement of Consent

By signing below as **Superintendent** or designee and building **Principal**, you hereby consent to the participation of Linden STEM Academy teachers in the above study, along with public records information pertinent to the study.

Signature_____Date_____

Printed Name_____

Signature_____Date_____

Printed Name_____

Appendix D: Ohio University Parental Consent Form

Title of Research: A Study of the Instructional Approaches and Learning Outcomes from the Alignment of Students of the Same Gender with Teachers Who Have a Known Proclivity for Working with Students of One Gender

Researcher: Carletta Griffis-Anderson

You are being asked permission for your child to participate in research. For you to be able to decide whether you want your child to participate in this project, you should understand what the project is about, as well as the possible risks and benefits in order to make an informed decision. This process is known as informed consent. This form describes the purpose, procedures, possible benefits, and risks. It also explains how your child's personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will be asked to sign it. This will allow your child's participation in this study. You should receive a copy of this document to take with you.

Explanation of Study

This study is being done to ascertain in what manner will teachers, who have been made aware of their gender-based teaching proclivities, organize and deliver instruction to students in single gender classroom and what will be the learning outcomes in such an arrangement?

If you agree to allow your child to participate, your child may be videotaped, audio taped and work samples photographed. The identity of your child will be protected. No actual names or other identifiers will be used to identify students. Pseudonyms and or code number will be used.

Your child should not participate in this study if you or they are uncomfortable with any of the above expectations.

Your child's participation in the study will last four to six months. This time frame allows researcher the opportunity to gather data within the academic school year.

Risks and Discomforts

No risks or discomforts are anticipated. However, in order to protect your child's identity, pseudonyms will be used. No actual names will appear on the data. All documents with names and identifiers will be password protected and accessed by researcher only and are under lock and key in researchers home. All documents with identifying markers will be destroyed three months after the successful defense of the dissertation.

Benefits

This study is important to science/society because it will provide information on the instructional and organizational practices teacher use when teaching in single gender learning environments and the learning outcomes which emerge from such an alignment.

Individually, your child may benefit as a result of being in a single gender learning environment and or being taught by a teacher who has an identified gender-based instructional style, i.e. boy class matched with a boy teaching style.

It is also my hope that this study will provide plausible information on the instructional and organizational practices and the learning outcomes which emerge for a teacher who is considered a good fit in all-boy or all-girl learning environments.

Confidentiality and Records

Your child's study information will be kept confidential. A master list, codes and other identifiers, such as pseudonyms will be used to protect participant identity. This information will be password protected and only accessed by the research. Information will also be in a locked cabinet in researcher's home.
…

Additionally, while every effort will be made to keep your child's study-related information confidential, there may be circumstances where this information must be shared with:

* Federal agencies, for example the Office of Human Research Protections, whose responsibility is to protect human subjects in research;
* Representatives of Ohio University (OU), including the Institutional Review Board, a committee that oversees the research at OU;

Compensation

No compensation will be provided. No compensation is available from Ohio University and its employees for any injury resulting from my participation in this research.

Contact Information

If you have any questions regarding this study, please contact Carletta Griffis-Anderson- Researcher at griffis38@yahoo.com or 614.736.1507 or William Larson, Ph.D./Chair @ larsonw@ohio.edu or 740.597.1324

If you have any questions regarding your child's rights as a research participant, please contact Jo Ellen Sherow, Director of Research Compliance, Ohio University, (740)593-0664.

By signing below, you are agreeing that:

- you have read this consent form (or it has been read to you) and have been given the opportunity to ask questions and have them answered
- you have been informed of potential risks to your child and they have been explained to your satisfaction.
- you understand Ohio University has no funds set aside for any injuries your child might receive as a result of participating in this study
- you are 18 years of age or older
- your child's participation in this research is completely voluntary
- your child may leave the study at any time. If your child decides to stop participating in the study, there will be no penalty to your child and he/she will not lose any benefits to which he/she is otherwise entitled.

Parent Signature_____ Date_____

Printed Name_____

Child's Name_____

Child's Signature_____

Appendix E: Consent to Use Instrumentation

Permission granted via email

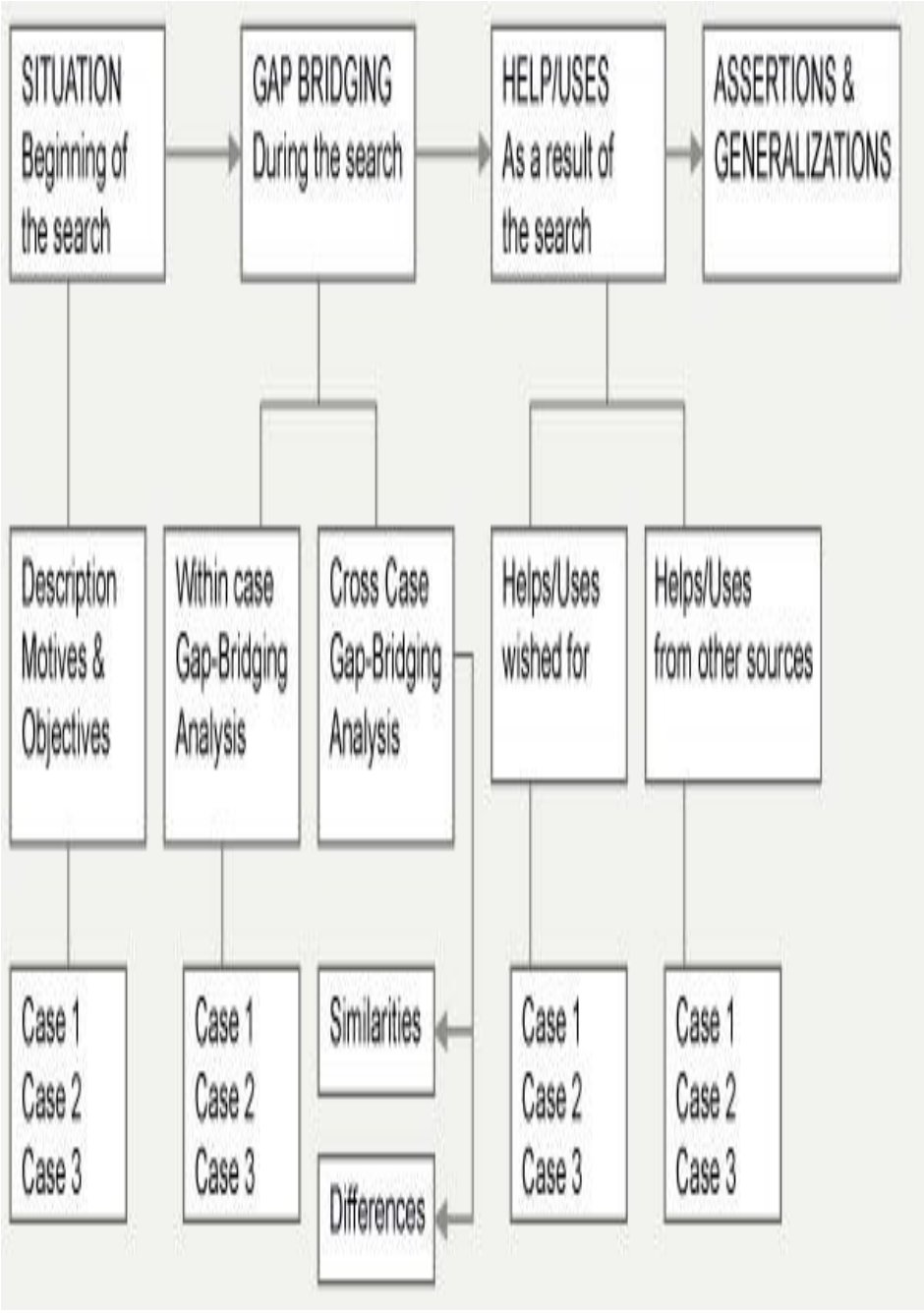
From: Margaret Ferrara <ferrara@unr.edu<mailto:ferrara@unr.edu>>
To: Carletta Griffis <griffis38@yahoo.com<mailto:griffis38@yahoo.com>>
Sent: Wednesday, January 2, 2013 11:56 AM
Subject: Re: Happy New Year

Such beautiful news. I will pray for your successful defense and of course, you can use my instruments. Make sure to let me know so I can send you the most recent version (small changes). M
PS - love to Sarah.
On Jan 2, 2013, at 8:31 AM, Carletta Griffis <griffis38@yahoo.com<mailto:griffis38@yahoo.com><mailto:griffis38@yahoo.com<mailto:griffis38@yahoo.com>>> wrote:

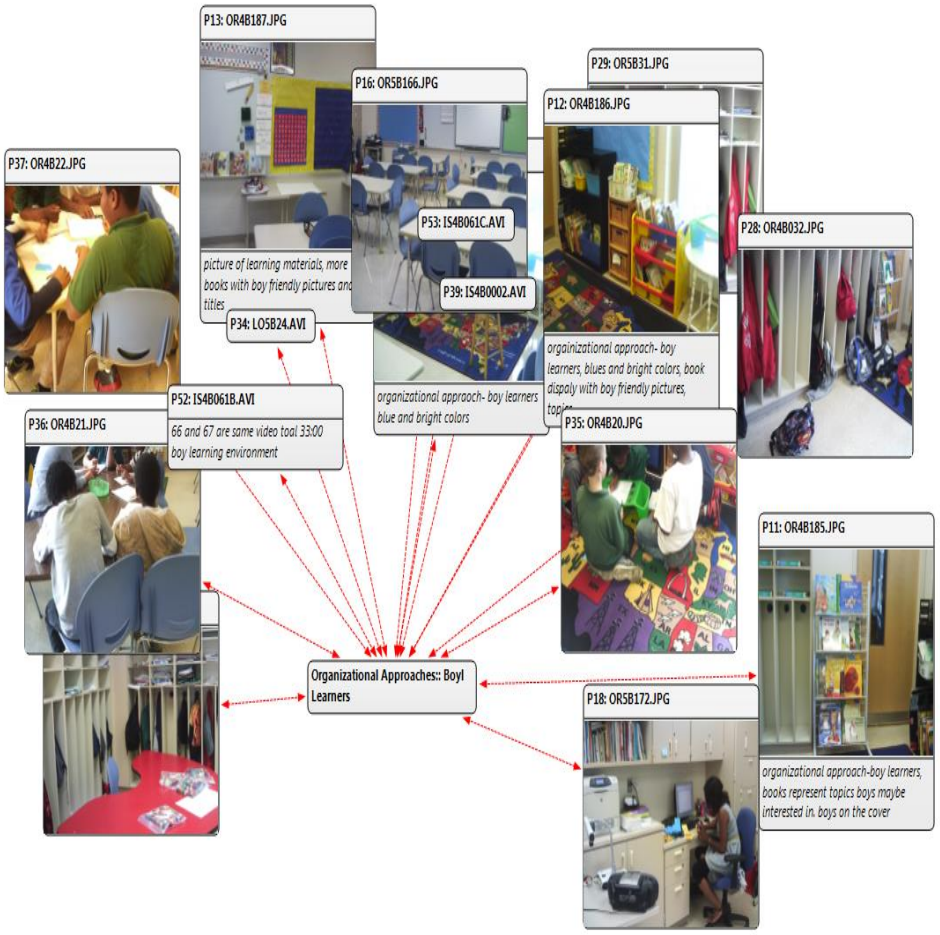
Good day Dr. M!

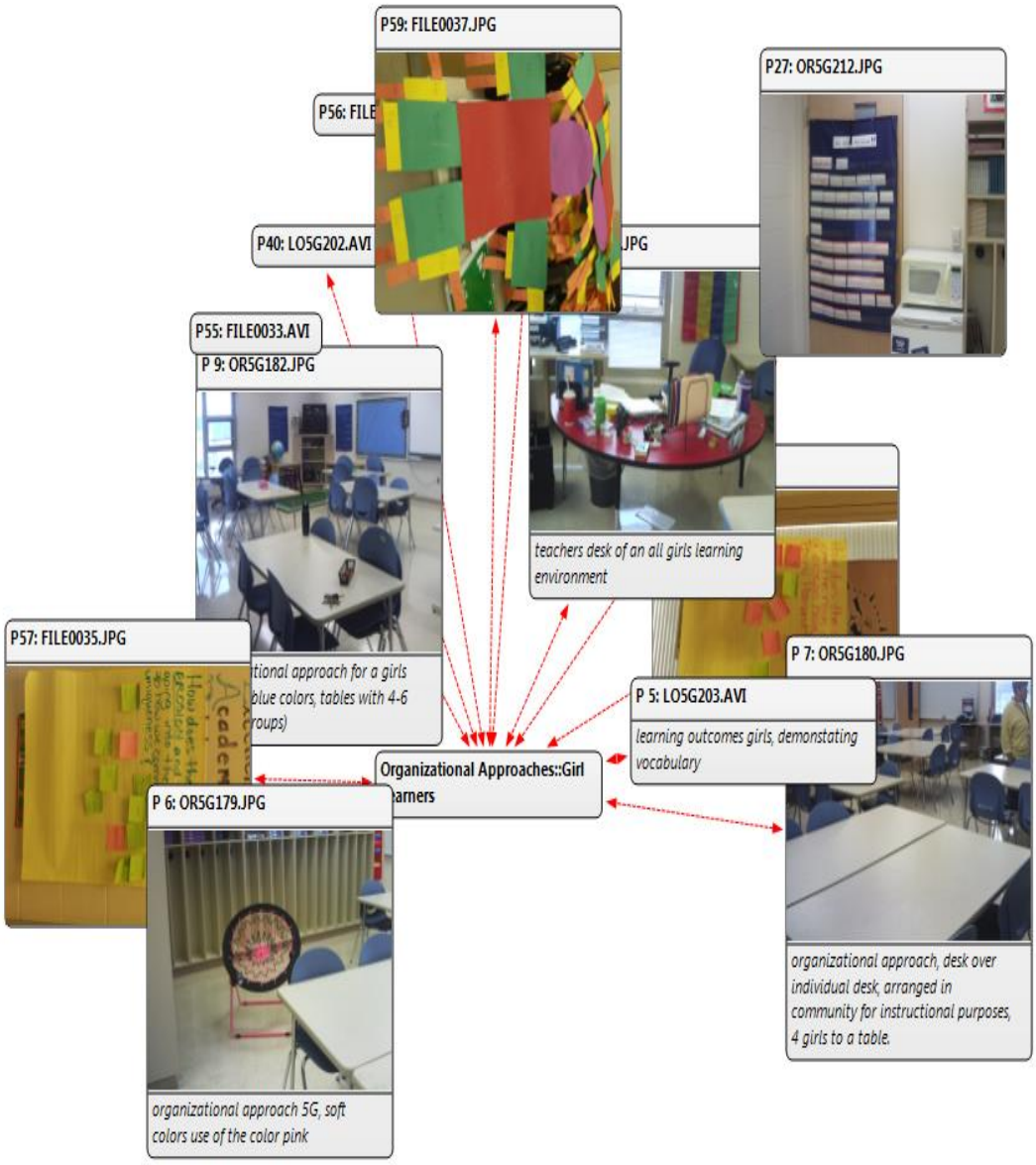
Greetings from Columbus and Happy New Year! Just wanted you to know my dissertation proposal defense is scheduled for January 23, 2013. I thank you so much for all your help during this tedious journey. Might I send a letter to you seeking your approval to use your instrumentation for the dissertation?

Appendix F: Template for coding multiple case studies (Creswell, 2007)



Appendix G: Pictorial- Examples of Organizational Approach




P59: FILE0037.JPG
P56: FILE
P27: OR5G212.JPG
P40: LO5G202.AVI
JPG
P55: FILE0033.AVI
P 9: OR5G182.JPG
teachers desk of an all girls learning environment
P57: FILE0035.JPG
tional approach for a girls
blue colors, tables with 4-6
roups)
P 7: OR5G180.JPG
P 5: LO5G203.AVI
learning outcomes girls, demonstating vocabulary
Organizational Approaches::Girl
arners
P 6: OR5G179.JPG
organizational approach 5G, soft colors use of the color pink
organizational approach, desk over individual desk, arranged in community for instructional purposes, 4 girls to a table.

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