A CASE STUDY INVESTIGATING COLLABORATIVE WORKING ENVIRONMENTS AT THE SECONDARY LEVEL AND THE INFLUENCE ON STUDENT ACHIEVEMENT

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Rebecca Wills

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Major Professor: Dr. Loredana Werth, PhD, MS

AUTHORIZATION TO SUBMIT

DISSERTATION

This dissertation of Rebecca Wills, submitted for the degree of Doctor of Education with a major in Educational Leadership and titled "A Case Study Investigation Collaborative Working Environments at the Secondary Level and the Influence on Student Achievement" has been reviewed in final form. Permission, as indicated by the signatures and dates given below, is now granted to submit final copies.

Major Professor _____ Date 4-13-15
Dr. Loredana Werth

Committee Members _____ Date 4/13/15
Dr. Kelsey LeDuc-Williams

_____ Date 4.13.15
Dr. Wiley Dobbs

Program Administrator _____ Date 4/13/15
Dr. Heidi Curtis

Discipline's College Dean _____ Date 4-13-15
Dr. Paula Kellerer

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ABSTRACT

This case study examined the positive influence a collaborative work environment has on improving student achievement. Research identified ways administrators, department leaders, and teachers work together in order to enhance student learning. For the purpose of this case study, data was gathered using a mixed methods approach investigating a collaborative work environment. The theoretical framework of transformational leadership was interlaced into this study to explore the three research questions on collaboration. Transformational leadership is inspiring and motivating people to work together towards a shared vision to create positive change. This leadership style improves collaboration among colleagues, instructional strategies in the classroom, and school culture. Two high schools and two middle schools in a rural school district in Idaho were used to examine the relationship between a collaborative work environment and student achievement. Student achievement scores from end-of-course assessments (EOC) in algebra were collected and analyzed from 2013-2014. The assessment provided data on student achievement and specific concepts students have mastered. Eleven algebra teachers participated in a self and team survey on collaborative leadership. Data collected from the EOC and survey explored the relationship of student growth and collaborative leadership from 2013-2014. Five lead teachers were interviewed on the collaboration process within the school district and their individual schools. Participants selected for this study were experts within the classroom and the collaboration which takes place during the academic year. This research study illustrates the relationship of collaborative leadership and the influence on student learning in the classroom. The results from the independent *t*-test indicate there is not a statistical difference between end-of-course exam scores for low- and high-collaboration subjects.

Themes from the semi-structured interviews found teachers benefit from the additional in-service days the district provides. The additional time given to the teachers allows them to work together and improve the curriculum and instructional strategies in order to raise student achievement.

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Introduction

Collaboration is the key to establishing a successful school and ultimately raising student achievement (Berry, Daughtrey, & Wieder, 2009; Clark & Clark, 1996; DuFour, 2003; California School Boards Association, 2014; Ontario Leadership Strategy, 2012). School districts schedule specific collaboration time during the school day that allows teachers to work closely together and specifically help students who may be struggling academically or behaviorally. In addition to working on common lessons and assessments, teacher teams can make adjustments to instruction, improve curriculum, and address student issues. This type of effective collaboration among the teachers is built on trusting and respectful relationships, communication, and empowerment.

Collaboration between teachers has to be supported by the school leadership. Everything begins and ends with leaders (Covey, 2004; Maxwell, 2007). School leaders must create a supportive and collaborative work environment which empowers teachers and enhances student learning (Flores & Roberts, 2008; Leithwood, Patten, & Jantzi, 2010; Leithwood & Louis, 2012; Marzano, Walters, & McNulty, 2005; Mulford, 2006). Collaborative leadership is developing relationships, resolving conflicts, and distributing control among members of the organization (Archer & Cameron, 2009). Collaborative leadership raises student achievement, improves the quality of instructional strategies, creates a positive learning environment, and increase leadership opportunities (Clark & Clark, 1996). Such collaborative efforts lead to better decisions while allowing for additional teacher input and improving communication among all stakeholders (Clark & Clark, 1996; Kramer & Crespy, 2011).

Exceptional school administrators who are collaborative develop a shared vision, create a positive climate for student learning, cultivate leadership among the teachers, provide instructional strategies, and manage people and data for school improvement (National Association of Secondary Principals, 2013). In addition to these key functions of collaborative leadership, an effective school administrator motivates, intellectually stimulates, collaborates, and builds trusting and respectful relationships with his/her colleagues (Castanheira & Costa, 2011; Demir, 2008; Marks & Printy, 2003). This type of leadership is referred to as transformational leadership which inspires positive changes in a school setting through trust, enthusiasm, and passion (Bass, 1985). Bass (1985) states, "Transformational leadership motivates people to do more than is expected by raising their awareness of the importance and values of goals as well as gaining employee commitment to support the organization's goals and needs rather than their own self-interests" (p. 9). Transformational leadership, the theoretical framework for this dissertation, shows the importance of encouraging others to embrace change and work towards a shared vision (Balyer, 2012; Bass, 1985; Burns, 1978; Castanheira & Costa, 2011; Demir, 2008; Leithwood & Jantzi, 2006). This mixed-methods research study investigates the collaborative culture at four secondary schools and explores the influence that teacher collaboration has on student achievement.

Background of the Problem

Strong evidence indicates collaborative school cultures provide teacher support, improve instructional strategies, and enhance student learning, yet schools are not effectively using these ideas (Dufour & Eaker, 1998; Friend & Cook, 1992; Lencioni, 2002; Martin, 2002, Piercey, 2010). Often the reasons for the lack of collaboration among teachers are due to the leadership style, time, and buy-in (Piercy, 2010). It is the educational leaders who set the tone for the school

environment by modeling the appropriate attitudes and behaviors (Marzano et al., 2005, Piercey, 2010). By modeling the desired actions, administrators can influence teachers to value and display the appropriate behaviors in the classroom (National Association of Secondary School Principal, 2013; Piercy, 2010).

A take-charge leadership style is the death of collaboration (Piercey, 2010). The hierarchical leadership style which employed a top-down method is directly influence by the leader and only the leader. No collaboration takes place in this type of leadership. It is the administrator's transformational leadership style that empowers teachers and addresses challenges and positive change for the improvement of the school setting. Great school leaders understand the importance of establish a team mentality which is comprised of trust, accountability, open discussions, commitment to clarity and purpose, and shared results (Dufour & Eaker, 1998; Lencioni, 2002).

In addition to leadership style, time plays a major factor in establishing a collaborative culture. Cultivating such a setting requires numerous hours each day which allows teachers to share perspectives, plan lessons, improve instructional strategies, analyze data, and identify struggling students. With additional state and federal mandates, teachers are currently overwhelmed with the amount of work required of them (Fowler, 2009). In order to successfully build collaboration, school leaders must provide not only prep time during the work day but also additional in-service days which lets teachers work cooperatively together to improve the school atmosphere.

By providing additional time for teachers to collaborate, teachers must recognize the value in working together and supporting the idea of a collaborative culture. Teacher buy-in is critical because it gives teachers ownership for how the school is operating and instructional

strategies are improved in the classroom. A collaborative culture helps administrators and teachers develop new skills, reconsider their roles, model appropriate behaviors, and transform their culture to enhance student achievement (Berry, Daughtrey, & Wieder, 2009; California School Boards Association, 2014; Clark & Clark 1996; DuFour, 2003).

Statement of the Problem

A successful school setting is built through collaboration (Berry, Daughtrey, & Wieder, 2009; California School Boards Association, 2014; Clark & Clark, 1996; Crane, 2007; DuFour, 2003; Eastman & Louis, 1992; Hallinder & Heck, 2010; Leithwood & Mascall, 2008; Little, 1990; McLaughlin & Talbert, 2001). Research has demonstrated that collaboration enriches the school environment (California School Boards Association, 2014; Clark & Clark, 1996; Gates & Robinson, 2009; Hallinder & Heck, 2010). A collaborative school culture will enhance opportunities for professional development, improve instructional strategies, and engage student learning (Cameron, 2005; Clark & Clark, 1996; Cosner, 2011; Greer, 2012; Hallinder & Heck, 2010; Wahlstrom & Louis, 2008). It is important for school districts to provide educators time to collaborate with each other along with offering meaningful professional development training in order to improve instructional strategies and enhance student learning. However, research demonstrates schools are not providing adequate time and professional development for administrators and teachers to effectively and efficiently work together to increase student achievement (Camp, 2003; Dufour & Eaker, 1998; Friend & Cook, 1992; Lencioni, 2002; Martin, 2002, Piercey, 2010).

It is likely that schools do not consistently implement collaborative teaching environments because, to date, there have been few studies that show increased academic achievement through collaboration. (Piercey, 2010). The purpose of this research study is to fill

this gap by examining the relationship of the collaborative culture and student achievement at Washington School District. Washington School District has worked diligently the last three years to provide educators with adequate professional development trainings as well as provide time for administrators, department leaders, and teachers to work together to improve the curriculum. Data collected from this study shows a positive correlation between student growth and the collaboration work that took place in the school district from 2013-2014.

Background of the Study

Washington School District is the eighth largest school district in Idaho. The population is approximately 45,000 and within it is the largest city in the southern region of the state. The school district is made up of seven elementary schools, two middle schools, one alternative middle school, two high schools, and one alternative high school ([redacted], para 1). There are approximately 8,000 students, 450 certified staff, and 400 classified staff ([redacted], para 2).

In order to meet the Idaho Common Core State Standards and raise student achievement, Washington School District closely follows their strategic plan of ensuring all students are college and career ready and provided with learning opportunities ([redacted], 2014). The collaboration that takes place in the Washington School District aims to help promote student success, provide teacher and administrative support, integrate effective instructional strategies, and improve communication between administration, teachers, and students. The collaboration among the secondary schools strongly support the school district's mission statement "to provide a quality education necessary for the student to be successful in life" ([redacted], para 1).

Washington School District was in the early stages of establishing a collaborative culture in 2005-2006. The administration team along with numerous teachers spent the summer developing power standards, common course syllabi, and curriculum calendars for each subject area. The summer curriculum work among the secondary staff helped established the collaboration among the schools and cultivated a trusting and respectful relationship.

From the 2006-2009 school years, Washington School District began identifying and unwrapping the state standards for all content areas. Over the course of the summer months, the collaboration team expanded, and more teachers took responsibility for their part in the curriculum development. In 2009, the curriculum committee added two in-service days in August and February to encourage the staff to continue working together and refining their current work.

By the 2010-2011 school year, all content areas in the Washington School District had finished developing a common course syllabus, curriculum calendar, power standards, and unwrapped standards. In the 2011-2012 school year, the majority of employees of the Washington School District were in attendance of the summer institute in which the development of the end-of-course assessment was created. The summer institute was a two day in-service created for the administrators and teachers of Washington School District to work collaboratively in order to enhance the current curriculum. During the summer institute, all school personnel worked together to create common course syllabus, pacing guides, and assessments for the upcoming school year. This was also an excellent time for teachers to share their best instructional practices and analyze student achievement scores.

All secondary courses developed a semester one and semester two end-of-course assessment which addressed the state standards and measured student learning. The common

end-of-course assessments were constructed to ensure student were learning specific content information and to help teachers identify which areas needed improvement in instruction and learning.

With the approval of the recent bond levy, Washington School District was able to include four additional in-service days for administrators, teachers, and department leaders to work together on Idaho Common Core Standards. The newly added in-service days were intended to concentrate on the collaboration teams of each department developing and polishing pre and post exams for each unit. Each department in the secondary schools created a comprehensive plan which identified each grade level and the key concepts that all students should master. The pre- and post-exams provided essential information to each teacher to demonstrate whether or not the student comprehended the concepts as well as if the teaching strategies needed to be improved.

Washington School District has been working methodically in order to improve student achievement, enhance student learning, and provide effective instructional strategies. The school district examines the progress made from year to year and makes the necessary adjustments and improvements in order to create an ideal school atmosphere for all students to learn. Collaboration among the administrators and teachers has been the key to success for all schools.

As a result of the collaboration in this school district, both middle schools and high schools were classified as a 4 Star School in the 2012-2013 school year by the State Department of Education in Idaho. The Idaho Five-Star Rating System is an evaluation of school performance that uses a wide variety of measurements such as achievement, growth, and postsecondary and career readiness (Idaho State Department of Education, 2012). According to

the Idaho State Department of Education (2012), the following factors describe how secondary schools are evaluated on the Five-Star System:

- Academic growth: the state measures how much progress students made over the past school year
- Academic proficiency: the state measures how many students have reached grade-level or higher in each subject area on the ISAT
- Postsecondary and career readiness metrics: the state measures a school's graduation rate, the number of students enrolled in and successfully completing advanced courses, and student scores on college entrance exams such as the SAT, ACT, or COMPASS.
- Participation: schools must demonstrate that at least 95% of students in the schools were tested.

The goals behind the Idaho Five-Star Rating System is to ensure accountability from all Idaho schools, to accurately measure and recognized the academic performances in each school, and improve communication between school personnel, parents, and stakeholders (Idaho State Department of Education, 2012).

Bass (1999) suggest that collaborative cultures exist in school districts because they foster autonomy, provide challenging work, increase job satisfaction, and promote positive relationships within the organization. With the increase of collaboration among these secondary schools, this research seeks to demonstrate an increase in student achievement and the presence of positive school cultural values.

The four secondary schools of the Washington School District participated in this research study. The names of schools used in this research study have been changed to protect

the rights of each school and the individuals who attend. All participant names in the surveys and interviews have also been changed to ensure confidentiality.

Research Questions

Enhancing student learning, providing accountability in the classroom, and establishing a rigorous curriculum are all essential elements of developing an effective school setting (Marzano et al., 2005). The purpose of this study is to examine the collaborative school culture and explore how collaboration positively influences student achievement. Research questions are essential for studies because it provides clarification of the purpose and guides the research (Creswell, 1994). The data collected for the purpose of this study were analyzed as a means to answer the following research questions:

1. How does collaboration in the four secondary schools influence school culture?
2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?
3. Does a collaborative culture in the secondary schools help increase student achievement in the algebra classroom?

In the study, the 2013-2014 end-of-course algebra exams were collected and analyzed with the collaboration surveys to determine if there is a statistical difference between the two unrelated groups. The null hypothesis states that the end-of-course exams will have no statistical change with the increased amount of collaboration within the algebra department. The null hypothesis tested as $H_o = p = o$. The alternative hypothesis states the end-of-course exams will have a significant difference with the increased amount of collaboration in the math department. The alternate hypothesis tested as $H_o = p \neq o$.

Description of Terms

This research study looks in-depth at four secondary schools that use collaborative leadership to help raise student achievement. It is essential to become familiar with several terms which will be used throughout this study. The following definitions are explained to ensure the understanding of the content of this study.

Collaboration. The process of a group of people working together towards a shared, common goal (Houston, Blankstein, & Cole, 2007).

Collaborative culture. A group of people working together striving for the same goals.

Collaborative leader. An individual who has the ability to build and maintain healthy working relationships while focusing on a common mission statement (Houston et al., 2007).

Collaborative leadership. The ability to motivate individuals to work together toward a shared vision (Houston et al., 2007).

Transformational leadership. The ability to develop people, inspire change, and manage the school setting (Shields, 2013).

Transformational leader. A leader who provides insight, motivates, and manages the school environments and school personnel (Bass, 1999).

Significance of the Study

The significance of this research study demonstrates the responsibilities of the administrators, department leaders, and teachers working together to create a collaborative culture which increases student achievement. A collaborative culture allows the entire school staff to work together to improve classroom strategies, identify student strengths and weaknesses, and develop a school setting which is conducive for all types of learners (Archer & Cameron, 2009; Clark & Clark, 1996; Hallinder & Heck, 2010). In order for these

collaborative communities to work together efficiently, school districts must provide administrators, department leaders, and teachers with professional development training and time for teaming. Providing educators with professional development training and more time for collaboration are essential for building a positive school culture and raising student achievement.

Results from this study show a relationship between student growth and collaborative school culture. Comparing the student achievement scores along with the collaborative survey and qualitative research methods of interviews demonstrate how important collaboration is in order to build a positive school culture. The evidence in this research study shows the benefits of collaboration and the importance of school districts providing professional development and time for educators to collaborate. This study indicates that a collaborative working environment improves administrative leadership, instructional strategies in the classroom, and enhances student growth measured by the end-of-course assessments.

Overview of Research Methods

Research for this study was conducted using a case study method. According to Keeve and Lakomski (1999), “Case study is a generic term for the investigation of an individual group, or phenomenon” (p. 103). This case study examined the collaborative culture of four K-12 schools at the secondary level and the impact collaboration had on student achievement. Both qualitative and quantitative research approaches were used in this study, making this a mixed method study (Denzin & Lincoln 2008; Stake, 1995; Yin, 2009).

The methodology of this case study consisted of an analysis of achievement scores, a self-generated and validated survey entitled Collaboration Self and Team survey, and conducting

interviews with the lead algebra teachers from each school. Eleven of the 12 algebra teachers provided their end-of-course algebra exams from 2013-2014 school years to be collected and analyzed. The achievement scores provided information on student growth and what algebra concepts the students learned in the course.

The second piece of the quantitative data included the self-generated and validated survey entitled Collaboration Self and Team survey. Before the survey was handed to the algebra teachers, ten experts on collaboration within the school setting validated the survey. After validation, eleven teacher answered survey questions regarding the school districts collaborative school culture. The survey gave an in-depth overview of the teachers' collaboration within the algebra department as well as identifying the strengths and weaknesses of the department. The data collected from the end-of-course algebra exam and teacher survey examines the relationship of student growth and the collaborative work from the 2013-2014 school year.

The final portion of the research study included pilot interviewing and two semi-structured interviews from each of the five algebra teachers. All of the participants who were selected, along with the district department leader of math, were the lead teachers from each of the secondary schools. The lead teachers provided a detailed description of collaboration within their school setting and the district as a whole. Both interviews were audio recorded, transcribed, and coded for themes as describe by Marshall and Rossman (2011). Before starting the interview process, each participant received an email with a verbatim instruction for interview (Appendix N). All of the data was compiled and analyzed to determine whether or not collaborative leadership has a positive influence on raising student achievement scores.

Chapter II

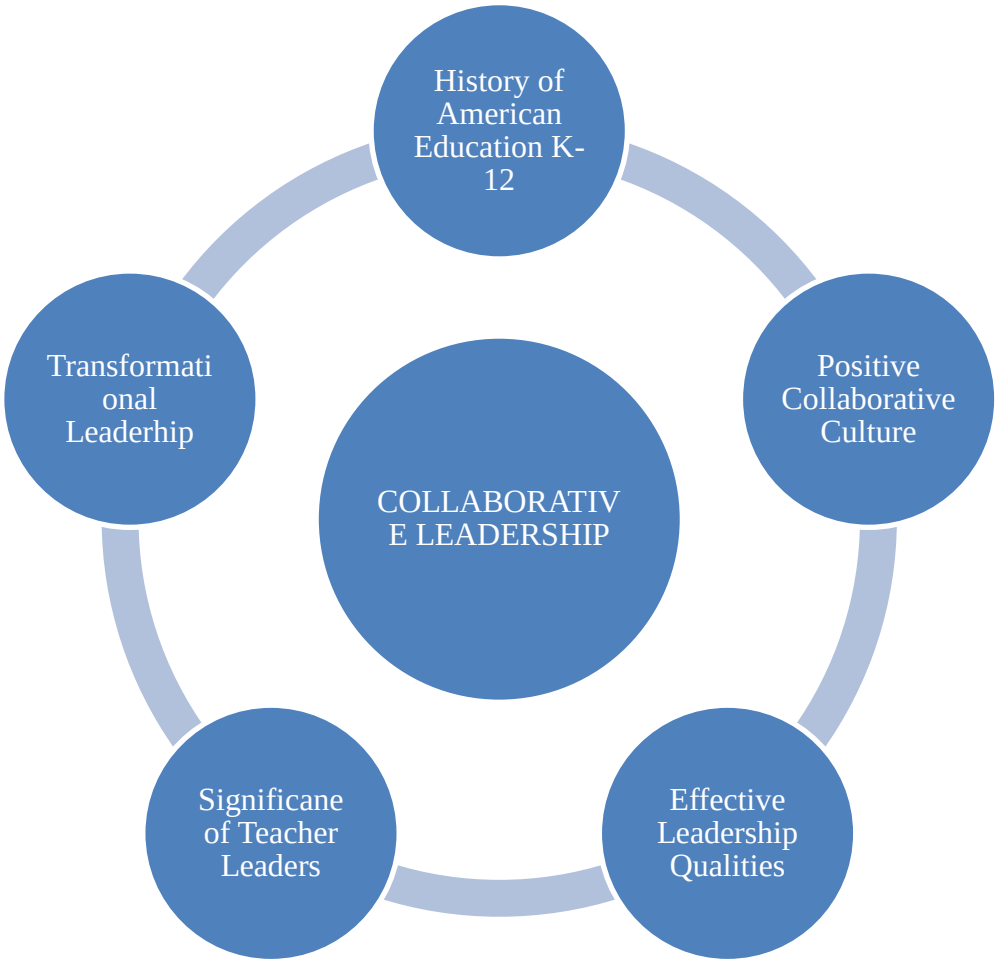
The Literature Review

Introduction

Research reveals that collaboration within the school setting improves the culture of the school and increases student achievement (California School Boards Association, 2014; Cameron, 2005; Clark & Clark, 1996; Cosner, 2011; Gates & Robinson, 2009; Greer, 2012; Hallinder & Heck, 2010; Leithwood & Mascall, 2008). This chapter provides a deeper understanding of collaboration and the importance of raising student achievement. There are five areas of emphasis: (a) history of American K-12 Education; (b) positive collaborative cultures at the secondary setting; (c) effective leadership qualities; (d) significance of teacher leaders in the secondary setting; and (e) transformational leadership as the theoretical framework. Figure 1 illustrates the categories of the literature review. Each of the categories listed in Figure 1 display a relationship with each other in order to establish an effective collaborative leadership within the school setting.

Figure 1

Categories of the Literature Review



The goal of educators is to help students become responsible contributing members of society with strong effective communication skills, the ability to make wise decisions, and adapt to change (Stronge, Ward, & Grant, 2011). School administrators, district department leaders, and teachers work collaboratively to ensure students are provided with a quality education to ensure success in the real world. In order for schools to accomplish this goal, they must develop a strategic plan for enriching student learning and creating a positive school culture. School improvement, raising student achievement, and enhancing instructional strategies are all key

components of the strategic plan to developing a successful school for all students to learn and achieve (Doherty & Hilberg, 2008; Valli & Buese, 2007).

Washington School District has six key elements of their strategic plan (a) college, career, and life ready; (b) quality education and learning opportunities; (c) quality personnel; (d) school/community/public relations; (e) school environments and facilities; and (f) stewardship of resources (2010-2015 School District Strategic Plan, n.d.). Each of the components mentioned in the strategic plan focus on building positive relationships within the school setting and community in order to help students to become productive members of society. Collaboration among administrators, teachers, students, and community members is imperative for the implementation of the strategic plan. In order to have a better understanding of a school district's strategic plan, the history of education should be explored.

History of American K-12 Education

The history of education has always focused on keeping schools accountable for student learning and developing innovative ways to teach curriculum in order for all students to learn and succeed (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb, Metha, & Jordan, 2000). Legislators across the country have implemented educational policies to ensure students are provided a quality education in order to help them be successful in life. Some of the policies that have been created are Elementary and Secondary Education Act, A Nation at Risk, No Child Left Behind, and many more. The purpose of these policies is to assist administrators and teachers to improve the school setting and instructional strategies in order to enhance student learning.

Fowler (2009) describes educational history in four sections: the Young Republic, the Common School movement, the "Scientific" Sorting Machine, and then No Child Left Behind.

These four segments provide insight on the strengths and challenges schools have faced over the years. The United States has made numerous changes in the educational system to ensure a quality education is provided to all students. All of these adjustments in education have been essential for helping schools improve, raise student achievement, prepare students for college, and provide opportunities for students to better themselves.

The first section of educational history described by Fowler (2009) is The Young Republic. The Young Republic, 1783-1830, was a time period that the United States of American was struggling with their identity because of the various beliefs, cultures, and traditions (Fowler, 2009). Each state was responsible for the education of their children. Education for the majority of the population consisted of learning the alphabet and early stages of reading (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb, Metha, & Jordan, 2000). Some of the private schools offered an enhanced curriculum which included handwriting and English. The Young Republic was an important time in education because of the value of individualism and freedom (Fowler, 2009). Parents were in control of their child's education. They had a choice of whether or not to send their children to school or into the work field (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000).

The second section of education history is titled the Common School. The time period from 1831-1900 was known as the rise of the Common School (Fowler, 2009; Public Broadcasting System, 2014). Horace Mann was an advocate for the Common School movement. He believed the American education system was failing and the children were destined to remain ignorant and uneducated (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000). The Common School movement was

intended to ensure white children of both genders, any religion, and all socioeconomic groups would be provided an education (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000). It was believed that education would provide a better society and prevent crime and poverty (Public Broadcasting System, 2014). Horace Man and his supports created a plan for transforming education which included: (a) more regular school attendance, (b) a longer school year, (c) graded schools, (d) the weakening of the district systems, (e) creation of state education agencies, (f) creation of county superintendencies, (g) improved occupational status for teachers, and (h) teacher training in normal schools (Fowler, 2009). The Common School movement was the beginning of uniform textbooks, curriculum, teaching methods, management, discipline, and trained teachers (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000).

The "Scientific" Sorting Machine era, from 1900-1982, is the third section of educational history described by Fowler (2009). This was a time of increasing technologies which improved the health and lifestyles of each American individual (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000). Societal and economic needs such as training future workers were the focus in American education at the time. Secondary schools emphasized vocational education, guidance counseling, standardized achievement tests, and extracurricular activities in order to develop a well-balanced and educated student (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000).

Significant changes began during the twentieth century in hopes of increasing student achievement and preparing students for employment (Brickman, 1964; Fowler, 2009; Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000). This was a time

period in which all children were to have the opportunity to learn and to go to school. School attendance became mandatory, and regardless of race, religion, or ethnic group, all students would have access to an education. “The Elementary and Secondary Act” of 1965 was approved by President Lyndon B. Johnson (Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000) and ensured high standards and accountability in schools while decreasing the academic gaps between students. The “Scientific” Sorting Machine provided students with a challenging curriculum while offering other students basic content information so they could be successful in their profession (Fowler, 2009).

American society became dissatisfied with public education in the early 1980s. The problems in the United States were believed to be a result from failing to adequately prepare students for a competitive global society (Fowler, 2009). A turning point came when President Ronald Reagan released the “A Nation at Risk” study in 1983 (Public Broadcasting System, 2014; Provenzo, 1986; Pulliam, 1987; Webb et al., 2000). He expressed concern for all American schools and pointed out the importance of higher standards, accountability, and better academic results. This was a time period of school reform. Aligning curriculum to state and national standards, extended school days, implementation of technology, inclusion, and standardized tests were some of the vital changes to improve American education (Fowler, 2009; Webb et al., 2000). Other changes consisted of the direction for professionalized teaching. Fowler (2009) states:

> Researchers believed that if teachers were given more autonomy within the classroom and more power to make decision inside their school and to govern their profession outside it, they would be better able to educate the type of workers that the United States needs in the twenty-first century (p. 350).

The final piece of educational history mentioned by Fowler (2009) was the No Child Left Behind. The No Child Left Behind (NCLB) Act became a law in 2001 which ensured a rigorous and relevant curriculum was provided to all students. It envisioned all children would be learning and succeeding in all classrooms (Marzano et al., 2005). NCLB emphasized English, reading, and improving the quality of teacher instruction. It projected all students would be at grade level for all content areas because it stressed the importance of setting high expectations in the classroom, creating measurable goals for students to achieve and learn, and creating a rigorous curriculum to prepare students for post-secondary education.

NCLB has since changed the face of education. Education is continually changing and improving in order to improve student achievement and enhance student learning. It is evident education has made great strides since the 1700s. However, enhancing education is a continual process. Administrators, department leaders, and teachers are striving to make the necessary changes to help students be successful in the classroom and in life. Raising student achievement is important to prepare students for real world experiences and provide them with opportunities to live a productive lifestyle (Fowler, 2009; Public Broadcasting System, 2014). Since the approval of NCLB, schools have been working together to identify strategies and techniques to improve student learning.

NCLB is a standards based instruction which improves student academic performance and ensures accountability of administrators, department leaders, and teachers. Raising student achievement and preparing students for the future is the major goal in the educational setting (Flores & Roberts, 2008; Gruenert, 2005; Leithwood & Mascall, 2008; Waters, Marzano, & McNulty, 2003). In order to meet the demands of NCLB, all educators work collaboratively to improve student learning (Flores & Roberts, 2008; Gruenert, 2005). A collaborative working

environment provides support and guidance in order to reach a shared goal of raising student achievement. An example of this type of collaborative work environment is described in Leithwood and Mascall (2008) research.

Leithwood and Mascall (2008) examined how collective leadership impacts student achievement. The study showed a direct link between raising student achievement and the collaborative leadership within the school culture. Over 2,570 teachers from 90 elementary and secondary schools completed a survey in regards to student achievement in language and math. The results indicated a strong correlation between the collaborative leadership among principals, teachers, students, and parents. Teacher motivation had the most direct impact on raising student achievement

As described by Leithwood and Mascall (2008), school decisions, teacher roles, and student and parent influence all played a significant part with the collaborative leadership and increasing student achievement. This specific study strongly links collective leadership to student achievement through the motivation of teachers and the work conditions within the school setting. Collective leadership embraces ideas from all parties such as administrators, teachers, students, and parents who help improve student learning. Through collective leadership a positive collaborative culture is created that increases academic opportunities, improves individual strengths, and builds trust and appreciation in a school setting (Leithwood & Mascall, 2008).

Positive Collaborative Cultures in Secondary School Settings

Collaboration in a school setting is a group of educators working cooperatively to plan, problem solve, and make changes in an organization which is built on trust, respect, and interpersonal skills (Simmons, 2002). Building a strong collaborative working environment is

essential for ensuring a positive school culture is created and student achievement is improved (Archer & Cameron, 2009; Simmons, 2002; Whitaker, 2012). It is great school leaders who create a positive school culture which is the driving force for everything in the school setting (Whitaker, 2012).

According to Archer and Cameron (2009), collaborative leadership is developing relationships, distributing control and problem solving within an organization towards a common goal. Exceptional leaders who are collaborative understand the importance of developing successful school cultures by establishing a solid mission statement and promoting change within the school setting (Datnow & Castellano, 2001; Whitaker, 2012). To ensure the success of school-wide change, the educational leader must be an active role model, provide support for classroom teachers, and create a sense of trust among all stakeholders (Datnow & Castellano, 2001).

Creating vision and strategy, building healthy positive relationships, and sharing control are all three important components for administrators to create a positive collaborative work environment for all stakeholders (Archer & Cameron, 2009). Successful schools with strong collaborative leadership, which provide teachers with support, autonomy, and effective instructional strategies, create a school culture that is positive and conducive for students to flourish in the classroom setting (Westberg & Archambault, 1997). In 1977, the United States Senate Committee Report on Equal Educational Opportunity, stated the most important and influential person in the school setting is the principal (Marzano et al., 2005). Marzano et al. (2005) further state:

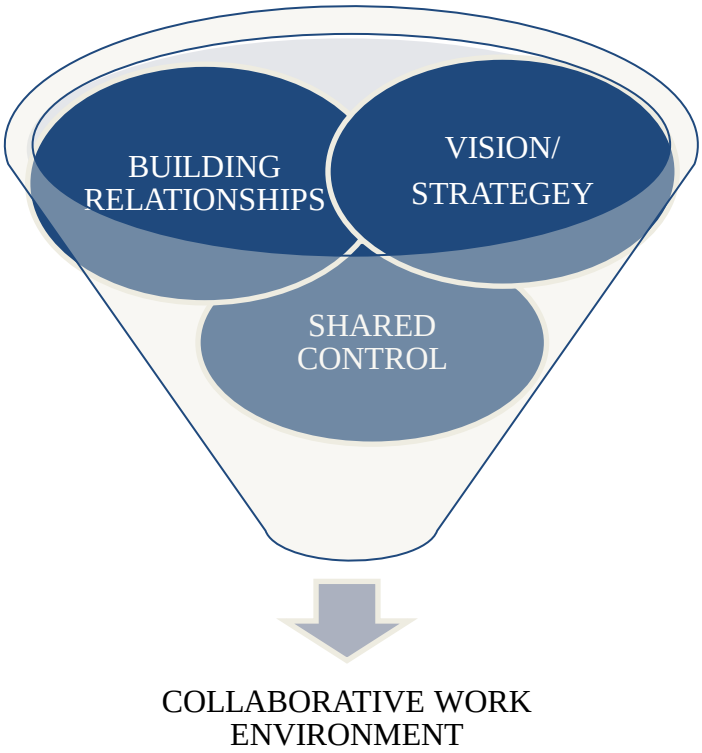
> The principal's leadership sets the tone of the school, the climate for teaching, the level of professionalism and morale of teachers, and the degree of concern for what students

> may or may not become. The principal is the main link between the community and the school, and how he or she performs in this capacity largely determines the attitudes of parents and student about the school. If a school is a vibrant, innovative, child-centered place, if it has a reputation for excellence in teaching, if students are performing to the best of their ability, one can almost point to the principal's leadership as the key to success (p. 5).

Effective school leaders create a school culture that promotes the school mission and instills the desire of both teachers and students to be life-long learners through building relationships and sharing control (Leithwood, Louis, Anderson, & Wahlstrom, 2004; Mulford, 2006; Simmons, 2002; Westberg & Archambault, 1997). Figure 2 illustrates the significance of these three components balancing and maintaining each other in order to funnel down into a positive collaborative working environment.

Figure 2

Collaborative Work Environment



High achieving schools have a clear and concise mission statement (Hoff, 1991, National Center for Restructuring Education, Schools, and Teaching National Center for Restructuring Education, Schools, and Teaching, 2014). Bafile (2007) “powerful mission statements give people a sense of purpose and passion” (para 1). The school mission statement is the foundation for all school employees, students, parents, and stakeholders. It helps build relationships, formulate decisions, and monitor change (Bafile, 2007). A shared vision gives direction and focus to a school setting. A mission statement provides insight to all employees on what they are supposed to do and why (NCREST, 2014). School leaders can appoint responsibilities more effectively because all staff members are mindful of the school’s vision for enhancing student learning. Effective school leaders believe passionately in their school vision and are advocates

for student success (Simmons, 2002). The school's mission statement is the center for student learning and building a positive school culture (Bafile, 2007). Consequently, setting high expectations for student achievement and ensuring the curriculum focuses on the three Rs of education: rigor, relevance, and relationships are commonly used in school mission statements (Rourke & Boone, 2008).

Creating a shared school mission statement can be a long and tedious task, however, once the process is finalized, the school district reaps the benefits. A few important details need to be remembered when developing and implementing a school vision: (a) understand school culture, (b) collaborate with all stakeholders, (c) provide clear and concise communication, (d) seek high expectations (Bafile, 2007; Leithwood & Riehl, 2003; Marzano et al. (2005). These suggestions for developing an effective school mission statement are useful ways to help administrators, teachers, students, parents, and community members identify what is most important for the school setting in order to improve student learning and drive focus to the school setting in order to raise student achievement. While all stakeholders are responsible for embracing the school's mission statement, it is the administrator's job to ensure all teachers and students are accountable for respecting the school's mission. An administrator can establish this task through developing a positive school culture and building honest and trusting relationships with all individuals invested in the school's setting.

Trusting and respectful relationships are essential for all organizations to problem solve, overcome conflict, and succeed in the school setting (Weinstein, Madison, & Kuklinski, 1995). Collaboration is an effective strategy for building trusting and respectful relationships while maintaining focus on the school's mission statement (Clark & Clark, 1996). Tschannen-Moran (2001) research study investigated the relationship between the level of collaboration in a school

and the level of trust. The results of the study showed a significant link between collaboration and trust among teachers, principal, and parents. Fostering trust in the school setting takes patience, dedication, and time. According to Tschannen-Moran (2001), “trust and collaboration are mutually reinforcing: the more parties work together, the great opportunity they have to get to know one another and build trust” (p. 9). Trust within the organization allows for more teamwork to take place between the principal, teachers, students, and parents. Teachers thrive in the school setting that is supportive, caring, and encouraging. Birky, Shelton, and Headley (2006) identified several key items which help develop an encouraging working environment: (a) value and respect, (b) embrace change, (c) supportive, (d) collaborative, (e) empowerment, (f) effective decision making skills, (g) consistency and availability, and (h) lead by example. All of these characteristics empower administrators, teachers, students, and parents to do their best in order to develop a positive collaborative culture.

Educational leaders directly influence teachers and students by creating a trusting and respectful relationship. A positive and trusting school climate significantly impacts the school culture, classroom procedures, and instructional strategies for raising student achievement (Bodger, 2011; Whitaker, 2012). Clark and Clark (1996) emphasized a positive trusting collaborative culture encourages job satisfaction, reduces stress, and increases teacher, student, and parent morale. The influence of both administrators and teachers can positively influence the educational setting, so it is imperative for both parties to focus on motivating, inspiring, and encouraging students to perform to the best of their ability (Birky et al., 2006; Durham, Knight, & Locke, 1997; Sanzo, Sherman, & Clayton, 2010). Encouraging students to perform well in class and to behave respectfully and responsibly throughout the school atmosphere is an

indication of a solid framework for maintaining trusting relationships and establishing a positive school culture.

A trusting school atmosphere facilitates collaboration, increases camaraderie, improves school leadership, and enhances student achievement (Tschannen-Moran & Hoy, 2001; Vodicka, 2006). An effective school administrator possesses the following characteristics in order to help develop a trusting rapport with staff members, students, and parents: (a) benevolence, (b) reliability, (c) competence, (d) openness and honesty, and (e) communication (Tschannen-Moran & Hoy, 1998; Vodicka, 2006). Focusing on these healthy connections will improve teaching, learning, and student success. Marzano et al. (2005) emphasize the importance of administrators being cognizant of their staff and student's personal and professional lives.

In addition to a shared school mission and building trusting relationships throughout the school setting, shared control is another key component for establishing a positive school culture. Sharing control means collaborating, understanding the vision, and knowing which direction to take in order to continue to improve student learning and provide advanced educational opportunities for students. Shared control is developing ideas and solutions towards a common goal and being able to work together for the greater good of the organization (Archer & Cameron, 2009; Durham et al., 1997).

Collaboration in a school setting increases cooperation, problem solving strategies, and the ability to resolve conflict in an effective manner (Shedd & Bacharach, 1991). The participation of all members of the collaboration team is the key to better decision-making, healthier relationships, and happier team members. Clark and Clark (1996) identified several benefits of collaboration in a school setting: (a) shared ideas and instructions; (b) encouraged dialogue among teachers; (c) promoted unity and camaraderie; (d) enhanced professional

development; and (e) offered support. Collaboration is an excellent way to incorporate multiple people into the decision-making, conflict management, and problem-solving process (Archer & Cameron, 2009; Whitaker, 2012).

Within every organization problems and obstacles occur. In a collaborative working environment, effective school leaders identify the warning signs of conflict and handle the situation in a confident and consistent manner (Archer & Cameron, 2009; Simmons, 2002). Handling conflict in a positive manner benefits the collaborative work environment and instills trust and respect among the organization (Simmons, 2002). Archer and Cameron (2009) claim administrators must listen to all viewpoints in a conflict situation without judgment and decipher a positive solution which ultimately benefits the students and learning atmosphere. Sharing control in the school setting allows all school personnel to enhance the educational process for the betterment of the school.

Shared control is the foundation for educators at various levels to work together to enrich the curriculum and provide innovative instructional strategies for all students to learn (Berry, Daughtrey, & Wieder, 2009; Clark & Clark, 1996; Cosner, 2011, Hallinger & Heck, 2010, Whitaker, 2012). Creating a rigorous curriculum for students to learn and grow is vital to the education process (Cosner, 2011; Hallinger & Heck, 2010). A collaborative working environment builds school morale and drives teachers to perform above and beyond their general expectations (Clark & Clark, 1996; Wahlstrom & Louis, 2008).

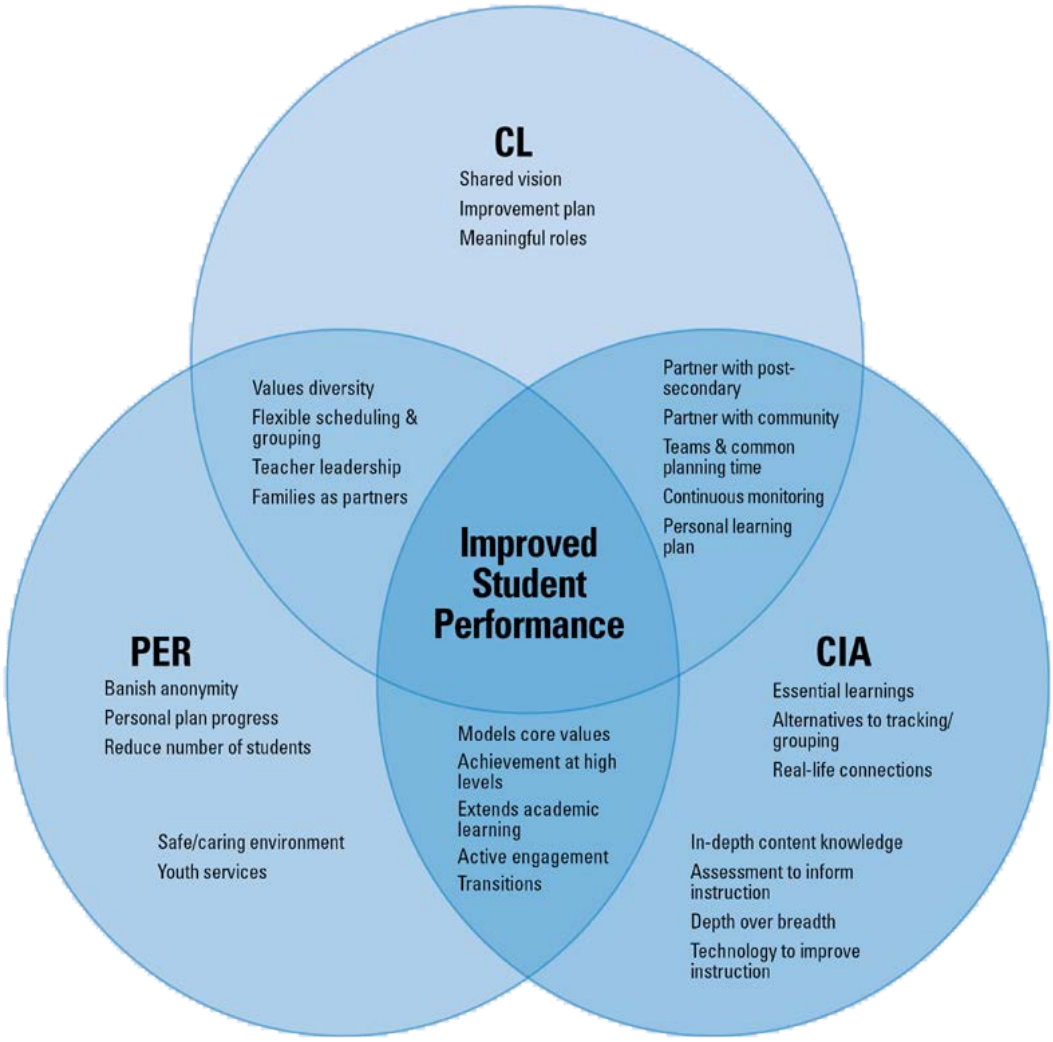
A positive collaborative culture includes a common school vision, healthy working relationships, and shared control. When all three components are established a solid framework for student achievement is established. It takes the entire school to work collaboratively together to improve student learning. Figure 3 displays an example of how a positive collaborative culture

is essential for improving student performance. This figure is also used by the Washington School District to incorporate collaboration within the school environment in order to enhance student achievement in the classroom. The National Association of Secondary School Principals (NASSP) gave the researcher written approval for the use of the comprehensive framework for school improvement diagram in this case study. NASSP (2014) claims this model interconnects three circles which represent collaborative leadership (CL), personalizing the school environment (PER), and curriculum, instruction, and assessment (CIA) which lead to the improvement of student performance (Comprehensive Framework for School Improvement section, 2014, p. 2).

Improved student performance is the center of where all three circles interconnect because it is believed these three circles play an important role for establishing the strengths of the school and identifying the areas for improvement to lead to a successful school. The top circle focuses on collaborative leadership which includes as shared vision, improvement plan, and meaningful roles. These key ideas establish the beginning foundation of solid framework for improving student performance. The second circle on the left is identified as personalizing the school environment which is developing a secure and compassionate school environment for all students to succeed. The final circle on the right addresses curriculum, instruction, and assessments. This circle identifies instructional practices, in-depth knowledge, and real-life connections as being essential for improving student learning. With the combination of all three categories, student performance will improve. It takes all three concepts working together to achieve the common goal of school and student success.

Figure 3

Comprehensive Framework for School Improvement



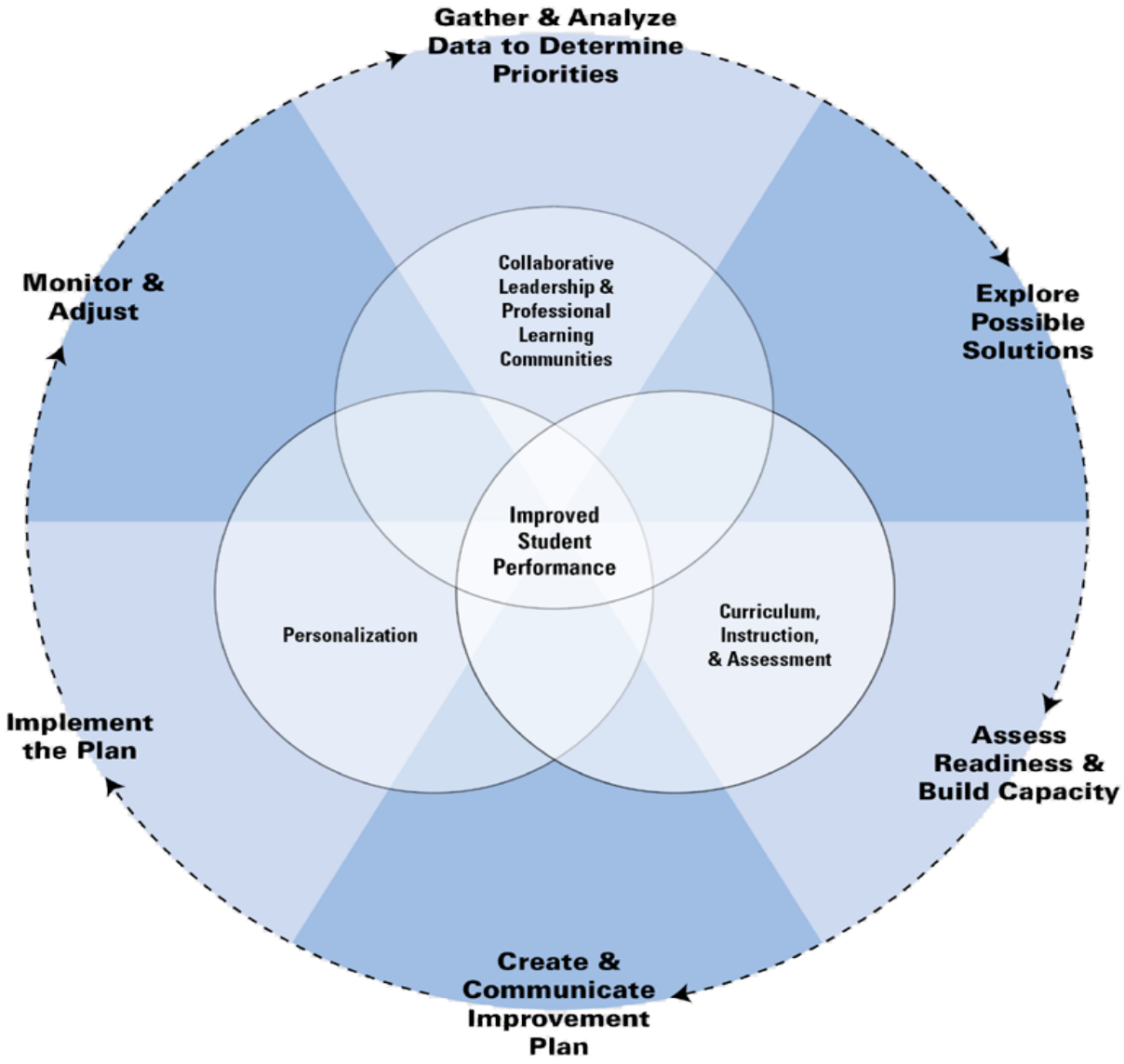
Note. Copyright (2014) National Association of Secondary School Principals (Appendix P)

Collaboration is directly correlated to school culture, student behavior, and raising student achievement (Clark & Clark, 1996; Chen, 2007; Hallinder & Heck, 2010; Weinstein et al., 1995). Improving school culture, providing collaboration opportunities, and enhancing student performance are important concepts for all schools to achieve. However, a strategic plan for creating a positive school culture base on collaboration needs to be in place in order

for schools to accomplish this goal (Archer & Cameron, 2009; Cosner 2011; Hallinger & Heck, 2010; Whitaker, 2012). The six-stage strategic plan in Figure 4 provides a step by step procedure of attaining a positive school culture along with improving student performance. National Association of Secondary School Principals gave written approval for this diagram to be used in this case study. NASSP (2013) identifies the six stages as: (a) gathering and analyzing data to determine, (b) exploring possible solutions, (c) assessing readiness and build capacity, (d) creating and communicating improvement plan, (e) implementing the plan, and (f) monitoring and adjusting (Comprehensive Framework for School Improvement section, 2014, p. 2).

Figure 4

Six Stage Process



Note. Copyright (2014) National Association of Secondary School Principals (NASSP) (Appendix P)

Administrators, district department leaders, teachers, and student are all an integral part of the collaboration process. The NASSP claims, “Collaboration within grade levels, across grade levels, and across schools provides the backbone for the sustainability of the framework” (NASSP, 2014, p. 1). The collaboration process among all stakeholders instills a shared vision,

build trusting relationships, and share control which lead to a successful school environment (Archer & Cameron, 2009; Cosner, 2011; Hallinger & Heck, 2010; Simmons, 2002; Whitaker, 2012). Building a positive collaborative school culture is time consuming, complex, and in some cases, frustrating (McWilliams, 2009), yet, the benefits are worth the initial difficulties. Collaborative work environments create a supportive work place which empowers and motivates teachers and enhances student performance (Wahlstrom & Louis, 2008).

Effective Leadership Qualities in Secondary Education

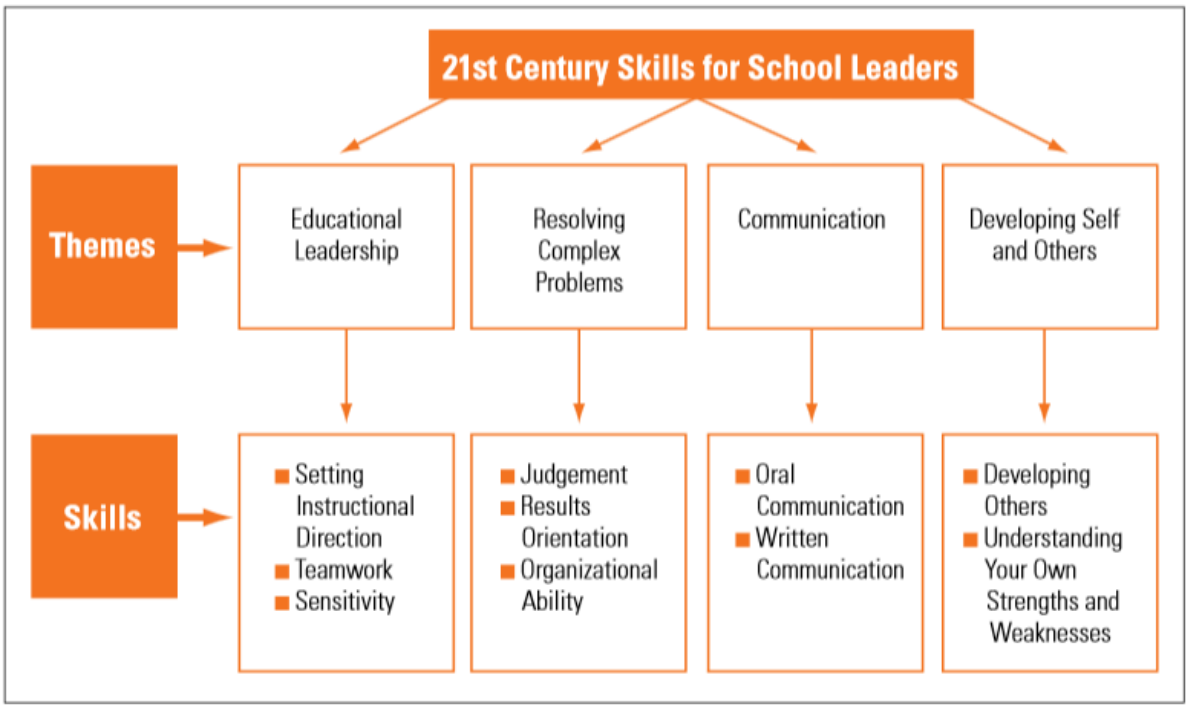
School leaders have an abundance of challenging situations and many responsibilities to guarantee a positive school setting that benefits all stakeholders (Whitaker, 2012). They must adhere to all the requirements of educational state and federal mandates, common core standards, adequate yearly progress, graduation rates, teacher evaluations, student discipline, and safety and security of schools (Leithwoord & Riehl, 2003; Whitaker 2012). Moreover, school leaders are accountable for helping teachers use effective instructional strategies in the classroom to ensure students are actively engaged and learning (Leithwood & Riehl, 2003). With the myriad of demands placed on administrators, at times it can be overwhelming, yet so many leaders are able to effectively and efficiently run their schools. Educational leaders are mindful of the decisions that need to be made in order to promote school and student success (Leithwoord & Riehl, 2003). School leadership is the key component of establishing a positive school atmosphere (Bodger, 2011; Black, 2006; Marzano et al., 2005; Simmons, 2002).

While there is a vast amount of research with varying views on leadership qualities and their effects on school improvement, the research agrees upon common themes for establishing a successful educational leader. Educational leadership, communication, resolving complex problems, and developing self and others are four common themes for helping administrators

improve student achievement and create a positive school culture (NASSP, 2010). NASSP (2010) identifies twenty-first century school leadership skills in Figure 5 which displays each theme and then the skills needed for an administrator to develop building capacity and enhance student performance.

Figure 5

21st Century Skills for School Leaders



Note. Copyright (2010) National Association of Secondary School Principals (NASSP) (Appendix Q)

The skills for effective school leadership recognized by NASSP include: (a) setting instructional direction; (b) teamwork; (c) sensitivity, (d) judgment; (e) results orientation; (f) organization; (g) oral and written communication; (h) developing others; and (i) understanding strengths and weaknesses (NASSP, 2010). Each of these skill that are identified promote school improvement that focuses on administrators building a positive school culture, setting high

expectation for students, and promoting school wide success (NASSP, 2010). With these leadership skills, the administrator creates a collaborative work environment focused on increasing academic achievement.

In addition to NASSP (2010) research on leadership skills, there are several other important researchers who have spent a significant amount of time discovering valuable characteristics of leaders in the school setting which include:

- Steven Covey, the author of *The Seven Habit of Highly Effective People*
- Robert Marzano, the author of *School Leadership that Works*
- Wallace Foundation, the author of *The Making of the Principal: Five Lessons in Leadership Training*
- John Maxwell, the author of *The 21 Irrefutable Laws of Leadership: Follow Them and People Will Follow You*

Even though each of these researchers has their own personal opinions on leadership skills, the core principals are similar. Educational leadership, communication, problem solving, and professional develop all play a key role with building a positive school culture and raising student achievement (Covey, 2004; Marzano et al., 2005; Maxwell, 2007; Wallace Foundation, 2012). Figure 6 provides a detailed outline of the four different philosophies developed by the researchers who are continually evaluating and assessing leadership qualities for successful schools.

Figure 6

Leadership Skills Based On Other Scholars

Steven Covey (7 Habits of Highly Effective People)	Marzano (21 Responsibilities of School Leader)	Wallace Foundation (5 Core Functions)	John Maxwell (21 Irrefutable Laws of Leadership)
• Proactive • Begin with the end in mind • Put first things first • Think win-win • Seek to understand then to be understood • Synergize • Sharpen the saw	• Affirmation • Change agent • Contingent rewards • Communication • Change • Disciple • Focus • Flexibility • Ideals/beliefs • Input • Intellectual stimulation • Involvement in curriculum, instruction, assessment • Knowledge in curriculum, instruction, assessment • Monitoring & evaluating • Optimizer • Order • Outreach • Relationships • Resources • Situational awareness • Visibility	• Shaping a vision of academic success based on high standards • Creating a safe and cooperative climate • Cultivating leadership in others • Improving instruction • Managing people, data & processes to foster school improvement	• Character • Charisma • Commitment • Communication • Competence • Courage • Discernment • Focus • Generosity • Initiative • Listening • Passion • Positive attitude • Problem solving • Relationships • Responsibility • Security • Self-discipline • Servanthood • Teachability • Vision

Based on the information above, the responsibilities and demands placed on school leadership roles are continually changing throughout history; however, the leadership qualities have remained the same (Elmore, 2008). Effective school leaders are compassionate, decisive,

clear communicators, problem solvers, and supportive (Covey, 2004; Marzano et al., 2005; Maxwell, 2007; NASSP, 2010; Leithwood & Riehl, 2003; Simmons, 2002; Wallace Foundation, 2012). In addition to these qualities, administrators are continually building trusting and healthy relationships with all stakeholders and motivating and encouraging teachers and students to do their best in order to be successful in the classroom. Educational leaders empower and inspire teachers and students to continue to grow personally and professionally. By establishing these characteristics as an education leader, not only will the teachers and students benefit but the culture of the school will change and generate success (Gruenert, 2005; Leithwood, Louis, Anderson, & Wahlstrom, 2004; Marzano et al., 2005; Mulford, 2006; NASSP, 2010; Wallace Foundation, 2012).

Furthermore, improving the school environment that is rich with trust, respect, and support among all stakeholders will enhance the collaboration process and raising student achievement (Datnow & Castellano, 2001; Marzano et al., 2005; Simmons, 2002). A collaborative working environment that shares power leads teachers to empowerment, increases school morale, as well as contributes to the academic success of the students (Doll, 2010; Leithwood & Mascall, 2008; Marzano et al., 2005; Whitaker, 2012). The principal who is the school leader who promotes a positive collaborative school environment that focuses on the equity and excellence of all students (NASSP, 2010).

Teacher Leaders in a Collaborative Secondary Education

It is not uncommon in a school setting for all school employees to wear multiple hats to help improve the quality of the school. In fact, it is beneficial for all school employees to collaboratively work together and share responsibilities within the school setting to ensure school improvement is taking place (Gates & Robinson, 2009, Leithwood et al., 2004; NASSP, 2010;

Wallace Foundation, 2012). Teacher leaders are beneficial to a school setting because they provide administrators with specific information of the students and faculty needs (Ledesma, 2012). Leadership roles are providing teachers with advanced opportunities to have an influence on the school culture (Boyd-Dimock & McGree, 2014). Teacher leaders can influence students and the teachers not only in their classroom but outside of their classroom as well. Teacher leaders are becoming more apparent in schools and share many administrative responsibilities in order to improve academic performance (Birky, Shelton, & Headley, 2006; Gajda & Koliba, 2008 Printy, 2008; Stronge, Ward, & Grant, 2011; Whitaker, 1997).

Considering this information, it is essential to have a good understanding of teacher leaders, their roles and responsibilities, and the need for their leadership in the school setting. Danielson (2006) defines teacher leadership as "that set of skills demonstrated by teachers who continue to teach students, but also have an influence that extends beyond their own classrooms to others within their own school and elsewhere" (p. 1). Teacher leaders focus on helping the administration improve the quality of instruction while providing support to all students in order to raising student achievement (Boyd-Dimock & McGree, 2014). Danielson (2006) identifies teacher leaders as being a vital asset for administrators because they share administrative responsibilities in areas most important for the school setting such mentoring, data coaches, instructional specialists, or facilitators. Other responsibilities include developing and implementing programs to promote school change and serve on committees such as instructional support teams or school based leadership teams (Boyd-Dimock & McGree, 2014).

More importantly administrators and teachers work cooperatively to create a collaborative working environment to promote academic success. Teacher leaders make it possible for administrators to conduct other business in the school setting such as student

discipline, teacher evaluations, maintenance and facilities, and much more (Birky, Shelton, & Headley, 2006; Whitaker, 1997). Teacher leaders help build a solid foundation for a trusting and respectful environment, the ability to problem solve and confronting obstacles, and provide new skills and knowledge to enhance student achievement (Boyd-Dimock & McGree, 2014). Teacher leaders are a part of a collaborative model which enhances school culture and improves student learning (Gajda & Koliba, 2008).

In addition, a collaboration leadership team focuses on developing effective instructional strategies to meet the needs of all students and raise the expectations of students (May & Supovitz, 2010). May and Supovitz (2010) examined how principals improve teaching strategies in order to raise student achievement. From 2005-2007, 51 schools in the southeastern urban United States district were involved with May and Supovitz's research study. The research showed the principal spent 3-5 hours per week on instructional leadership. Sixty eight percent of teachers reported some instructional support from the principal and 22% of teachers reported a high instructional support from the principal. The instructional support from other teachers and the principal is highly important and significantly impacts the teacher’s instructional strategies in the classroom (Archer & Cameron, 2009; Berry, Daughtrey, & Wieder, 2009; Birky, Shelton, & Headley, 2006; Leithwood & Jantzi, 2008; May & Supovitz, 2010). With teacher leaders being visible in the school sector, it allows administrators to spend more time working and developing personal relationships with other teachers in order to improve the instructional strategies of the classroom.

The roles and responsibilities of administrators and teacher leaders are important for building and maintaining a positive school culture that focuses on student learning. When all educators in the school setting work together, they build a cohesive learning environment which

provides professional development opportunities, exposes new instructional ideas, and enhance the current knowledge and experiences (Cosner, 2011; Gajda & Koliba, 2008; May & Supovitz, 2010; Printy, 2008). These opportunities allow the educator to continue to develop personally and professionally. This positive relationship between the administrator, teacher leaders, and the instructional teachers encourages a school environment which enhances student learning (Printy, 2008).

For example, Printy (2008) examined how high school principals and the department leaders can improve the quality of instruction and the collaboration among the science and math teachers. This two-stage study accomplished two tasks: (a) investigated the importance of school leaders and the participation in productive communities of practice; and (b) the defined relationship between school leadership and teachers' competence and pedagogical skills. This research study demonstrated the importance of administrators and department leaders working together to inspire teachers to perform to the best of their ability, ways to improve their instructional strategies, and to provide educational opportunities to enhance their knowledge.

Teacher leaders are significant in the school setting because they provide school wide support, improve instructional strategies, and enhance student performance (Boyd-Dimock & McGree, 2014). With the increase of high stakes testing, the responsibilities and roles of administrators and teachers have increased (Birky, Shelton, & Headley, 2006; Gajda & Koliba, 2008; Printy, 2008; Stronge, Ward, & Grant, 2011; Whitaker, 2012). School personnel are spending more time collaborating, planning, and creating innovative teaching strategies to improve student achievement (Cosner, 2011; Gajda & Koliba, 2008; Gates & Robinson, 2009; Printy, 2008; Stronge, Ward, & Grant, 2011; Whitaker, 1997). Valli and Buese's (2007) research showed an increase in student achievement based on the educational leader who guides,

supports, and collaborates with all staff members to work towards a shared vision. Collaboration among the teachers in the school setting helps enhance student achievement and aid with the teacher's workload (Clark & Clark, 1996; Cosner, 2011; Hallinder & Heck, 2010; May & Supovitz, 2010; Wahlstrom & Louis, 2008).

Transformational Leadership as the Theoretical Framework

Effective leadership styles are highly important in the educational setting (Covey, 2004; Maxwell, 2007; Whitaker, 2012). Establishing a leadership style which enhances instructional strategies, improves student learning, and creates a positive and safe learning environment is essential for a school setting (Bodger, 2011; Leithwood & Riehl, 2003; Whitaker, 2012). To accomplish all these goals, transformational leadership, which is working together to accomplish a shared vision, is a necessary element in collaborative school cultures.

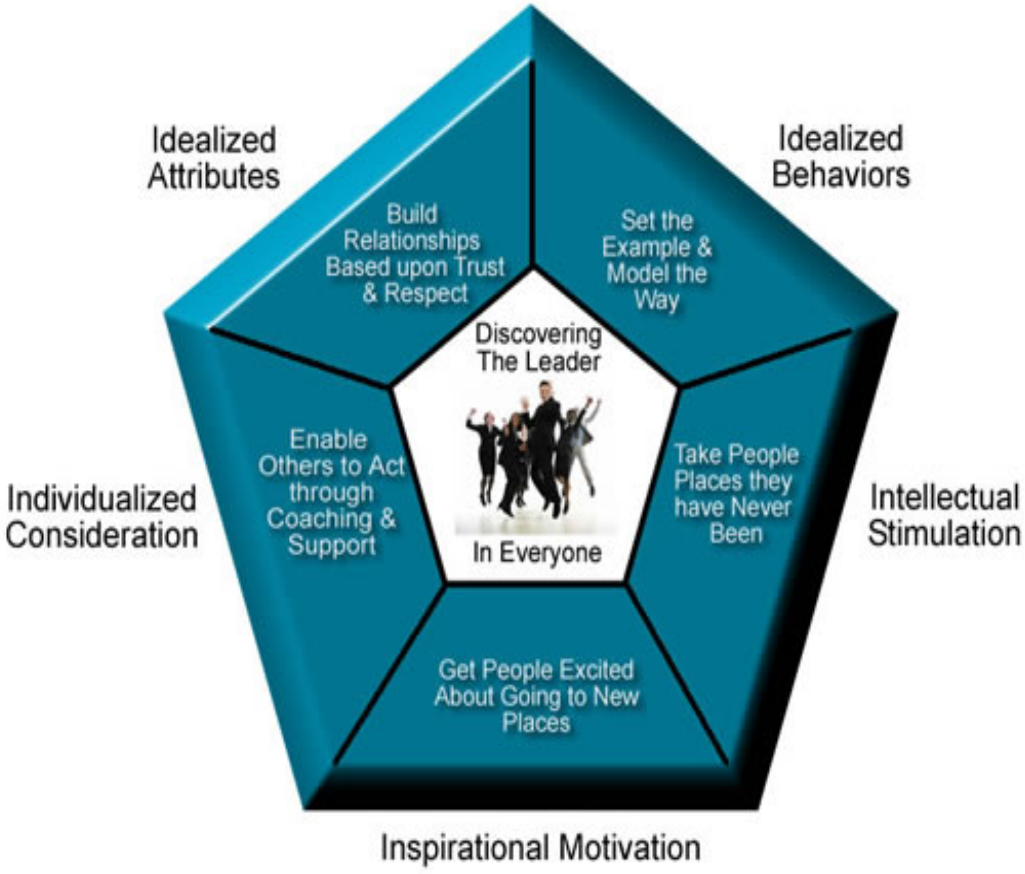
Transformational leadership fosters a sense of purpose and promotes a positive change among the stakeholders of the school setting. Transformational leaders positively influence, intellectually stimulate, and help colleagues self-reflect and look for the best solution for team (Bass, 1999; Burns, 1978). This type of leadership increases motivation and performance of co-workers through a variety means (Bass, 1999; Burns, 1978).

According to Bass, "Transformational leaders earn trust, respect, and admiration from their followers" (1999, p. 10). Bass and Avolio (1994) identify characteristics and behaviors of transformational leaders by referring to them as the four I's: (a) individual consideration, (b) inspirational motivational, (c) idealized influence, and (d) intellectual stimulation. Individual consideration is recognizing the individual's strengths and weaknesses and providing opportunities for the individual to learn and grow. Inspirational motivational is the ability to motivate individuals towards a shared vision. Idealized influence is taking full responsibility

for actions along with displaying respect, trust, and a sense of purpose. Intellectual stimulation is encouraging creativity and empowering people. Figure 7 exhibits the transformation leadership model.

Figure 7

Full Range Leadership Model- Transformational Behaviors



Note. Copyright 2014 Transformational Leadership Coaching and Consulting (Appendix R)

This model demonstrates the relevance of promoting leadership characteristics among everyone within the organization. The five sides of the pentagon represent a specific characteristic which the organization believes is significant. This model is a great example of how the Washington School District implements their collaboration among each of the secondary schools. Building healthy, respectful relationships, demonstrating positive examples, inspiring

motivation, intellectually stimulating, and providing support are all key components of establishing a collaborative work environment.

Written approval from Transformational Leadership Coaching and Consulting (2014) was given to the researcher to use the transformational leadership model for this case study. Transformational Leadership Coaching and Consulting is focused on building organizational capacity to achieve specific goals. The transformational leadership model is an excellent model which displays the vision and focus that the Washington School District has set forth in order to create a collaborative working environment among the four secondary schools. This model shows the importance of all team members working towards a common vision through a variety of factors. Transformational leadership is a way to inspire, motivate, and empower all individuals within an organization (Northouse, 2010).

The transformational leadership model above describes in detail the various stepping stones effective leaders need to take in order to create change within a school environment. Transformational leaders are strong role models who build trust, foster new ideas, set high expectations, and provide a supportive working environment (Bass, 1999; Burns, 1978; Northhouse, 2010). They encourage open communication and empower and nurture their staff in order to change for the benefit of the school and for themselves (Northhouse, 2010). Transformational leaders have a clear vision and understanding of the school's setting. Through transformational leadership, empowerment, sharing control, teamwork, mutual support, and calculated risk taking are all essential characteristics of creating a positive change within the school culture.

Conclusion

The literature review confirms the importance of collaboration within the school setting in order to enhance the school's culture and increase student achievement (California School Boards Association, 2014; Cameron, 2005; Clark & Clark, 1996; Cosner, 2011; Gates & Robinson, 2009; Greer, 2012; Hallinder & Heck, 2010; Leithwood & Mascall, 2008). The four themes developed from the literature: (a) history of American K-12 education; (b) positive collaborative culture in the secondary school setting; (c) effective leadership qualities in secondary education; and (d) teacher leaders in a collaborative secondary education. The final piece of the literature review is an informative overview of transformational leadership which is the theoretical framework for this case study. Transformational leadership is the foundation for creating a positive collaborative school culture in order to help improve student achievement.

The first theme concentrated on the history of American education. This section provided an overview of where American Education has been and where it is currently heading. Each era highlighted the importance of providing all students with an adequate education in order for them to become productive members of society. Overcoming various obstacles in order to improve the educational system has been a continuous process in America. With the current NCLB law, schools are always finding ways to ensure students are given a rigorous and relevant curriculum in order to help them become successful.

The second theme focused on creating a positive collaborative culture within the secondary school setting. Creating a strong collaborative school culture begins with effective school leaders who inspire and encourage change (Archer & Cameron, 2009; Northhouse, 2010; Simmons, 2002; Whitaker, 2012). Through establishing a shared vision, trusting and

respectful relationships, and sharing control are all key components of a positive collaborative working environment (Archer & Cameron, 2009; Cosner, 2011; Datnow & Castellano, 2001; Hallinder & Heck, 2010).

The third theme examined effective leadership qualities in secondary education. Effective leadership skills are essential in a school setting in order to build trust, motivate teachers, inspire change, and promote academic success of the students (Leithwood, Louis, Anderson, & Wahlstrom, 2004). The literature highlighted four key philosophies for implementing successful leadership qualities and building a positive school culture: (a) educational leadership; (b) communication; (c) problem solving; and (d) professional development (Covey, 2004; Marzano et al., 2005; Maxwell, 2007; Wallace Foundation, 2012).

The fourth theme, teacher leaders in a collaborative secondary education, placed importance on leadership qualities and the value of their responsibilities as a teacher and a leader. Gajda and Koliba (2008) stress the importance of teacher leaders being a part of the collaborative culture in order to enhance school setting and increase student achievement. Teacher leaders are assisting with school wide support through improvement to instructional strategies, modeling effective classroom management, and enhancing student performance (Boyd-Dimock & McGree, 2014). The theoretical framework for this case study focuses on transformational leadership. Transformational leadership is a leadership style which improves classroom management, student behavior, instructional strategies, and school culture (Bodger, 2011; Leithwood & Riehl, 2003; Whitaker, 2012). Burns (1978) states transformational leadership is inspiring individuals to change perceptions, expectations, and motivations towards a common vision. Inspirational motivational, intellectual stimulation, individual

consideration, and idealized influence are key features of transformational leaders (Bass & Avolio, 1994).

To conclude, the literature review supports the importance of establishing a positive collaborative school culture in order to raise student achievement (Cameron, 2005; Clark & Clark, 1996; Cosner, 2011; Greer, 2012; Hallinder & Heck, 2010; Wahlstrom & Louis, 2008). Effective school administrators along with teacher leaders are essential for improving the school culture and enhancing student learning. Administrators, department leaders, and teachers who work together as a single unit to provide students with opportunities to learn and expand their current knowledge play a significant part in the school setting. All educators are responsible for ensuring students are given the proper tools to become productive and contributing members of society.

Chapter III

Design and Methodology

The purpose of this case study was to understand how collaborative leadership positively influences school culture as well as raises student achievement. Yin (2009) stated a "case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (p. 18). Case studies depend on historical and documents analysis, interviews, and observations that allows the researcher with real-life situations (Marshall & Rossman, 2011). Chapter three describes the research design and the methods used to collect and analyze data related to collaboration and raising student achievement.

Marshall and Rossman (2011) believe the selection of the setting, site, population, and phenomenon is "fundamental to the design of the study and serves as a guide for the researcher" (p. 99). This study examined the cohesion of administrators, department leaders, and teachers with the Washington School District. Pseudonyms are used for names of participants and schools involved with this study to protect participant anonymity. Since 2010, Washington School District has shown remarkable improvement in school culture and collaborative leadership. The four secondary schools implemented a strategic plan of raising student achievement through collaborative work among each subject area. This study was worthwhile for the superintendent and administrators in order to improve and enhance school culture and raise student achievement scores. Results provide the school district with a better understanding of student learning, ways to increase student achievement, and improve instructional strategies.

The data collected for the purpose of this study were analyzed as a means to answer the following research questions:

1. How does collaboration in the four secondary schools influence school culture?

2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?

3. Does a collaborative culture in the secondary schools help increase student achievement in the algebra classroom?

The 2013-2014 end-of-course algebra exams were collected and analyzed with the collaboration surveys to determine if there is a statistical difference between the two unrelated groups. The null hypothesis tested as $H_o = p = o$ showing there is no difference between collaboration and the end-of-course exams. The alternative hypothesis of this research stated the end-of-course exams will have a significant difference with the increased amount of collaboration in the math department ($H_o = p \neq o$). This chapter discussed the design of the research, participants who were involved, the data collection methods, analytical methods, limitations, the role of the researchers, and the protection of human rights, and approval. The research was approved by the Northwest Nazarene University Human Research Review Committee in March 2014 (Appendix A & B).

Research Design

This case study examined the positive influences collaborative leadership has on school culture and raising student achievement. A case study is a detailed investigation where data is collected on a single person, group, event, or community through observations and interviews (Denzin & Lincoln, 2008; McLeod, 2008; Stake, 1995; Soy, 2006; Yin, 2009). In this case study, the researcher looked for patterns and behaviors to show a relationship between the administrators, teachers, and students which increases student achievement. Using multiple

sources of data to gather enough information that ensures a deep understanding of the study was an essential part of the study (Creswell, 2007).

Through a mixed-method approach, this case study involved analyzing and collecting student achievement data, surveys, and interviews. Mixed-methods lead to more informative outcomes for the study because it effectively uses a combination of both quantitative and qualitative data (Creswell & Plano Clark, 2007; Malina, Norreklit, & Selto, 2011). The mixed methods approach in this study allows for an in-depth understanding of collaboration among the school employees, the school culture, and the impact on student achievement. The quantitative approach is data-driven, uses statistical significance, tests reliability and validity, and establishes a correlation between variables (Tanner, 2012). The qualitative method allows the research to interact with the selected participants in their natural setting of the classroom with no manipulations of variables (Marshall & Rossman, 2011).

The researcher collected data for this study through three types of methods: (a) teacher surveys; (b) student achievement scores; and (c) interviews. The Collaboration Self and Team survey was the first method completed for this case study (Appendix F). Eleven algebra teachers completed the collaboration survey on August 19, 2013. The collaborative survey is divided into two sections: self and team assessment.

The first 11 questions were developed by the Teacher Quality Enhancement (TQE) team from St. Cloud State University. The researcher received permission from the co-director for the Academy for Co-Teaching and Collaboration to use this instrument (Appendix G). The second portion of the survey focused on team concepts was developed by the researcher. The researcher used the schools district's mission statement and philosophy on collaboration in order to effectively develop high quality questions. Once the survey was created, the researcher sought

experts in the field who could validate the survey (Appendix H). Ten subject-matter experts provided valuable information to the research on July 10, 2014. The Collaboration Self and Team survey provided an in-depth overview of the teacher's collaborative work over the past few years. This survey asked thought-provoking questions so teachers could think and develop a deeper level of understanding of themselves and how they work with others within their department. The data collected from the survey provided insight about the work environment of the school as well as the collaboration process in the department. Once the surveys were completed, the researcher began collecting the student achievement scores from the end-of-course algebra exams.

Student achievement scores on the end-of-course algebra exams were the second piece of quantitative data collected in this research study. Every content area taught at the secondary level in the Washington School District is required to have an end-of-course exam for both fall and spring semester. The end-of-course exam offer administrators, department leaders, and teachers critical information about student performance, instructional strategies, areas of strengths, and areas in need of improvement. During the in-service days, teachers work together to improve and modify the exams to ensure student are being challenged and learning the content.

Considering the information above, data was collected from 11 algebra teachers over the past three years. All of the secondary schools provided the researcher with the student achievement scores from the end-of-course exam in algebra for both fall and spring semesters. In the Washington School District, Algebra courses are a year-long course. However, because math is a rigorous subject and requires students to learn specific skills and formulas, the final exam is broken down between two semesters. The final assessment and the common course curriculum calendar provide vital information in regards to individual student achievement on which

teachers can elaborate. With the collaboration survey and the student achievement scores, the researcher analyzed and compared the data to see if there was a relationship between the two. Tanner (2012) states that "a correlation between variables means as one changes, the other tends to change accordingly" (p. 257).

The final method of data collection for this case study involved conducting individual interviews. Marshall and Rossman (2011) describe in-depth interviewing as a way of focusing on the participant's personal life and experiences. The main purpose of interviewing was to help the researcher grasp a better understanding of the individual's life in their own words (Boyce & Neale, 2006; Marshall & Rossman, 2011). Based on this research study, five participants were selected for the in-depth interviews as well as three individuals for the pilot interview.

Pilot interviews are a great way to see if there are any flaws or weaknesses with the interview questions and design (Marshall & Rossman, 2011; Turner, 2010). Pilot interviews allowed the researcher to practice and strengthen the interview techniques. The purpose of piloting the interview was to help the researcher gain a better understanding of the interview questions, barriers which can occur during the interview process, and a general grasp of the process.

The district department leader for science and fine arts volunteered their time to participate in the pilot interview. The third interviewee was the associate principal at one of the middle schools. Each of the participants were familiar with the collaboration process within the district and they have no connections with the math department.

During the pilot interviews, the researcher was able to identify questions that were weak, repeated, or not relevant to the topic. The researcher eliminated four questions from the pilot interviews and then reworded several questions to guarantee the participants would expand upon

their knowledge and experiences. Turner (2010) stresses the importance of creating effective research questions that allows the participants to provide as large amount of detailed information. Open-ended questions let the individual fully express their viewpoints and experiences (Marshall & Rossman, 2011; Turner, 2010). After careful consideration of the interview questions, the researcher designed 15 questions that focused on collaboration within the district, roles and responsibilities of the administrator and teacher leaders, and how student achievement was being improved.

On two separate occasions for each participant, the researcher scheduled a time and place for the interview to occur. To avoid skewing or influencing specific answers, the researcher took extreme precaution to not disrupt the daily routines of the participants (Marshall & Rossman, 2011). Because the researcher works in the same district with each of the participants, it was extremely important to ensure trust and rapport was established along with ensuring confidentiality of the participants and school names. An informed consent letter which included the purpose of the research, procedures, risks/discomforts, and benefits was signed by each participant before interviews took place (Appendix E). A confidential agreement for the transcriber was also provided in order to ensure all information collected from the study was kept private (Appendix O).

The district math department leader and the four lead algebra teachers at each of the secondary schools participated in the audio recorded interviews. Participant included four females and one male, all over the age of 18 years. The purpose of the interview was to gain insight of the collaboration among the math department and student achievement scores. Participants of the interviewing process shared personal experiences, ideas, and strategies on their daily routines as well as their interactions with teachers, students, and parents.

After the final interview, the researcher completed member checking to confirm the results and make sure all themes were presented. Marshall and Rossman (2011) refer to member checking as way for the researcher to check with each individual from the interview to confirm the finalization of themes. This is a great opportunity for the individuals to make corrections, respond, and ensure the researcher is accountable for the themes. Table 1 provides an overview of the research design.

Table 1

Research Design

Data Methods	Participants
Algebra End-of-Course Exams (semester 1 & 2)	Student Final Scores on Semester 1 and 2 exam
Survey	Develop and Validate Questions
Interview	Pilot Interviews Member Checking

Participants

The research study took place in a rural school district in the state of Idaho. Washington School District serves 8,860 students. In the last five years, there has been an average growth rate of approximately 3% ([redacted], personal communication, December 1, 2014). There district employs:

- 491 certified staff (teachers, counselors, instructional coaches)
- 548 classified staff (secretaries, custodians, aides, lunch room servers)
- 33 administrative staff

The district is comprised of seven elementary schools, two middle schools, one alternative middle school, two high schools, and one alternative high school. For research purposes, this study focused on the two middle and two high schools. The school names have been changed

to ensure confidentiality and all participants of the surveys and interviews have been given pseudonyms as well.

The student population for each of the schools is: School 1 – 905; School 2 – 952; School 3 – 1,197; and School 4 – 1,153. There are 25 different languages spoken within the Washington School District as it is home to a refugee center ([redacted] personal communication, December 1, 2014). Approximately 79% of students in these four schools are Caucasian with Hispanics being the second leading ethnicity at 17%. For the 2013-2014 school year, there were 58.4% students who qualified for free and reduced lunch. Title I programs are offered at School 1 and School 2. Table 2 displays the demographics of each school in details.

Table 2

School Demographics

School	Total Students	Total Teacher	W	H	A	B	NA	H/P	Free/ Reduced Lunch
#1-middle	905	45	713	120	24	20	10	11	52
#2- middle	952	47	642	249	28	13	12	3	63
#3-high	1197	63	815	286	53	19	9	7	57
#4- high	1153	52	941	159	17	14	10	8	40

Note. W – White, A – Asian, B – Black, H – Hispanic, H/P – Hawaiian or Pacific Islander, and NA – Native American

Each high school has one principal, two vice principals, one instructional coach, three counselors, and 65 to 70 teachers. The middle schools are comprised of one principal, one full time and a one half time associate principal, one instructional coach, two counselors, and 48 teachers. The experience levels of the secondary administrators ranges from 3 to 17 years.

Because the Washington School District has over 1,000 employees and serves 8,000 students, clearly defined roles and responsibilities of all individuals are highly important for the collaboration process and raising student achievement.

Principals mainly focus on school safety, security of students, teacher accountability, student discipline, implementation of programs, and communication between school personnel and stakeholders. The responsibility of the instructional coaches is to be a strong support system for the teachers by providing them with effective instructional strategies, constructive feedback to improve classroom management and behavior, and professional development to strengthen their performance in the classroom. Instructional coaches work directly with the district department leaders to help enhance the curriculum and ensure the common core standards are being mastered. The district department leader plays a vital role in the collaboration process. They are responsible for coordinating the program in a specific subject area for all of the secondary schools. This leader facilitates the in-service meetings, develops and evaluates the curriculum, aligns assessments, and is the liaison between the district, schools, and teachers.

For each of the core subject areas, such as English, mathematics, science, and social studies, there is teacher leader who helps the district department head coordinate between the schools. Teacher leaders are responsible for communicating with the district department head, conducting building department meetings, assisting with curriculum development, and aligning assessments with the Idaho Common Core Standards. Finally, the responsibilities of the teacher are to create a positive and safe learning environment for all students, provide innovative instructional strategies to enhance student learning, and create and develop a rigorous curriculum.

As described in the paragraph above, the roles and responsibilities play a key part in the collaboration process in the Washington School District. Every employee strives to provide all students with a quality education that is necessary for students to be successful in life. As the collaboration in this district continues to grow so does student achievement, better instructional strategies in the classroom, and a relevant and rigorous curriculum. Table 3 specifically provides personnel information regarding the secondary schools.

Table 3

School Personnel

School Site	Total Certified Teachers	Total Principals	Total District Department Leader: Math	Total Teacher Leader: Math	Total Math Teachers	Instructional Coaches
#1-middle	48	2½	0	1	8	1
#2-middle	48	2½	0	1	8	1
#3-high	71	3	0	1	7	1
#4-high	65	3	1	1	7	1

Since the 2005-2006 school year, Washington School District methodically began the process of incorporating the collaboration model. Each of the secondary schools have worked together to build a trusting and respectful school environment that fosters camaraderie among all staff members and accountability with the curriculum. All schools share ideas, strategies, and opinions in order to improve instructional practices and help improve student learning.

Data Collection

This research study was conducted during a six-month timeframe from July 2014 through December 2014. Marshall and Rossman (2011) state, "The purpose of data collection is to guide the proposal writer in stipulating the methods of choice for his study and in describing for the reader how the data will inform his research questions" (p. 137). All participants in the study were contacted by the researcher and approval was gained to conduct research at their school site (Appendix D & E). The superintendent of Washington School District signed a consent form for participation and all schools understood the purpose of the study (Appendix C & D). Each school was reassured all information collected from this study would be kept confidential. The data collections used in the study included: (a) teacher surveys, (b) student achievement scores, and (c) lead math teacher interviews. Table 4 provides a summary of data collected to answer the research questions in this study.

Table 4

Data Collection for Case Study Research

Data Collection	Research Methods	Participants	Research Site
Algebra End-of-Course Exams	Quantitative	11 Algebra teachers	Schools 1, 2, 3, & 4
Survey	Quantitative	11 Algebra teachers	Schools 1, 2, 3, & 4
Interview #1	Qualitative	4 Lead Algebra teachers 1 District department head of math	Schools 1, 2, 3, & 4
Interview #2	Qualitative	4 Lead Algebra teachers 1 District department head of math	Schools 1, 2, 3, & 4

Collecting and analyzing the Collaboration Self and Team survey was the first part of the research study (Appendix F). Eleven of the 12 algebra teachers in the secondary school participated in the survey. The survey analyzed the collaborative working environment and how each individual participated in this environment.

The student achievement scores was the second piece of data collected for this case study. The researcher analyzed data from the years of 2013-2014. Each secondary school provided student achievement scores from the end-of-course exam for algebra. With these scores, the researcher was able to determine how well students performed in math with each teacher. Evaluating both the collaboration survey and the student achievement scores, the researcher was able to gain insight on the department's working relationship. With this data, the researcher examined if there was a relationship between student growth and collaborative leadership

The final data collected for the case study was the interviews. The interviews explained the experiences of each lead teacher, their specific school, the working relationships with other schools, and the district's philosophy on collaboration. The researcher interviewed each participant in the natural setting and provided a trusting and supportive environment (Marshall & Rossman, 2011).

Prior to beginning the interview process for this case study, the researcher completed a pilot interview with one middle school associate principal and two district department leaders. Pilot interviews are essential because they provide the research with the adequate tools to perform the interview accurately without bias. The interviews focused on questions that allowed the person to express their opinions, viewpoints, and experiences. Five lead teachers of math participated in the interviews. Interviews were conducted at least two times during the study to ensure accurate data was recorded, and the researcher collected enough data to support the study

(Appendix J & K). Table 5 provides information on the timeline of data collection and analysis for this study.

Table 5

Research Activity Timeline

Research Activity	Date
EOC Data Collection and Organization	End of October 2014
Teacher Collaboration Survey Validation	July 7, 2014
Distribute of Teacher Collaboration Survey	August 19, 2014
Analysis of Teacher Collaboration Survey Data	October 2014 – December 2014
Analysis of EOC Data	October 2014 – December 2014
Validating Survey	July 2014
Pilot Interviewing	July – August 2014
1st Interviews with Algebra Teacher	August – September 2014
2nd Interviews with Algebra Teachers	November 2014
Transcribing Interviews	October – November 2014
Analyzing, Interpreting, and Writing	December 2014 – February 2015

Analytical Methods

This research study used three analytical methods for collecting research: surveys, student achievement scores, and personal interviews. Each one of these methods provides the researcher with data on how collaborative leadership positively impacts student learning. Mills (2007) explains the type of data collected determines the data analysis techniques the research selects to use. Marshall and Rossman (2011) state,

> Analytic procedures fall into seven phases: (a) organizing the data; (b) immersion in the data; (c) generating categories and themes; (d) coding the data; (e) offering interpretation through analytic memos; (f) searching for alternative understandings; and (g) writing the report or other format for presenting the study (p. 209).

The quantitative pieces of this research were the Collaboration Self and Team and student achievement scores on the end-of-course algebra exams. The researcher used the data to rank each teacher based on their answers from the survey. Following this step, reviewed review took place of the 2013-2014 algebra scores from the end-of-course exam from each teacher and ranked each teacher by their scores. With the data collected and ranking from the survey and EOC scores, the researcher input the data into IBM SPSS Statistical Software Version 22 (SPSS). Using the independent *t*-test, the researcher was able to determine if there was a difference between the collaboration scores of the teachers and the 2013-2014 algebra exams.

Regarding, the qualitative data of this study, the interviews were the final piece of data collected for this research study. Coding the data from the interviews provided the researcher with themes (Marshall & Rossman, 2011). Creswell (2007) states, “During this process of describing, classifying and interpreting, qualitative researchers develop codes or categories and to sort text or visual images into categories” (p. 152). Table 6 illustrates the quantitative and qualitative analytical methods selected for this study.

Table 6

Analytical Methods

Quantitative Methods	Qualitative Methods
SPSS	Descriptive Exploratory Analysis
Independent *t*-test	Open Coding- Themes Axial Coding – Categories Triangulation

Trustworthiness

Dependability, transferability, confirmability, and credibility are essential for setting up the procedures to ensure the standards of trustworthiness are met (Lincoln & Guba, 1985). Marshall and Rossman (2011) state, "Ethical research practice is grounded in the moral principles of respect for persons, beneficence, and justice" (p. 47). Member checking, triangulation, and informed consent are procedures that help make sure the data is trustworthy and ethical (Marshall & Rossman, 2011). Trustworthiness provides rigor and value to the qualitative study (Lincoln & Guba (1985).

Role of the Researcher

The researcher is responsible for collecting, interpreting, and analyzing all data received from this research. During this research study, it was important for the researcher to build a trusting, respectful atmosphere for conducting interviews. One way to help build a trusting and respectful atmosphere it to make sure the participants and schools remained anonymous. Practicing confidentiality and anonymity needed to be the focus of the researcher

throughout the study to avoid potential harm and invasion of privacy for the participants and schools (Mills, 2007).

Another important role of the researcher is to be aware of the possible disadvantages of each method of collecting data and ensuring the reliability and validity of the information which was collected. Merriam (1998) states, “Ensuring validity and reliability in qualitative research involves conducting the investigation in an ethical manner” (p. 198). Being aware of one’s identity, voice, and biases is important for the researcher to ensure reliability and validity to the data that is being collected (Marshall & Rossman, 2011). As the researcher and being an employee of the Washington School District, it is vital for the researcher to adhere to the ethical principles of confidentiality and justice of this research study.

Limitations

Marshall and Rossman (2011) state, “all research projects have limitations; none is perfectly designed” (p. 76). The first limitation to this study is the student achievement data on the end-of-course algebra exams. The researcher assumes all students who took this test tried their best and answered each question to the best of their ability. Also, the researcher believes the teacher provided the necessary information through instructional strategies during the semester to help the student succeed on the test.

The second limitation of this research study would be the small number of participants in the collaboration survey. There were only 12 algebra teachers in the Washington School District. With a small sample size, it could be difficult finding a significant relationship from the data. A larger sample size helps make sure there is a wide representation of people to provide significance to the study.

A third limitation to the study is the participants of the collaboration survey and interviews providing truthful and honest answers. The researcher worked on developing a trusting and respectful relationship with all participants to ensure their answers will be authentic. One way for the researcher to establish this type of relationship was through her credibility which is an important factor for building trust (Lincoln & Guba, 1985). The researcher in this study was able to generate a trusting and respectful atmosphere for the participant because of the credibility that had been previously built. An open, supportive, and confidential atmosphere was offered for the participants to freely express themselves. This allows the participant to feel comfortable and safe with sharing beliefs, values, opinions, and experiences that were relevant for the research study.

The fourth limitation in this research study is the possibility for interviewer bias. The researcher must be aware of her own bias such as favorite school or teachers. Biases occur when the interviewer hears and transcribes what she wants to hear instead of what is actually stated. Recording and transcribing the interviews are important in order to make sure the interview is accurate and reliable.

Protection of Human Rights and Approval

This research study was approved by Northwest Nazarene University (NNU) Human Research Review Committee (HRRC) in March 2014 (Appendix A & B). According to NNU HRRC, the protections of the rights were insured for all human participants involved in research project carried out by NNU faculty, staff, and students or any outside entity wishing to conduct research using NNU personnel or students, including making a risk/benefit assessment of the study. The researcher followed the ethical principles to ensure

confidentiality and protection from harm of all participants. The participants of the research study signed a consent form (Appendix E & O).

Research methodology will not be evaluated so long as it does not impact risk and ethical issues. The research conducted in this research study meets the standards requirement by the governmental agencies and is compliant with the policies of NNU reducing the risk of harm and individual or corporate liability with regard to all persons involved in research that are subject to HRRC evaluation (Northwest Nazarene University, 2010). The National Institute of Health (NIH) Office of Extramural Research certifies that the researcher successfully completed the NIH web-based training course entitled *Protecting Human Research Participants*. The date of completion was on October 24, 2013 and National Institutes of Health (NIH) Office of Extramural Research certification number was 1308070.

Chapter IV

Results

Introduction

Collaboration is an important part of creating a successful school and raising student achievement, yet many school districts struggle with providing school employees with proper professional development and time for them to work cooperatively (Berry, Daughtrey, & Wieder, 2009; Clark & Clark, 1996; DuFour, 2003; California School Boards Association, 2014; Ontario Leadership Strategy, 2012). Little (1990) expresses that collaboration among teachers is linked to student achievement, increased staff morale, better solutions to problems, and provides more ideas, methods, and materials that all teachers can benefit from. Nurturing a collaborative school culture is an effective way to ensure success within a school (Eastwood & Louis, 1992; Mclaughlin & Talbert, 2001; Newmann & Wehlage, 1995). There is, therefore, reason to believe that providing the right types of professional development and allowing time for teachers to collaborate will enhance student learning and increase student achievement.

The purpose of this study was to explore collaboration among a selected sample of algebra teachers within the Washington School District and the academic achievement scores among students in these courses. The null hypothesis tested as $H_o = p = o$ indicating the end-of-course exams has no statistical change with the increased amount of collaboration within the algebra department. The alternative hypothesis ($H_o = p \neq o$) states the end-of-course exams will improve with increased amount of collaboration in the math department.

First, the study examined the collaboration process among 11 algebra teachers at four secondary schools through a self and team survey. The Collaboration Self and Team survey

identified the teacher's strengths, areas of improvement, concerns, and successes on teamwork within their department. The second part of this case study involved conducting in-depth interviews with the five lead teachers from each of the four secondary schools. During the interviews, participants acknowledged their roles and responsibilities, viewpoint on collaboration within their school and the district, and the challenges they face as a department. The final component of this study investigated all of the end-of-course algebra exam scores from 2013-2014. The algebra exams reveals students' performance on the assessments and indicates whether students are learning the concepts being taught.

Collaboration among educators is essential for building teacher support and morale, improving classroom strategies, and enhancing the student learning (Dufour & Eaker, 1998; Friend & Cook, 1992; Lencioni, 2002; Piercey, 2010). The research questions guiding this dissertation study were:

1. How does collaboration in the four secondary school influence school culture?
2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?
3. Does a collaborative culture in secondary schools help increase student achievement in the algebra classroom?

As discussed in Chapter III, the methods for data collection included the following:

- Collaboration Self and Team survey distributed to 12 algebra teachers in the Washington School district. In this study, 11 of the 12 teachers participated in the study and provided information on the collaboration process within their department. One of the algebra teachers selected not to participate due to personal and professional reasons.
- Interviews were conducted with five lead teachers of the math department.

- Student achievement scores on the algebra end-of-course exam from 2013-2014 were collected and analyzed.
- All participants and schools were given a pseudonym to protect their identities and ensure confidentiality.

This chapter summarizes the results of the study based on the three research questions. In order to answer these three research questions in the study, a triangulation matrix was used to improve and allow for greater accuracy of the research by collecting different kinds of data bearing on the same phenomenon (Jick, 1979). Mills (2007) suggests the strength of research lies in triangulation, a process of collecting data from numerous sources and not just relying on one. Triangulation involves using multiple data sources in order to produce a thorough understanding of the research study (Jick, 1979; Marshall & Rossman, 2011; Mills, 2007). Table 7 displays the triangulation matrix for this study.

Table 7

Triangulation Matrix

Research Questions	Data Source #1	Data Source #2	Data Source #3
1. How does collaboration in the four secondary schools influence school culture?	Teacher survey on collaboration (quantitative)	Lead teacher interviews (qualitative)	
2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?	Teacher survey on collaboration (quantitative)	Lead teacher interviews (qualitative)	
3. Does a collaborative culture in the secondary schools help increase student achievement in the algebra classroom?	Teacher survey on collaboration (quantitative)	Lead teacher interviews (qualitative)	Algebra end-of-course exams (quantitative)

Research Question 1: Collaboration in Four Secondary Schools Influencing School Culture

Research supports the importance of creating a positive school culture which increases student growth, sets high expectations in the classroom, and promotes advanced educational opportunities for students to learn and become productive members of society (Leithwood, & Mascall, 2008; Mulford, 2006; Waters et al., 2003). These are all essential results of building a solid collaborative community among educators, yet there is a gap in the research showing school districts are not providing teachers with adequate professional development training or the time for colleagues to work together to improve and enhance the curriculum. With this in mind,

the first research question in the study asked: How does collaboration in the four secondary schools influence school culture?

Based on this research question, a self and team survey was created and dispersed among the algebra teachers at the four secondary schools in the Washington School District (Appendix F). In this research, 11 of the 19 questions were developed by the Teacher Quality Enhancement (TQE) Team at St. Cloud State University (St. Cloud State University, 2011). The Collaboration Self and Team survey questions were developed to help beginning teachers improve the academic performance of students, provide professional development, and on-going support.

Dr. Nancy Bacharach, Principal Investigator and Project Director of Teacher Quality Enhancement Grant, is responsible for creating and overseeing the TQE grant (St. Cloud State University, 2011). The researcher contacted Dr. Bacharach through email and received permission to use the collaborative self assessment tool. The statement of permission is provided in Appendix G. The remaining eight questions on the collaborative survey were developed by the researcher. Each of the eight questions focused on teamwork that takes place within the school district. These questions are specific to the school, department, and the mission statement.

Survey Validity and Reliability

Polit and Beck (2006) identifies content validity index (CVI) as a way for determining if the questions on the survey are accurately measuring the construct being studied. Content validity is measured by experts within the field who provide feedback on how well each question addresses the content (Lynn, 1986; Polit & Beck, 2006). There are two types of CVIs: the content validity of individual items (I-CVI) and the content validity of the overall instrument (S-CVI).

To find the I-CVI, a group of experts were to look at the survey and rate each of the questions based on a 4-point Likert scale. The Likert scale used for this survey was:

1 = not relevant

2 = somewhat relevant

3 = quite relevant

4 = highly relevant

For each individual survey item with a score of 3 or 4 was considered valid by the experts. For this study, an agreement of 80% among the ten experts on each item would be included in the final survey.

The content validity of the overall instruction or S-CVI uses the same Likert scale which is based on the average Likert-item quality rather than the performance by the experts. Polit and Beck (2006) suggest using a score an S-CVI score of 90% or higher. On July 7, 2014, an email was sent out to 15 experts requesting their specific feedback on the collaboration process within a school setting (Appendix I). Ten experts responded back on July 10, 2014 (Appendix H). Table 8 provides an overview of the ten experts who provided feedback on the collaboration survey.

Table 8

Expert Demographics on Content Validity Index

Experts	Gender	Educational Position
#1	F	District Department Science Leader; Science Teacher; Building Leadership Team Committee Member; School Wide Improvement Committee Member ; Assessment Committee Member
#2	M	High School Principal of Idaho School
#3	F	Middle School Principal of Idaho School
#4	M	Instructional Dean for a College of Southern Idaho
#5	M	Operations and Educational Technology Director of Idaho School
#6	F	Director of District Services for an Idaho School; Idaho Superintendent Representative; Professional Standards Committee
#7	F	Associate Superintendent for Idaho School
#8	M	Secondary Programs Director for Idaho School
#9	F	Former English Teacher and District Curriculum Director
#10	F	Director of Education Programs in an Idaho School; Idaho Association for Supervision & Curriculum Development Representative

Each of the experts who provided their feedback on the collaboration survey are all familiar with the Idaho Core Standards, curriculum, and the direction Idaho is headed with the educational system for school age students. Experience among these individuals ranged from the college level to middle school including the online community. These expertise of these individuals offers a diverse opinions and reflections on collaboration within this school setting.

Polit and Beck (2006) defines content validity index (CVI) as “Content validity concerns the degree to which a sample of items, taken together, constitute an adequate operational definition of a construct” (p. 490). After consulting with ten individuals, the researcher was able

to determine the overall CVI. The CVI or S-CVI was above 90%. The majority of the ratings for the questions was above 80%. A few of the experts made suggestions for clarification on a few of the questions but overall the questions were 100% agreed upon.

Cronbach's Alpha

Tanner (2012) states Cronbach's alpha is an estimate of internal consistency for when a test is administered only once. Cronbach's alpha is a coefficient of reliability which verifies how much the questions are measuring the same component (Tanner, 2012; Laerd Statistics, 2013). For this reason, the researcher completed the Cronbach's alpha for the Collaboration Self and Team survey. Table 9 provides the questions which directly impact the collaboration process among the Washington School District.

Table 9

Survey Questions Related to a Collaborative School Culture

Question Number	Question
1	Individual Input
2	Motivation/Participation
3	Quality of Work
5	Team Support
7	Problem Solving
8	Team Dynamics
9	Interaction with Others
13	Collaboration Teams
15	Team Time Management
16	Environment
18	Communication

Based on these 11 questions on collaboration, the Cronbach's alpha results were .772. These specific questions met the criteria of internal consistency. Gliem and Gliem (2003) indicate a normal range for Cronbach's alpha reliability is between 0 and 1. The closer the results are to 1 the better the internal consistency (Gliem & Gliem, 2003).

Teacher Survey on Collaboration Results

During the collaboration work days on August 19, 2014, 11 of the 12 algebra teachers were presented with 19 questions on collaboration. The teachers were expected to self-reflect on 11 questions based off of their beliefs and behaviors as a team player. The remaining eight questions addressed the math department as a whole and focused on how well the group works

together and contributes as a team. Since there was a small sample size, the participants received a numbered survey and completed it by hand. Approximately 30 minutes was given to the participants to complete the survey.

Upon completing the survey, participants placed their completed survey in a manila folder to ensure confidentiality. They also turned in their signed letter of consent next to the manila folder. All participants received and signed a letter of consent before participating in the research study (Appendix E). Table 10 illustrates the survey response rate for this portion of the study. There was only one teacher who selected to opt out of this research study.

Table 10

Survey Response Rate

Responses and Participation	Total
Surveys Sent	12
Survey Completed	11
Surveys Incomplete	1
Response Rate	92%

This in-depth survey on collaboration required the teachers to evaluate themselves and their department on the collaboration process. Participants were asked to answer each category based on their opinion using the following collaboration scale:

1 = No Collaboration

2 = Emerging Collaboration

3 = Slight Collaboration

4 = High Collaboration

Analyzing the survey results based on each response, the scores were high indicating each teacher felt that they are highly collaborative within their department. At the conclusion of the survey, a scoring guide was provided so each participate could assess how collaborative he or she was with the algebra department. The scoring guide was developed for the original survey by Dr. Nancy Bacharach and the Teacher Quality Enhancement Team from St. Cloud University (St. Cloud State University, 2011). Figure 8 provides the total collaboration points score guide:

- Score of 0-18: no collaboration
- Score of 19-38: collaboration skills are emerging and needs improvement; it is important to become more of a team player and adapt to change
- Score of 39-57: slight collaboration skills are taking place and developing; you need to take the professional development opportunities to grow with the team
- Score 58-76: high collaboration skills are established. You have created a safe and trusting environment where all members are willing to participate and share ideas in order to raise student achievement and improve instructional strategies.

Figure 8

Total Collaboration Scoring Guide

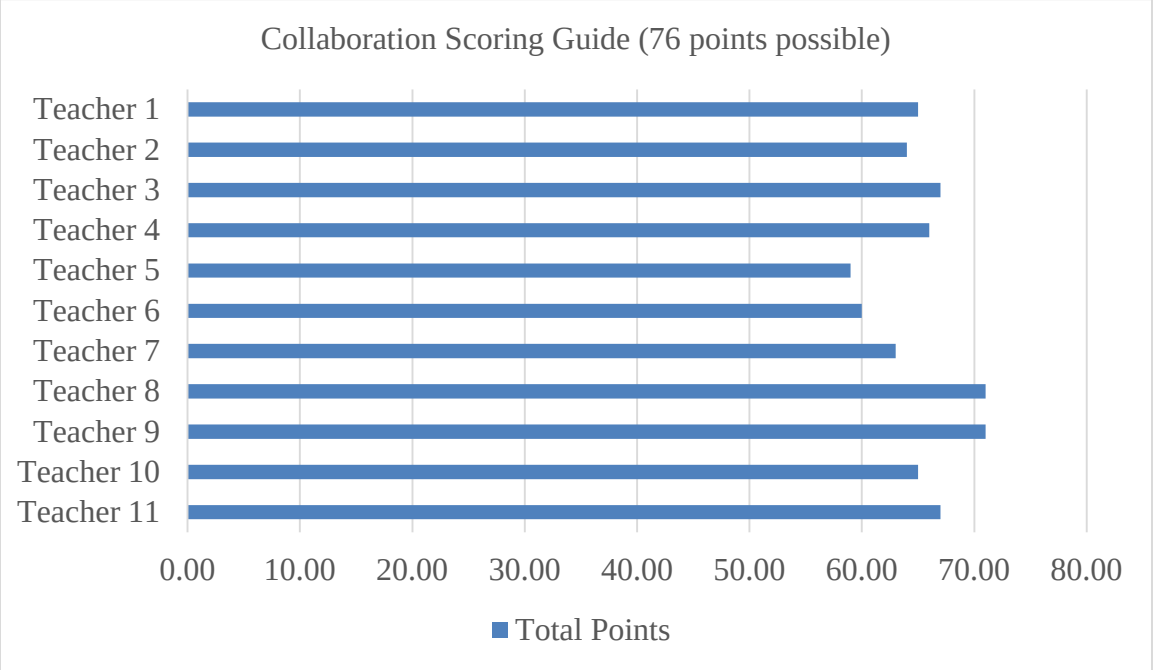


Figure 8 illustrates the 11 teachers and their scores ranged from a score of 59 to 71. The total amount a participant could receive with the collaboration survey was 76 points. Teacher 8 and 9 scored the highest collaboration points with a score of 71. The lowest scoring points among the group were Teacher 5 with 59 points and Teacher 6 with 60 points. With this information in mind, Figure 9 specifically addresses each teacher and their individual answers from each of the 19 questions on the survey.

Figure 9

Collaboration in the Algebra Department

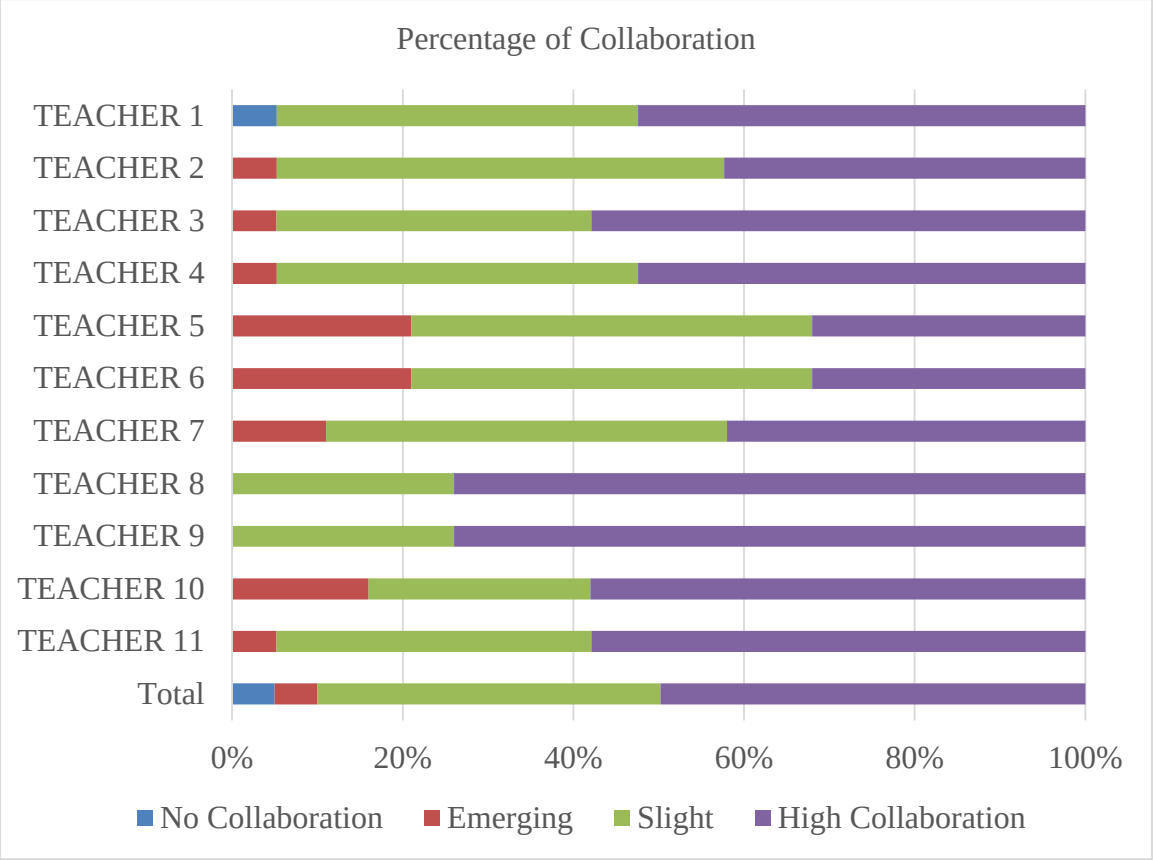


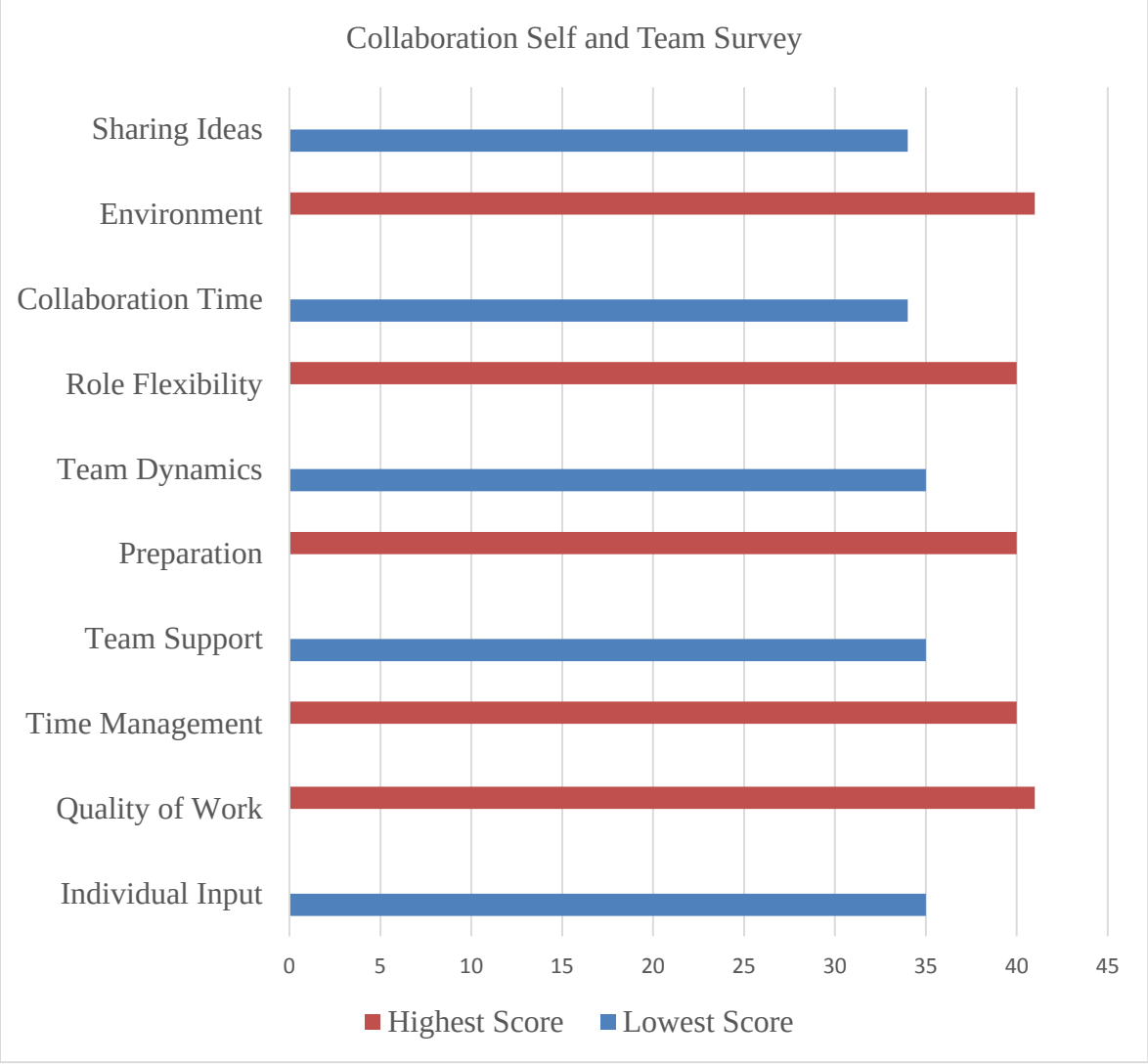
Figure 9 illustrates how Teachers 8 and 9 perceive they are highly collaborative with the other algebra teachers. Teachers 5 and 6 scored lower on the survey which indicates they are at the emerging and slight collaboration stage. All remaining teachers scored between the slight and high collaborative state. Figure 9 shows the collaboration process among the teachers within the algebra department.

The collaborative survey which was taken by 11 of the algebra teachers posed 19 questions. The highest score possible on this survey was 45 points. Of the 19 questions, five questions on the survey received a score of 40-41. These areas included school environment, role flexibility, preparation, time management, and quality of work. The lowest scores on this survey

ranged from 34-35 points. The lowest scoring areas on the survey were sharing ideas, collaboration time, team dynamics, team support, and individual input. Figure 10 displays the highest and lowest scores for the collaboration questions.

Figure 10

Collaborative Questions



Research Question 2: Roles of Administrators and Teacher Leaders in the Collaborative School Setting

Connecting with administrators, department leaders, and teachers are all necessary to improving collaboration, communication, school culture, and student achievement (Doll, 2010; Mendels, 2012; Reed, 2011). Doll (2010) states,

> A school's climate contributes to the academic success of its students and predicts the degree to which they actively participate in learning, including how consistently they attend school, how attentive they are in class, how carefully they complete their class assignments, and how committed they are to staying in school and doing well there (p. 12).

The school's culture plays a significant role in the development of relationships among administrators, department leaders, teachers, students, and community members (Doll, 2010; Mendels, 2012). With this in mind, the third research question described in the study asked: What roles do administrators and teacher leaders play in order to positively influence school culture and student achievement?

As discussed in Chapter III, the qualitative methods of data collection for this portion of the case study are the interviews with the lead teacher from each of the secondary schools and the Collaboration Self and Team survey. Five lead math teachers from the four secondary schools all participated in two face-to-face interviews. The first interview took place in August 2014 shortly after the two day summer institute in-service. During the first interview, questions consisted of the participant's educational background, teaching experience, roles and responsibilities in the district, thoughts on the math department, and the collaboration process among the school and district department. The second interview took place in November 2014,

right after the Idaho Common Core Standards in-service. These questions focused on the collaboration that took place during the in-service days the school district provided. There has been a total of four in-service days for collaboration since August 2014 and there remains three more days. Before beginning the interviews, the reviewer first piloted the interview questions with three employees of the Washington School District.

Pilot Interviews

Pilot interview are a significant part of the research study because it provides insight on the limitations and flaws of the interview questions and it allows the researcher to make adjustments and revisions to the questions (Kvale, 2007). According to Sampson (2004):

> While pilots can be used to refine research instruments such as questionnaires and interviews schedules, they have great use still in ethnographic approaches to data collections in foreshadowing research problems and questions, in highlighting gaps and wastage in data collections, and in considering broader and highly significance issues such as research validity, ethics, representation, and research health and safety (p.383).

Pilot interviews help the researcher identify biases, eliminate barriers, and strengthen the questions. As a result, the researcher completed three pilot interviews. Each of the pilot interviews provided the researcher with a better understanding of asking effective questions. According to Marshall and Rossman (2011), open ended questions allow participants to freely express themselves and their experiences.

Three individuals from the Washington School District participated in the pilot interviews. The district department leader for math and fine arts were two of the participants. The other participant of the pilot interviews was the associate principal of a middle school in the Washington School District. Each of the volunteers were acquainted with the collaboration

process within the district and they have no connections with the math department. Based on these pilot interviews, four questions were eliminated from the main interviews while several questions were revised. After analyzing the pilot interviews, the researcher created 15 questions that focused on collaboration within the district, roles and responsibilities of the administrator and teacher leaders and how student achievement is being improved.

Participant Interviews

Five lead teachers from the math department all participated in the face-to-face, audio recorded interviews. To provide a better understanding of the participants in the interviews, Table 11 conveys information on the educational background, years in education, employment, responsibilities, and extra-curricular activities.

Table 11

Demographics: Four Lead Algebra Teachers and District Department Head

Participant	Educational Background	Years in Education	Employment	Responsibilities	Extra-Curricular Activities
Tom	B.S. in Elementary Education	24	8th grade math & Algebra I	Prepared students for geometry	Coach 7th & 8th grade boys basketball
Kristine	B.S. in Zoology	17	Calculus, Statistics, Pre-Calculus & Geometry	Transmitting and communicating information; meeting & disseminate the information back to all departments.	District department leader of math
Pam	B.S. in Elementary Education	7	8th grade math, Pre-Algebra, & Algebra I	Pre-Algebra classes; Algebra class-advanced course for the 8th grade; shelter classes (IEP students & ELL students)	Department coordinator for the middle school math department
Tiffany	B.S in Secondary Education	25	Algebra II, Pre-Calculus dual credit, Statistics & Calculus.	Oversaw eight teachers following district curriculum, calendars, syllabus, collecting data	High school math department head; Building Leadership Team
Amanda	B.S. in Elementary Education	28	Algebra I & Informal Geometry	Open minded, flexible, share ideas, on time, responsible; passionate; accommodations; building relationships with my students	Head varsity girls basketball coach

Note. All names are pseudonyms to protect participant identity.

In order to gain a better insight into the collaboration process within the Washington School district, two separate interviews for each participant were conducted with an audio recording and transcription of the notes. The first interview took place during the months of August and September. The focus of this interview was to get a better understanding of collaboration among the math department, past experiences, strengths and weaknesses of the group, and the roles of the administrators and teacher leaders. The second interview was completed in November shortly after the fourth collaboration work day. This interview paid close attention to the work which was completed on the in-service day in November. Quotes from the interviews were included to provide solid evidence for the interpretation of themes (Creswell, 1998). The information shared by each of the participants gave the researcher perception on the department, where they are headed, and what changes need to be made in order to raise student achievement.

Tom

Tom was interviewed on two separate occasions throughout this study. The first interview took place on August 28, 2014 and the second interview was on November 19, 2014. Tom has been teaching math at the middle school level for 22 years. Table 11 provides a description of Tom's educational background, years of experience, and extra-curricular responsibilities.

During this first interview, Tom explained that collaboration among the math department in the Washington School District is about all schools working together, coming to a consensus, and truly knowing what is going on in each subject area. Tom described collaboration:

> Collaboration is working together as a math department and that is from all the way from senior math all the way down to elementary. Our collaboration is good but it could be a

> little better. The one thing I would make better is if our prep periods were department and not team. I think it would really benefit the schools if all of the math teachers had the same prep.

Tom expressed the importance of collaboration taking place at all grade levels. In his statement above, he would like the schools to provide more time for content teachers to team during their prep periods and not just during the in-service days. Teaming regularly would develop a stronger collaboration within the department and a better understanding of what is taking place in the classroom and on the assessments.

For the past two years, Washington School District has provided the administrators and teachers with more collaboration time and professional development in order to raise student achievement and meet all of the state and district requirements. Tom stressed the need for more time to allow the teachers to collaborate in order to develop and strengthen their curriculum through his comment:

> Collaboration among the schools is coming together but it is called time. I don't think in the past we have had the time and from the meetings at the beginning of the school year the middle school teachers collaborated well but as a whole district it is still in progress of building collaboration.

During the first two in-service days, the teachers were required to attend assessment training. The assessment training was a day and half training which gave teachers information on how to successful write assessments and how to incorporate the literacy standards into all content areas. The remainder of the training was a department meeting and curriculum development.

A half day of collaboration within the math department provided little time, yet the algebra department was able to meet and make a few critical corrections and adjustments to their

falls semester end-of-course exam. Even with a small amount of time provided to the teachers to collaborate, it was enough time for them to make the necessary changes in order to improve their fall exam for this semester. Tom stated:

> Both schools give the same end-of-course exam so when we are given time to improve the exam, we use our time wisely. We discuss as a group and then make any corrections or any adjustments that we need to improve the exam. The collaboration has been good and the direction of the district is making collaboration tighter and stronger.

Tom went on to identify the strengths of collaboration among the algebra team which were: (a) working well with each other; (b) ability to freely share opinions without judgment; (c) provide suggestions for improvement. Tom expressed: "I think the collaboration work days are very beneficial. We do a great job collaborating and deciding what is best for kids and making quality assessments and working together to improve anything with the end-of-course exams."

The school district has provided three additional in-service days to help improve the collaboration process among all content areas. The extra time for the math department has been extremely beneficial. Tom confirmed the importance of providing teachers time to work together in order to enhance the math curriculum.

> The extra in-service days has helped us continue our work on the assessments, making any changes from last year's assessment or making new assessment. I can see all of us taking the assessment, working it out collaborating, any ideas or suggestions that we might want to change problems so kids can zero in on what we're asking them.

Raising student achievement is a priority within the Washington School District. Tom addressed the importance of motivating and encouraging students to do their best in the classroom. Tom

wants to be the top teacher and have the top students. He supported this idea by stating the following:

> When I see another class that scored an average higher than mine, I get upset about it. That's just the competitiveness in me and I think it kind of happens amongst the school too. I think my students should out score all of the other students, so I will find ways to ensure my students are learning the material and performing on the assessments.

It takes the whole community to help raise student achievement. The teachers are all working together and sharing ideas and strategies which will help students learn and grow. Tom shared the importance of teachers all working together but also emphasizes the importance of the administrators being visible and working with the students. Tom stated: "I think administrators need to obtain a better knowledge of the content and attend the department meetings. They need to be in the classroom observing and working with the students. They need to be visible throughout the school." Tom concluded the interview with confirming the work ethic among the math department is strong and with the additional time working together the relationships are becoming better.

Kristine

Kristine has been the district department lead for math for approximately six years. She has been teaching high school math for 17 years. Table 11 details Kristine's educational background, years of experience, and extra-curricular opportunities. Being the district department head, she has many responsibilities on top of her teaching role. She works closely with the Secondary Programs Director of the Washington School District. She is responsible for facilitating all math department meetings, collecting math data from all four secondary schools, and communicating with all individuals throughout the district (Appendix R). Kristine stated:

> The math department is pretty big. There is 32 of us and so I try to divide it up into teams by course and have a team leader for each of the courses. There are over 18 math courses that I am responsible for so there are a lot of meetings and disseminating the information back to all individuals.

Her first interview took place on September 3, 2014 while the second interview was conducted on November 17, 2014. During her interview, Kristine defined her idea of collaboration among the math department:

> Collaboration means trying to keep us all together. All students would be learning the same information at roughly the same pace, so there is no disparity between teachers. It is a good chance to bounce ideas off of each other. How do you teach this topic? Do you have any good ways to explain this? Could we change the way we do this or switch the order of things? It is about keeping things in the same pace so that if kids move across town, it is still feasible.

Collaboration within the math department is a great opportunity to share ideas on teaching styles and strategies, finding other ways to reach all students, and learning how to work with all teachers. Since the Washington School District is located in a rural area, there is a lot of movement of students between the four schools. It is important for the district to create the same opportunities and experiences that all students can be successful. For this reason, the district focuses on creating similar expectations and common curriculums for all four secondary schools to implement.

During the in-service days at Washington School District, the math department developed a common course syllabus, curriculum calendar, unit plans, pre/post assessments, and the end-of-

course exam. Kristine is thankful for the time provided to her colleagues for working on the curriculum.

> Our math teachers are really grateful for the time this year to work and overall it has been time well used. A lot has been accomplished. The gains we have made and how we are just attacking the common core and changing the curriculum. I think it is probably because we have a big block of time like that to do it so it's not so overwhelming. I think it has been a valuable use of time.

Many decisions are discussed and made among the group which impact the instructional strategies, classroom atmosphere, and communication with the students and parents. All of these decisions discussed among the group are important in order to help enhance the math curriculum and increase student achievement. Kristine shared how the math department uses their time during the collaboration work days:

> Having time to look at the data from the past year, we were able to discuss our classroom strategies and how the kids performed on the end-of-course exam. We focused on the EOCs and examined which questions needed to be changed. This time allowed us to look at the data and discuss, what did we do, how did our kids perform, did the students struggle? This time to collaborate and look at the data is extremely useful.

Kristine identified the strengths of the math department as being highly collaborative, works well with each other, unified, and rational. She states:

> We have a lot of strong minds and determined people in the department. We have had some issue and conflicts that arise, so we try to work things out. Trying to get everybody on the same page is hard. It takes time to build relationships so the big workdays we've

> had these last two years where we just have time to work has really helped in developing these relationships.

Kristine pointed out the importance of the math department working together and improving the curriculum to improve student achievement, yet, she stated they have a long ways to go with the collaboration process:

> I think if you are collaborating you are going to get better ideas and new methods, which should transfer into higher student achievement. I'm not sure we are at that level of collaboration right now, so I'm not sure I could document and say last year's tests went up and that is because we were collaborating. I think with the work we are doing currently like on assessment re-writing and just forcing us to collaborate, we are getting stronger units developed and probably better tests, so that hopefully will transfer that way.

Kristine proceeded to inform the researcher that one benefit of the collaboration process has been the support and guidance of the administrators. She stated: "I like how the administrators are holding the teachers accountable. They are collaborating with us and not just sitting there doing nothing." Kristine emphasized the importance of the district providing the teachers time to work together to improve the math curriculum, building relationships, and developing effective strategies to enhance student learning. She ends the interview by stating:

> The district office is stepping back and letting us do what we need to do instead of spending four hours in a training that we don't need. We are being provided the time to get the work done and actually collaborating.

Pam

Pam, a middle school math teacher, received a Bachelor's degree in elementary education. She has been teaching for seven years and received her math endorsement so she could teach algebra to eighth grade students. She is the middle school department head and oversees all of the math curriculum at the middle school level (Table 11). Pam expressed collaboration as working with your grade level partners.

> Collaboration can look different depending on which team you are working with. My colleagues and I trade lesson ideas, quizzes, and tests. Collaboration as far as the district goes, means making sure that we have a common course calendar, so that we are teaching the same things at approximately the same time. The district likes us to have our common unit tests, so we are testing the same things about the same times, and of course, assessments are the same.

According to Pam, collaboration among the group allows them to created better tests, quizzes, and unit plans. It gives them time to share their best practices and ways to improve instructional strategies. Collaboration definitely helps with the consistency among the teachers and the school. Pam emphasized:

> The in-service days allows all of the teachers to discuss how the things are going with the curriculum and pacing calendar. We make a plan. We try things. We come back and reflect on it to see how it is going, and then make adjustments.

Pam discussed the strengths and challenges among the math department:

> The math department in general we get along pretty well. We're pretty short, sweet and to the point. There is usually not a lot of debate. It does happen once in a while, but we tend to be pretty efficient and get things done quickly.

Providing time is an essential part of effective collaboration within the department. Pam explained how well the math department works together and by providing more time to collaborate allows them to continue to improve and enhance the math curriculum.

> Having extra collaboration time has been very useful. Being able to get together allowed us to go back over the first three tests that we've given and say, okay, I really didn't like this question. I think we need to adjust this question or this answer doesn't fit on the graph. Being able to discuss some of those little things as a group is beneficial for the collaboration process and improving our assessments.

The three additional in-service days has provided the math teachers with more time and professional development for the teachers to improve their curriculum and share ideas to enhance student learning. Pam said, "Discussing as a group we are able to pick each other's brain and get several different ideas on how to do things in order to enhance instructional strategies. We may not agree on how to do everything, but we definitely come away with different strategies to use for different topics." Pam expressed the importance of administrators providing time, guidance, and funding for teachers to collaborate.

> The biggest thing we need from administration is just time, because we will do our job. We will sit down and we will really hash through those standards and we will dig and look for resources. It is just that time to sit down and do that. Then providing some kind of guidance for us. I guess, as far as when we run into troubles with something or providing funding so that we can get into certain programs.

Tiffany

Tiffany has been teaching math for 25 years. She has also had the privilege of working in both high schools in the Washington School District. Tiffany received her Bachelor of Science

degree and teaches algebra II, pre-calculus, calculus, and statistics. She serves as the head of the math department for school number three and is a committee member of the Building Leadership Team (Table14). Tiffany deems collaboration is working with other teachers that teach the same courses. Tiffany expressed:

> Collaboration is about getting together to discuss the math standards, what content do we need to cover, how do we assess them, what assessments do we need to have, what questions do we need to ask, and then reflecting on the data we receive throughout the school year. Working together as a department increases the communication among the group and it is a great opportunity to bounce ideas off of each other.

Tiffany was fortunate to have worked at both high schools in the district. Her first few years of teaching began at School 4. School 4 was known for their collaboration work within the math department. These teachers would spend several hours before or after school meeting and discussing way to help student improve their math scores.

> When I first came to School 4, we would meet once a week. We would meet each week and plan out what assignments to complete, what content needs to be addressed, and how to assess the students? Now being at School 3, we just pass each other in the hall and have a brief conversation on curriculum. I miss the old ways of collaborating because you never know where everybody is.

When School 3 was built, Tiffany decided this would be an excellent opportunity for her to advance in her career. She transferred from School 4 to the new high school in Washington School District. She felt that her experience at both schools would help continue the collaboration process and build the positive atmosphere among the math department. With her

strong personality and creative thinking, she tackled the responsibilities of the department head with great determination.

Tiffany has work diligently to improve the communication between the four schools in order to improve student learning. Thinking about all four schools, Tiffany believes one of the strongest assets is the opportunity for collaboration. This is a great time to work together to enhance the curriculum and share ideas to improve instructional strategies. Tiffany explained these issues by stating: "The past two years the district has focused on providing more time and meaningful professional development in order to help the teachers improve and increase student achievement."

Since 2013-2014, the Washington School District has added three additional in-service days which focus on Idaho Common Core and assessment writing. These in-service days have been added to the calendar to provide teachers with extra help on writing effective and reliable assessments. It is also a time for the teachers to communicate, reflect, and analyze their data to see what improvements need to be made. One major suggestion Tiffany had for the in-service collaboration days are for the district to start analyzing the data at the beginning of the year and throughout the school year.

> There’s a lot of the time that you’re asked to look at that data from your EOC and those questions of what do we need to do. It never develops past that. In my experience, when we are asked to do that, we are to bring our data and bring our item analysis which is always at the end of the year, which makes no sense. The problem we face is there is no time to go back and look at the data thoroughly or half the people don’t bring it. That is my experience.

Currently, the district schedules the data analysis day for the last day of school. The reason for this is because all of the end-of-course exams are completed at this time. This makes it very difficult to go back and fix mistakes on the test or improve student learning. Data analysis needs to be completed throughout the school year and changes to the curriculum needs to be made on a regular basis. Tiffany stated:

> I know the math department is very, very good about collaborating. As a district, when we get together, we are very good with working. We do butt heads from time to time. But honestly, we try to change some ways that we are teaching getting towards the SBAC and towards mathematical thinking and trying to raise our expectations of our students by creating honors classes. When school number three was built, the district wanted all schools to be identical and that has stuck in some people's head that we must be exactly the same. So when it comes to collaborating, some of us at school number three are kind of stepping back a little bit, because we know that we can't get those changes made because of that. We kind of just go with the flow, go with the status quo, and come back to our classrooms and do things differently.

Tiffany highlighted student achievement and the importance of collaboration moving beyond the planning part. She emphasized:

> If you go back and look at assessment and where the students are not being proficient and going back and saying what can we do to get that particular idea to proficient, then I think it could help student achievement. We are not there. There is a lot of planning to get to this part of collaboration.

In order to for the math department to move further into the collaboration process, Tiffany suggests the administration needs to be more visible, provide support, and deeper trainings that focus on analysis of the data being collected. Tiffany declared:

> I rarely see an administrator. They may pop in during our in-service but for the most part I don't see them. There is very little guidance for what we need to do so as a department we decide as a group what needs to be completed and then work towards that. I would like to see item analysis at the beginning of the school year and then begin making changes to the curriculum as the year progresses.

Amanda

Amanda was interviewed on September 16, 2014 and November 11, 2014. Amanda has been teaching for the Washington School District for 11 years. She has taught at all three levels: elementary, middle, and high school. Table 11 provides a detailed description of Amanda's educational background, years of experience, and extra-curricular responsibilities. Amanda views collaboration as a way for teachers to communicate and work together to improve instructional strategies and enhance student learning. During the interview, she expressed the difference between collaboration between the school she teaches at and district wide.

> I work across the hall from the other algebra teacher in my school and we have daily conversations about the roadblocks we are facing, where the students are performing, how to teach a specific lesson, and any great ideas for teaching a concept. Being able to collaborate with a colleague during the school day is beneficial for improving instructional strategies and student learning.

Thinking about collaboration among the district, Amanda had some mixed feelings. She believes collaboration among the four secondary schools is highly important, yet this is a more

difficult task to accomplish. The trust and communication process between the schools seems to be the most challenging for the math group.

> One school within the district does their own thing that has been really tough. Because we agree upon something and then it's not done. Then you've got those outspoken people that are going to say something and then the tension in the room but it doesn't seem to dissuade them from doing it anyway. It makes me not trust those people and it makes me feel like even if we agree upon something, I don't know that I can leave the room and trust that they are going to do what they said, because historically it has never been done.

Amanda pointed out that during some of the collaboration in-service days, the group would make a decision, get consensus, and then once the teachers returned to their schools they would go back to their old ways of teaching. She said, "When a situation like this occurs, it makes it extremely difficult for the group to build trust, respect, and communicate with each other. This is not a great way of collaborating and coming together to raise student achievement."

Collaboration is an essential part of growing as a teacher, developing creative ideas for students to learn, and learning from colleagues. Amanda believes strongly in collaboration because it is a time to work through problems and create solutions in order to help students succeed. In order for collaboration among the four secondary schools to work, trust and respect within the group must be developed. Currently, the math department is missing these two components.

> I think our collaboration needs to be focused on how can we raise student achievement and solve problems and not a complaining session. I think collaboration would raise student achievement as long as those meetings were productive and the fact we are talking about solutions to the problems and not just complaining about the problems. So,

> keeping us accountable for our meetings and what was said and what our action plan is. I think that does focus the meetings better on now what are you going to go do, instead of we sit for half an hour and didn't solve anything.

There have been a few conflicts these past few years between two schools that have diminished the trust. With this in mind, all four schools are aware of the conflicts and disagreements that occur and yet they continue to strive towards creating a collaborative work environment. The number one item that has kept the math department together is the strong leadership role of the district department leader. The district department leader is an excellent communicator who remains focused on raising student achievement. She keeps her colleagues focused on the task at hand and is open and honest.

> The district department head is the best communicator and we can agree to disagree. I support her 100% and I get defensive of her sometimes if people are trying to go away from what we agreed upon as an entire math department, everybody together. It makes me not trust those people. Her job is to make the tough decisions. I appreciated her respecting everybody's opinion enough.

Creating a collaborative work environment in a large school district is quite challenging and demanding, yet it is so important for enhancing school culture and student achievement. Amanda concluded the interview by stating: "Collaborating among the math department, we need to drop our defensive and non-judgmental attitude, be positive and pro-active and share our best ideas. Collaborating is a valuable tool we can all benefit from." Amanda recognized the importance of the visibility of the administrations during class time which holds teachers accountable. She stated: "I have administrators in my classroom all the time. They just drop in at

any time. I think it is good because it keeps me accountable. It is difficult to slack off knowing that your administrator will stop by at any time."

Emerging Themes

Mills (2007) expresses analyzing qualitative data begin with identifying emerging themes from the literature review and in the data collection. The emerging themes from each of the transcribed interviews were collected and analyzed based on open and axial coding. The coding provided a deeper understanding of the study and the themes that were established. To gain credibility of the emerging themes, a member check email was sent to all interview participants (Appendix L). Once all of the participants responded a participant debrief letter was sent to thank them for participating in the survey (Appendix M).

The primary purpose of the two interviews was to provide the five participants an opportunity to share their personal experiences with the collaboration process among the algebra department within the Washington School District along with the work they are completing on the curriculum in order to enhance student learning. From this feedback, three emerging themes were generated along with supporting details: (1) collaboration among the math department; (2) student achievement; and (3) roles of administrators and teacher leaders. Table 12 provides a detailed outline of the three emerging themes and supporting details.

Table 12

Interview Themes

Theme 1		Theme 2		Theme 3	
Collaboration in the Math Department	Freq.	Student Achievement	Freq.	Roles of Administrators and Lead Teachers	Freq.
Rapport/Relationships	6	Exposure to curriculum	3	Funding	1
Trust	8	SBAC testing	3	Data Analysis	2
Better understanding	10	Student mislabeled	3	Guidance/ Support	2
Communication	11	Awareness of instructional methods and questioning strategies	10	Accountability	6
Difficult to meet as a group outside of school hours	12	High Expectations	14	Attending all meetings	6
Teaming/ Same prep	12	Rigorous curriculum	18	In-service training	6
Challenging to get everyone on the same page	14	Understanding of other schools	22	Visibility	8
Strong and efficient collaboration	21	Common core curriculum	25	Observe/ working with students in classroom	12
Writing Curriculum and EOC	22	Addressing/ Solving problems	29	Time	13
Making corrections and adjustments to curriculum and EOC	23	Same curriculum and EOC	44		
Common consensus/ Agreement	26				
Use of time	26				
Sharing ideas/ Strategies	31				
Working together	60				

The emerging themes from the interviews provided a wealth of information on the collaboration among the math department as well as taking a deeper look into each of the school's working environment and the positive influences on raising student achievement. Looking at the first

theme on the collaboration among the math department, the number one comment was working together. Kristine, the district department head of math stated: "Overall, we are pretty cohesive, like when we have workdays, everyone works pretty well together. It's not usually one person trying to be in front of everybody else." The second emerging theme on student achievement, developing the curriculum and end-of-course exam was main topic mentioned among the interview participants. Tiffany, who has worked at both high schools stated:

> The benefits of the collaborative work days are that we have time. I know that for years we asked for more time. We want time, and so now that we have time set aside to work together and get things accomplished we can focus on raising student achievement. During these in-service days, we come together, discuss the curriculum and EOC, and make the necessary adjustments to improve student learning.

The final emerging theme focuses on the roles and responsibilities of the administrators and teacher leaders. Pam, the middle school department head emphasized:

> Time is the most useful item the administrators can provide for the teachers. If the district doesn't give us time where we have to get together and improve our curriculum, then that sort of collaboration will never happen. Everybody will kind of go to their corners, close their door and do what they want. I'm sure there is a certain amount of that happens anyway, but for the most part, we stay where we are doing the same thing at about the same time.

Research Question 3: Collaborative Culture in Secondary Algebra End-of-Course Exams

For the past several years, Washington School District has been working diligently on establishing a collaborative work environment with each department at the four secondary schools. The mission behind this is to make sure each school is providing all students a quality

education for them to be successful in life. The district has been providing administrators, department leaders, and teacher's professional development and time to work on the Common Core Standards and develop a common syllabus, curriculum calendar, unit plans, assessments, and end-of-course exams. For the last three years, the algebra department has been working together to improve and enhance the final algebra assessment. With that in mind, the second research question introduced in the study asked: "Does a collaborative culture in secondary schools help increase student achievement in the algebra class?"

This research study examined the algebra end-of-course exams from 2013-2014 school year. Table 13 displays the average score on the end-of-course algebra exam. Those columns which are identified as not applicable (n/a) refers to inaccurate data. The code n/a was utilized as part of the data collected and analysis process to identify the new teachers to the district, current teachers who did not teach algebra that year, teachers who changed the assessment questions on the end-of-course exam, or the data was not reliable.

Table 13

Algebra End-of-Course Exam

Teacher	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
2013-2014	64%	63.9%	40.3%	NA	77%	54.8%	88%	85%	63%	51.4%	57.7%

Reviewing data from Table 13, the algebra scores from 2013-2014 ranged from 40% to 88%. For the past three years, the math department has been working on the end-of-course exams in order to create a valid and effective math test that identifies the student's strengths and weaknesses. Findings from this table indicate some inconsistency between all of the teachers.

There is a wide range of scores. Figure 11 provides a visual representation for each of the individual teacher's scores on the final algebra assessment.

Figure 11

Teacher's End-of-Course Algebra Exams

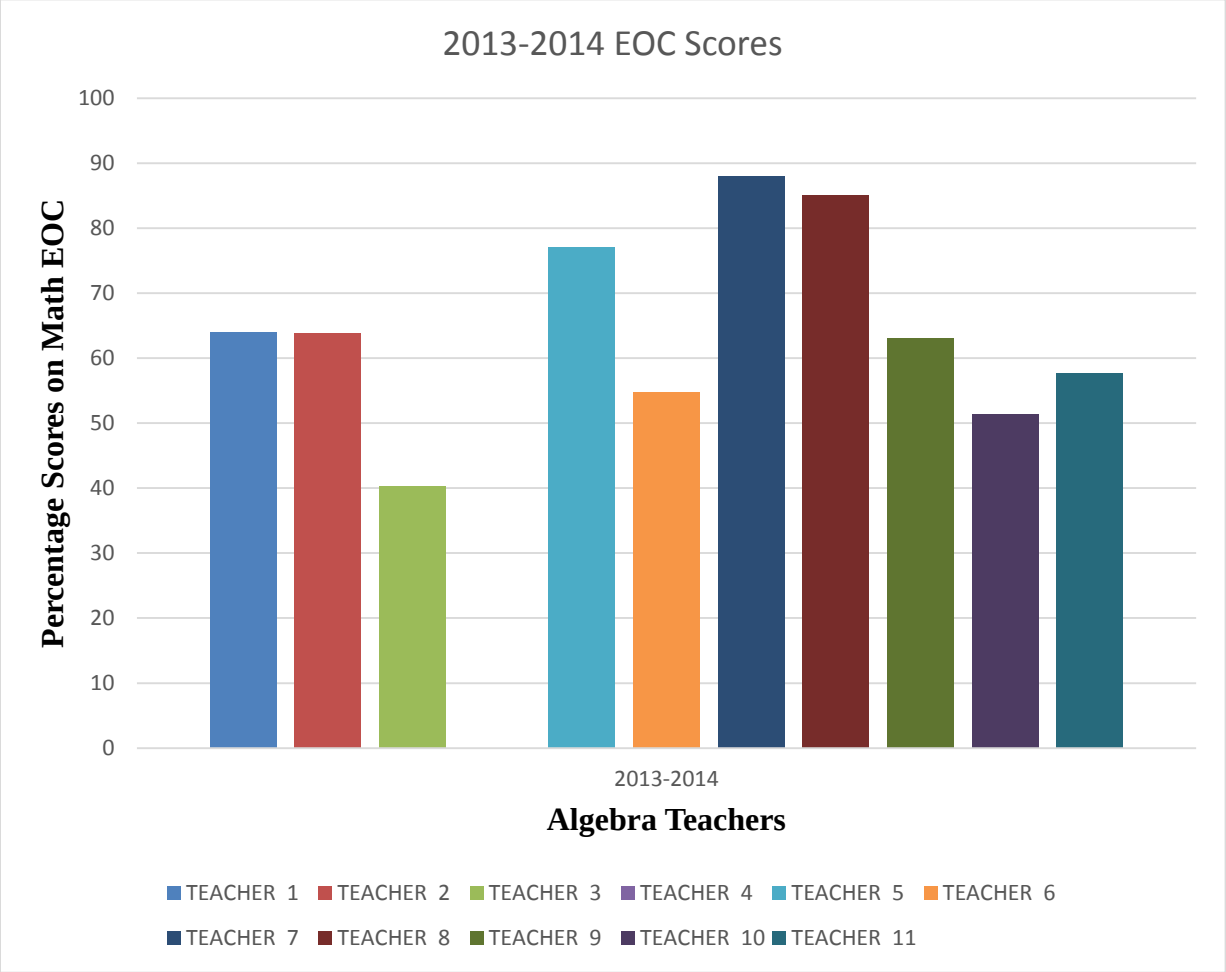
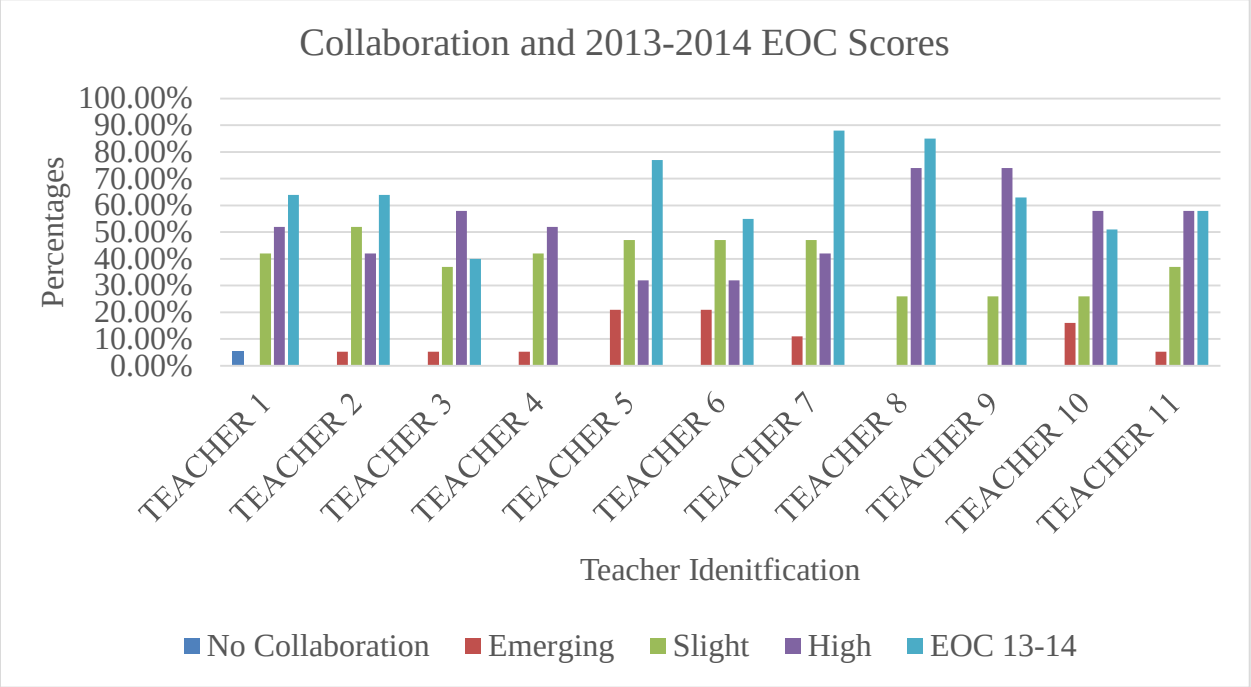


Figure 11 shows the average end-of-course scores from the eleven participates from 2013-2014. Teacher 7 and 8 have the highest EOC and teachers 10 and 3 have the lowest scores. The end-of-course algebra exam for teacher 4 was not included because it was invalid data. Overall, the average scores for the final assessment are extremely low. The total average score for the eleven participates is 64% which is a minimal passing rate. With the end-of-course exams being low is a good indication many of the students are not grasping the algebra content.

For the purpose of this research study, it is important to understand where the district had been and where they are currently headed with increasing the collaboration within each department. Figure 12 compares the overall collaboration among the teachers and the 2013-2014 EOC scores. Washington School District has increase the collaboration work among the four secondary schools for the 2013-2014. The collaboration work includes seven addition teacher in-service days, late start Wednesdays, common core training, and professional development throughout the school year.

Figure 12

Collaboration and 2013-2014 End-of-Course Algebra Exam



Reviewing Figure 12 provides a wealth of information on each of the teacher's collaboration and end-of-course exams. Teachers 1, 2, and 6 scored at the slight collaboration stage and have low EOC scores. As for Teachers 3 and 4, they are scored fairly high on the collaboration process, however, more data needs to be collected in order to provide a detailed description on the end-of-course exams. Teachers 5 and 7 have very high EOC scores compared

to the rest of the group, yet their collaboration is fairly low. Teachers 8 and 9 indicate high collaboration with high test scores. Teachers 10 and 11 are highly collaborative but with low test scores. Using the independent *t*-test to compare the collaboration within the school district and the 2013-2014 EOC scores, the researcher was able to determine whether or not a difference exists between the collaboration process and student growth. Table 14 shows the independent *t*-test for collaboration and EOC scores for 2013-2014.

Table 14

Independent t*-test for Collaboration and 2013-2014 End-of-Course Algebra Exam Scores*

EOC2013-2014	*N*	*Mean*	*SD*	*p*-value
Slight/Emerging Collaboration	6	57.963	30.6798	.922
High Collaboration	5	59.517	16.6047	.918

Tanner (2012) summarizes independent *t*-tests as a measurement for seeing if a difference exists between two independent means. Laerd Statistics (2013) states, "An independent-samples *t*-test will calculate a significance level (*p*-value), which is the probability of your sample group means being at least as different as you found in your study, given that the null hypothesis is indeed true" (para. 16). An independent measures *t*-test was utilized to identify whether or not significant differences exist between teachers with low collaboration survey scores and those with high collaboration survey scores. The null hypothesis tested as Ho: p = o indicating that the end-of-course exams have no statistical change with the increased amount of collaboration within the algebra department. The alternative hypothesis (Ho: p ≠ o) states the end-of-course exams will increase with increased amount of collaboration in the math department.

After calculating the independent *t*-test between low-collaboration and high-collaboration EOC scores from the 2013-2014 school year, the *p*-value is .922 which is greater than .05 (two-tailed). This result indicates there is not a statistical difference between end-of-course exam scores for low- and high-collaboration subjects. Since the *p*-value was found to be greater than .05, this alternative hypotheses is rejected and null hypothesis is accepted. By completing the independent *t*-test, the researcher is aware the differences in collaboration yield no significant differences for the subjects' end-of-course algebra exam scores.

Conclusion

In summary of Chapter IV, the quantitative and qualitative data collected from the teacher surveys, student achievement scores, and the interviews was to address the following three research questions in this mixed-methods case study:

1. How does collaboration in the four secondary schools influence school culture?
2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?
3. Does a collaborative culture in the secondary school help increase student achievement in the algebra classroom?

Through the use of the triangulation matrix (Table 7), the case study was strengthened by collecting and analyzing data from multiple sources and not relying on just one source (Mills, 2007). The purpose behind this chapter was to analyze the results of the data that was collected from the quantitative and qualitative methods which focused on the collaborative school culture in the Washington School District. In Chapter V, the researcher discusses the findings of each research question and provides an overview of the collaboration process and the effects on raising student achievement.

Chapter V

Conclusion

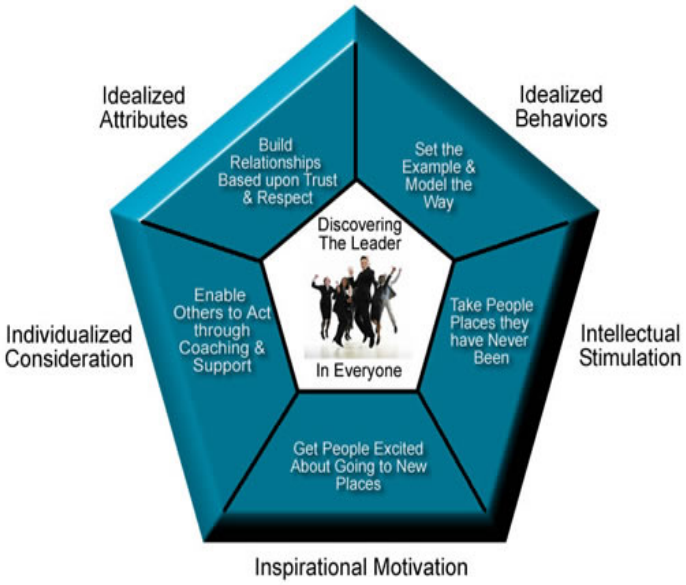
Introduction

This case study explores the relationship between collaborative leadership and student achievement within the Washington School District. This chapter provides a brief overview of the problem, the purpose of the study and research questions, methodology, and a summary of the results. A summary of the research along with recommendations for further research and implications for professional practice are also included.

For many years, researchers have been focusing on ways to improve school culture and raise student achievement. Transformational leadership was the theoretical framework used for this case study. Transformational leadership was used to gain a better understanding of collaborative leaders and the influence on student achievement. Four characteristics and behaviors of transformational leaders were identified in Chapter II: (a) individual consideration; (b) inspirational motivational; (c) idealized influence; and (d) intellectual stimulation (Balyer, 2012; Bass, 1999; Bass & Avolio, 1994). A fifth characteristic, individualized attributes, was identified by Transformational Leadership Coaching & Consulting. These five characteristics provide an in-depth understanding of the importance of creating a positive collaborative culture among the school setting in order to raise student achievement. As described in Chapter II, Figure 7 illustrates the transformational model as described by Transformational Leadership Coaching & Consulting (2014).

Figure 7

Full Range Leadership Model- Transformational Behaviors



Note. Copyright 2014 Transformational Leadership Coaching and Consulting (Appendix R)

Through a collaborative work environment, administrators and teachers can influence students, the curriculum, and instructional strategies in the classroom. Collaboration is a positive way to create a successful school and improve student achievement scores (Berry, Daughtrey, & Wieder, 2009; California School Boards Association, 2014; Clark & Clark, 1996; DuFour, 2003; Ontario Leadership Strategy, 2012). Strong collaborative leadership and positive work environments, school leaders empower teachers and enhance student learning (Flores & Roberts, 2008; Leithwood, Patten, & Jantzi, 2010; Leithwood & Louis, 2012; Marzano et al., 2005; Mulford, 2006).

Research reveals that a collaborative school environment provides teachers with support needed to improve instructional strategies that enhance student learning, yet many schools find it difficult to collaborate because of the lack of trust, commitment, communication, and responsibility (Dufour & Eaker, 1998; Friend & Cook, 1992; Lencioni, 2002; Martin, 2002,

Piercey, 2010). Piercey (2010) expresses three main reasons for collaboration failing among a school setting: (a) leadership style; (b) time; and (c) buy-in. Creating a positive school culture that is built on trust, accountability, openness, commitment and shared control are essential for establishing team unity (Dufour & Eaker, 1998; Friend & Cook, 1992; Lencioni, 2008).

For the purpose of this case study, a mixed methods approach was used to investigate the influences of collaboration and raising student achievement. The null hypothesis tested (Ho: $p = o$) indicating that the end-of-course exams has no statistical change with the increased amount of collaboration within the algebra department. The alternative hypothesis (Ho: $p \neq o$) states the end-of-course exams will increase with increased amount of collaboration in the math department. The questions investigated in the study were:

4. How does collaboration in the four secondary schools influence school culture?
5. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?
6. Does a collaborative culture in the secondary school help increase student achievement in the algebra classroom?

The results from this study provide a deeper understanding of collaboration within the Washington School District and the direction the school needs to take in order to improve student achievement. Through this study, the researcher gained insight on the collaboration process as well as future research that needs to be completed.

Summary of Results

The methodology used for this case study provided a means of collecting, analyzing, and using both quantitative and qualitative data (Creswell & Garrett, 2008; McMillan & Schumacher, 2006). Creswell (2008) suggests “the use of both quantitative and qualitative

method provides a better understanding of the research problem and questions than either method by itself" (p.552). The use of both methodologies revealed how collaboration affects a schools culture and raises student achievement.

The major finding from the three forms of data collection were: (a) Collaboration Self and Team survey; (b) end-of-course algebra exams; and (c) in-depth, audio recorded interviews. The collaboration survey was distributed to eleven algebra teachers in the Washington School District. The 2013-2014 end-of-course algebra exams were obtained from each of the teachers or the school district. The final method for collecting data was through in-depth interviews with the lead teachers from each of the four secondary schools. All three research methods provided the researcher with insight on the collaboration process and the impact on student achievement.

Quantitative Data

For the first part of this study, 11 algebra teachers in the Washington School District completed a Collaboration Self and Team survey and provided their end-of-course algebra exams for 2013-2014 school year. These quantitative methods determined if the collaboration work among the math department was helping raise student achievement scores. Each participant answered 19 questions in regards to their perception on their teamwork and the collaboration among the math department. The Collaboration Self and Team survey was generated by the Teacher Quality Enhancement (TQE) team from St. Cloud State University (Appendix G). The survey analyzed the collaborative working environment and how each individual contributes to the department. Participants were presented with question which focused on the collaborative work environment in the Washington School District and the contributions they are providing to the math department.

Survey question were related using a Likert scale survey with four possible rating. Participants were asked to respond with their level of agreement to each question using the following 4-point scale:

1 = no collaboration

2 = emerging collaboration

3 = slight collaboration

4 = high collaboration

The second part of the quantitative data was the end-of course algebra exams from 2013-2014. The eleven participants provided their average algebra scores and they were entered in the IBM SPSS Statistical Software Version 22 (SPSS). The highest score among the participants was teacher seven with a score of 89%. Only three teachers had a passing rate of 70% or above on the algebra end-of-course exam. The remaining participants had an achievement score lower than 70%. Participant number three had the lowest score of 40%. Using the independent *t*-test, the researcher was able to determine if there was a significant difference ($p = .922$) between the collaboration scores of the teachers and the 2013-2014 algebra exams.

The *p*-value between low-collaboration and high-collaboration EOC was .922 which is greater than .05 (two-tailed). This result indicates there is not a statistical difference between end-of-course exam scores for low- and high-collaboration subjects. With the *p*-value being greater than .05, the alternative hypothesis is rejected and null hypothesis is accepted. The researcher is aware of the differences in collaboration yielding no significant differences for the subjects' end-of-course algebra exam scores.

Qualitative Data

Individual in-depth interviews allow researchers to ask specific questions about the experiences of people in order to collect data (Creswell, 2008; Marshall & Rossman, 2011). Five algebra teachers participated in two separate structured interviews which were conducted face-to-face with audio recording. After completing ten interviews ranging from 25 to 45 minutes in length, interviews were transcribed, reviewed for accuracy and coded for themes. Each interview was analyzed separately and coded.

Creswell (2008) describes a process for identifying major and minor themes as one of the common types of theme identification. Table 12 describes the variety of themes which emerged from the five participants. A total of 33 codes were identified from each group of interviews. There are three major themes are classified as: (a) collaboration; (b) student achievement, and (c) role of administrators and teacher leaders. Under each major theme is a list of the minor themes. All of the themes provide an in-depth look at the experiences and background of the interviewee.

Research Question 1: How does collaboration in the four secondary schools influence school culture? The 11 algebra teachers completed the collaboration survey during the teacher in-service day on August 19, 2014. Table 8 (p. 69) summarized the overall response and participation rate. Based on the results from the collaborative survey, each teacher was ranked as either highly collaborative or slight/emerging collaborative. Six of the participants were classified as slight/emerging collaboration and the remaining five participants were considered high collaboration.

School environment, role flexibility, preparation, time management, and quality of work were the highest scoring categories on the survey (Appendix F). The 11 participants deemed these five concepts to be the strongest among their math department. Looking at the data

provided from the survey, the majority of the algebra teachers are highly cooperative and are establishing a collaborative community among each other. They are working together to develop a safe and trusting environment for all participants to share their opinions. All but three participants current feel the school environment is safe and are able to freely report and compare data with the team members. The other three participants stated the school environment is safe and trusting but do not feel comfortable sharing the opinions and ideas with the whole group.

As for role flexibility, all but one member of the group is uncomfortable when functioning outside their perceived role. The majority of groups understand their roles in the group and either see themselves as either a leader or a follower. Several lead teachers from the interviews identified many of their peers as strong minded leaders and highly motivated to enhance the curriculum to improve student growth.

The survey showed each team member of the math department as coming highly prepared and a willingness to work during the in-service days. The interview participants stressed the importance of the district providing an adequate amount to time so they can continue to improve the curriculum and assessments. The additional four in-service days has created an environment where the teachers are focused on using their time wisely in order to efficiently improve the math curriculum. This allocated time also gives them a chance to make the necessary adjustments to the curriculum in order to meet all students' needs. The math department believes in giving their best efforts and continually improving their quality of work in hopes of enhancing student achievement. Based on these four areas of strength, it is evident the group has a good understanding of the expectations of the collaboration work days and their roles and responsibilities.

The five lowest scores on the survey among the group were sharing ideas, collaboration time, team dynamics, team support, and individual input. These areas of weaknesses signify which areas the math department needs to focus on and provide support in order to build a more effective collaborative community. The survey pinpoints collaboration is evolving within the algebra department but more time is needed to continue to build healthy relationships and ensure all individuals feel a sense of belonging.

It is evident from this survey that the Washington School District has established a collaborative working environment; however, they are continually improving and developing the cooperative school culture. One of the first areas for improvement within the math department is sharing ideas. The survey shows sharing ideas as being slight collaboration within the group. Not all of the algebra teachers are sharing instructional strategies or providing information during the in-service days. This could be a result from the high turnover of teachers and the process of building trust within the group. As the department continues to grow and expand, the teachers will be more apt to sharing and generating ideas with the entire group once healthy relationships are built. Building trust is an essential part of the collaboration process because it builds camaraderie within the group that is supportive, caring, and encouraging (Birky, Shelton, & Headley, 2006; Clark & Clark, 1996; Tschannen-Moren & Hoy, 2001; Vodicka, 2006; Weinstein et al., 1995).

Both the survey and interviews indicated a strong support for the district to provide more time for collaboration. For the past two years, Washington School District has provided four additional days of in-service training; however, more days are needs in order to improve student achievement and align the curriculum with the Idaho Common Core. All five of the interview participants agreed on the importance of the district providing time for the teachers to work with

each other to improve the curriculum and make the necessary adjustments so students are learning the content area. Another important aspect of time is for the teachers to share ideas and strategies that are working in their classroom. This information gives teachers time to complete the necessary tasks in order to enhance student learning and improve instructional strategies. The collaboration efforts among the teachers and administrators from all four schools is a vital part of establishing a positive school culture which focuses on student achievement.

Individual input, team support and team dynamics are the other three areas which scored lower. All three of these areas are essential for building and creating an effective collaboration community. A trusting collaborative work environment is essential for developing a positive school culture that will improve student achievement (Archer & Cameron, 2009; Simmons, 2002; Whitaker, 2012). Even though the teachers from the survey indicated the school environment is safe and trusting, it is apparent there still needs some work within this department to ensure all individuals feel important to share and discuss openly with each other. Clark and Clark (1996) identify collaboration as being an effective strategy for building trusting and respectful relationships along with improving student achievement.

Research Question 2: What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement? In this case study, part of the collaboration process was to understand the roles and responsibilities of the administrators and teacher leaders. The leadership of the school has a huge impact on the culture and student achievement. Effective school leaders must be team players, problem solvers, clear communicators, and supportive (Covey, 2004; Leithwood & Riehl, 2003; Marzano et al., 2005; Maxwell, 2007; NASSP, 2010;Simmons, 2002; Wallace Foundation, 2012). The five participants

from the in-depth interviews gave insight on the expectations of the administrators and teacher leaders. Time, visibility, and accountability were the key elements from the interviews.

All of the five interviewees stressed the importance of the school district providing time to work with their colleagues and enhance their curriculum. The time to work together allows them to analyze the current data and identify where they need to go in order to raise student achievement. Teachers appreciate the time that is giving to them so they can make these improvements and enhance student learning.

Visibility within the school setting was another key component for the role of administrators. Being visible throughout the school and making themselves available for teachers, students, and parents is a high priority. This means being visible during passing time, classroom, lunch room, before and after school. The interview participants made it clear that administrators need to be in the hallways and classrooms. Their presence sets the tone and mood for the school setting. Student and teachers are more successful in a school setting where the educational leaders model the appropriate behaviors and set the tone for the school (Marzano, Waters, & McNulty, 2005; Piercey, 2010). Administrators are the support system for teachers and student to ensure learning is taken place throughout the school.

Accountability was the final key component that administrators need to possess. Marzano, Waters, and McNulty (2005) explains the significance of student's achievement is based on administrators holding teachers accountable for classroom instructions and ensuring a rigorous curriculum is being provided. Educational leaders need to make sure teachers are creating and supporting the curriculum that is being taught. Teacher must set high expectations in the classroom and accommodate to meet the needs of all students. Accountability takes place for the

administrators, teachers, and students. Each individual is responsible for their individual role in the educational setting. Accountability ensures that everyone is doing their part.

Research Question 3: Does a collaborative culture in secondary schools help increase student achievement in the algebra classroom? The independent *t*-test was used to measure this research question. Based on the end-of-course algebra exams and the collaboration survey, the results indicated there is no significant difference. The section of the study shows that collaboration has no impact on raising student achievement. However, when looking at the data from the interviews it is evident from the participants that the collaboration that is taking place within their department is helping and only improving the process. This case study only examined one year of data from the end-of-course exams so it is important to understand that more research needs to be completed in order to see if there is a significant difference.

Conclusion

The questions examined in this mixed-methods study were:

1. How does collaboration in the four secondary schools influence school culture?
2. What roles do administrators and teacher leaders play in order to positively influence school culture and raise student achievement?
3. Does a collaborative culture in the secondary school help increase student achievement in the algebra classroom?

In this case study, mixed-methods approach provided insight to answer the research questions investigated. Based on the results from the Collaboration Self and Team survey, student achievement scores, and the in-depth interview, the null hypothesis was accepted. The independent *t*-test indicated the differences in collaboration yield no significant differences for the subjects' end-of-course algebra exam scores. The two semi structured interviews conducted

with the lead math teachers from each secondary school gave an in-depth understanding of the collaborative work environment and the administrators role in the Washington School District.

The significant findings from the interview results have confirmed the importance of establishing a common school vision, building healthy relationships, and sharing the decision making process to build a positive collaborative school culture that raises student achievement. Kristine, district math department leader stated:

> Our collaboration work day is a time for us to work together and improve our curriculum. We all have a common goal and we strive to do what is best for the students. I don't think anybody in this department is in it for themselves. I believe it is important to build trusting relationships and understand we must work together to improve student achievement which will lead to student success in the classroom.

Providing teachers with time and valuable professional development during the school year is an excellent way to build trust and collaboration. Working together to improve the curriculum is an essential part of developing a strong collaborative work environment. Sharing ideas, observing instructional strategies, and planning together are important elements for teachers to use in order to build a collaborative school culture that improves student learning (Leithwood, 1992).

An effective collaborative school culture encourages all staff members to share common core beliefs, set high expectations of all students, and work together to improve the curriculum (Archer & Cameron, 2009; Berry, Daughtrey, & Wieder, 2009; California School Boards Association, 2014; Clark & Clark, 1996; DuFour, 2003; Flores & Roberts, 2008; Leithwood, Patten, & Jantzi, 2010; Leithwood & Louis, 2012; Marzano et al., 2005; Mulford, 2006; Ontario Leadership Strategy, 2012). The theoretical framework is an important aspect of this case study because it focuses on motivating teachers to work together to raise student achievement and

improve the school culture through positive change. Transformational leadership is helping teachers develop and maintain a collaborative work environment, promoting teacher growth, and inspiring teachers to enhance student learning. As the collaboration within this district continues to improve, further research is needed to see if time and professional development makes a difference with raising student achievement.

Recommendations for Further Research

It is important to continue studying ways to enhance student learning and improve student achievement because it is essential for students to become productive, responsible members of society (Leithwood & Mascall, 2008; Mulford, 2006; Waters et al., 2003). The findings from this mixed methods case study indicates the importance for future research on collaborative working environments and the impact on student achievement. Although this research study explored the relationship of four secondary schools in one district, additional research is needed to enrich this body of literature. Replicated studies should be conducted that compares several school districts which include collaborative and authoritarian school environments. Comparing the two different types of school environments would give insight to the various school leadership styles and the impact on increasing student achievement, therefore yielding additional results.

A more purposeful sample may highlight the instructional strategies or best practices of the classroom teachers. An in-depth look at the work being completed on the collaboration work days and the instructional strategies that teachers are using to ensure students are learning would provide valuable insight to the collaboration work environment. Fullan (1998) describes,

> Student achievement increases substantially in schools with collaborative work cultures that foster a professional learning community among teachers and others, focus

> continuously on improving instructional practice in light of student performance data, and link to standards and staff development support (p.8).

This study did not examine the collaboration work days or the instructional strategies teachers are incorporating into their lesson plans in order to raise student achievement. Further research which includes field observations of the teachers will provide a clear understanding of the in-service days, teacher's expectations, classroom setting, and student behavior. Qualitative research exploring the classroom setting, collaborative in-service days, and department meeting might alter the results of the findings.

Implications for Professional Practice

Collaboration is an important aspect of an effective school ((Berry, Daughtrey, & Wieder, 2009; California School Boards Association, 2014; Clark & Clark, 1996; Crane, 2007; DuFour, 2003; Eastman & Louis, 1992; Hallinder & Heck, 2010; Leithwood & Mascall, 2008; Little, 1990; McLaughlin & Talbert, 2001). This case study examined the collaborative work environment of four secondary schools and the impact it has on raising student achievement. The results of this study will be helpful for schools to continue to build positive school cultures that enhance student learning.

A better understanding of teacher's needs and degrees of importance for the school's improvement can assist schools like Washington School District in order to raise student achievement. Recommendations for more time to work on the curriculum and enhance instructional strategies come from the participants in this study. Providing teacher's time to collaborate during professional development days allows educators to exchange ideas, enhance lesson plans and assessments, and create a sense of belonging. This type of collaborative culture allows administrators and teachers to develop new skills, reconsider their roles, model

appropriate behaviors, and transform their culture to enhance student achievement (Berry, Daughtrey, & Wieder, 2009; Clark & Clark 1996; DuFour, 2003; California School Boards Association, 2014). Improving the curriculum and aligning the standards with Idaho Common Core is a rigorous process and requires a great deal of time. The lead teachers of the study indicated more time is needed to expand the curriculum in order to raise student achievement. School districts need to provide teachers time to work together to enhance student learning.

Another key element for adding more time to collaborate is educating both administrators and teachers on how to effectively work together to achieve the common goal of student growth. Based on the results from the case study, it was apparent the current collaboration time used by the teachers focuses on improving the curriculum and assessments within the algebra department. The participants of the Collaboration Self and Team Survey identified teacher preparation, use of time, and quality of work as strengths of the department. It is evident, based on the survey and interviews, the algebra teachers use their time wisely and work diligently on the curriculum during the in-service days. Yet, it is important to understanding collaboration is more than just improving the current curriculum and creating better exams.

Collaboration is a time for educators to share ideas, self-reflect, analyze data, evaluate classroom and student behavior, and provide support for each other in order to improve student learning. Knowing how to effectively collaborate as a team is an essential part of the collaboration process. Providing teachers with training on how to building trusting relationships that allows them to freely share ideas, self-reflect, analyze data, and evaluate classroom and student behavior will improve the school culture and collaboration.

According to the Collaboration Self and Team Survey, the algebra teachers identified their weaknesses in the following categories: (a) sharing ideas; (b) collaboration time; (c) team

dynamic; (d) team support; (e) individual input. All five of these areas play a significant role with the collaboration process. Several teachers ranked themselves as highly collaborative on the Collaboration Self and Team survey, yet the results indicated the collaboration among the group is emerging and needs some areas of improvement. Training both the administrators and teachers on how to effectively collaborate will help improve the areas of weakness along with increasing student achievement.

While Washington School District offers several in-service days which allows time for collaboration within the department, it could be effective to assess teachers prior to the school year to determine the types of professional development trainings which would best increase student achievement. Providing teachers with the opportunity to voice their opinion could help schools make better decisions with their time and money they use for professional development as well as increasing the communication between all stakeholders (Clark & Clark, 1996; Kramer & Crespy, 2011). Increasing the communication between the administration and teachers will lead to better opportunities for professional development, improve instructional strategies, engage student learning, and buy-in (Cameron, 2005; Clark & Clark, 1996; Cosner, 2011; Greer, 2012; Hallinder & Heck, 2010; Piercy, 2010; Wahlstrom & Louis, 2008). Administrators would be able to see which direction the teachers would like to focus on and it helps create a vision to accommodate the needs and desires of the teachers and their classroom.

Based on the results of this study, the independent *t*-test indicated there was no statistical change in student achievement and the increased amount of collaboration within the algebra department. However, the Collaboration Self and Team survey and the in-depth interviews demonstrated teachers believe in the collaboration process within their department and the need

for the district to continue to provide time and meaningful professional development to help students achieve.

References

Archer, D., & Cameron, A. (2009). *Collaborative leadership: Building relationships, handling conflict, and sharing control*. New York, NY: Routledge.

Bafile, C. (2007). State your mission: Creating mission statement that work. *Education World.* Retrieved from http://www.educationworld.com/a_admin/admin/adminimutest2.shtml

Balyer, A. (2012). Transformational leadership behaviors of school principals: A qualitative research based on teacher's perceptions. *International Online Journal of Educational Sciences, 4*(3), 581-591.

Bass, B. M. (1985). *Leadership and performance beyond expectation*. New York, NY: Free Press.

Bass, B. M. (1999). Two decades of research and development in transformational leadership. *European Journal of Work and Organizational Psychology, 8*(1), 9-32.

Bass, B. M. (2008). *The Bass handbook of leadership: Theory, research, & managerial applications.* New York, NY: Free Press.

Bass, B.M., & Avolio, B.J. (1994). *Improving organization effectiveness through transformational leadership*. Thousand Oaks, CA: Sage.

Berry, B., Daughtrey, A., & Wieder A. (2009). *Collaboration: Closing the effective teaching gap.* Retrieve from http://www.teachingquality.org/sites/default/files/Collaboration-%20Closing%20the%20Effective%20Teaching%20Gap%20%28February%202010%29_0.pdf

Birky, V., Shelton, M., & Headley, S. (2006). An administrator's challenge: Encouraging teachers to be leaders. *National Association of Secondary School Principals, 90*(2), 87-101.

Black, S. (2006). Through ‘distributed leadership,’ the superintendent can play a vital role in raising student achievement. *American School Boards Association, 90*(2), 32-34.

Bodger, C. (2011). *Novice principals’ perceptions of beginning principal support and induction* (Unpublished doctoral dissertation). California State University, Long Beach.

Boyce, C., & Neale, P. (2006). Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input. *Pathfinder International*. Retrieved from http://www2.pathfinder.org/site/DocServer/m_e_tool_series_indepth_interviews.pdf

Boyd-Dimock, V., & McGree, K. (2014). Leading change from the classroom: Teachers as leaders. Retrieve from http://www.sedl.org/change/issues/issues44.html.

Brickman, W. (1964). *Educational system in the United States.* New York: NY: Center for Applied Research in Education.

Burns, J. (1978). *Leadership.* New York, NY: Harper & Row.

California School Boards Association. (2014). *Governance brief: Improving student achievement through teacher collaboration*. Retrieved from www.csba.or/~/media/CSBA/Files/GovernanceReources/GovernanceBriefs/201411GBTTeacherCollaborationPLCs.ashx

Cameron, D. (2005). Teachers working in collaborative structures: A case study of a secondary school in the USA. *Educational Management Administration and Leadership, 33*(3), 311-330.

Camp, J. (2003). *3.6 Collaboration: How do teacher work together?* Retrieve from http://ed100.org/teachers/collaborate/

Castanheira, P., & Costa, J. (2011). In search of transformational leadership: A (meta) analysis focused on the Portuguese reality. *Procedia Social and Behavioral Sciences, 15*(2011), 2012-2015.

Chen, Y. (2007). *Principals' distribution leadership behaviors and their impact on student achievement in selected elementary school in Texas* (Unpublished doctoral dissertation). Texas A&M University, College Station.

Clark, D., & Clark, S. (1996). Building collaborative environments for successful middle level school restructuring. *National Association of Secondary School Principals Bulletin, 80*(1), 1-17.

Cooper, C. (2009). Performing culture work in demographically changing schools: Implications for expanding transformative leadership framework. *Educational Administration Quarterly, 45*(5), 694-724.

Cosner, S. (2011). Teacher learning, instructional considerations and principal communication: Lessons from a longitudinal study of collaborative data use by teachers. *Educational Management Administration & Leadership, 39*(5), 568-589.

Covey, S. (2004). *The 7 habits of highly effective people*. New York, NY: Covey.

Crane, T. (2007). *The heart of coaching: Using transformational coaching to create a high performance coaching culture.* San Diego, CA: FTA Press.

Creswell, J.W. (1994). *Research design qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.

Creswell, J.W. (2007). *Qualitative inquiry & research design: Choosing among five approaches.* Thousand Oaks, CA: Sage.

Creswell, J.W., & Plano Clark, V.L. (2007). *Designing and conducting mixed methods research.* Thousand Oaks, CA: Sage.

Creswell, J.W., & Garrett, A. L. (2008). The "movement" of mixed methods research and the role of educators. *South African Journal of Education, 28,* 321-333.

Danielson, C. (2006). *Teacher leadership that strengthens professional practice*. Retrieved from http://ww.ascd.org/publications/books/105048/chapters/

Datnow, A., & Castellano, M. (2001). Managing and guiding school reform: Leadership in success for all schools. *Educational Administration Quarterly, 37*(2), 219-249.

Demir, K. (2008). Transformational leadership and collective efficacy: The moderating roles of collaborative culture and teachers' self-efficacy. *Eurasian Journal of Educational Research, 33,* 93-112.

Denzin, N. K., & Lincoln, Y. S. (2008). *Collecting and interpreting qualitative materials* (3rd ed.). Thousand Oaks, CA: Sage Publications

Doherty, W., & Hilberg, S. (2008). Efficacy of five standards in raising student achievement: Finding from three studies productive. *Journal of Educational Research, 101*(4), 195-206.

Doll, B. (2010). *Positive school climate*. National Association of Secondary School Principals. Retrieved from http://nassp.org/Content.aspx?topic=Positive_School_Climate.

DuFour, R. (2003). Leading edge: Collaboration lit' puts student achievement on a starvation die. *Journal of Staff Development, 24*(3), 1-4.

DuFour, R. & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement. Study guide.* Retrieved from http://soltreemrls3.s3-

website-us-west-2.amazonaws.com/solution-tree.com/media/pdf/study_guides/PLC_Study_Guide.pdf

Durham, C. C., Knight, D., & Locke, E. A. (1997). Effects of leader role, team-set goal difficulty, efficacy, and tactics on team effectiveness. *Organizational Behavior and Human Decision Process*, *72*(2), 203-231.

Eastman, K. & Louis, K.S. (1992). Restructuring that lasts: Managing the performance dip. *Journal of School Leadership, 2*(2), 212-224.

Elmore, R. (2008). Accountable leadership. *The Educational Forum. 69* (2), 134-142.

Fowler, F. (2009). *Policy studies for educational leaders: An introduction* (3rd ed.). Upper Saddle River, NJ: Pearson.

Friend, M. & Cook, L. (1992). *Interactions: Collaboration skills for school professional.* New York: Longman.

Flores, S., & Roberts, W. (2008). Productive strategies for raising student achievement in Algebra: A personal view from two high school principals. *National Association of Secondary School Principals Bulletin, 92*(4), 305-315.

Fullan, M. (1998). Leadership for the 21st century-breaking the bonds of dependency. *Educational Leadership 55*(7), 6-10.

Gajda, R., & Koliba, C. (2008). Evaluating and improving the quality of teacher collaboration: A field-tested framework for secondary school leaders. *National Association of Secondary School Principals Bulletin, 92*(2), 133-153.

Gates, G., & Robinson, S. (2009). Delving into teacher collaboration: Untangling problems and solutions for leadership. *National Association of Secondary School Principals, 93*(3), 145-165.

Gliem, J., & Gliem, R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Presented at *Midwest Research to Practice Conference in Adult, Continuing, and Community Education*. Retrieved from http://www.pinoeer.netserv.chula.ac.th/~ppongsa/2013605/Cronbach.pdf.

Greer, J. (2012). *Professional learning and collaboration* (Unpublished doctoral dissertation). Virginia Polytechnic Institute and State University, Blacksburg.

Gruenert, S. (2005). Correlations of collaborative school cultures and student achievement. *National Association of Secondary School Principals Bulletin, 89*(645), 43-55.

Hallinder, P., & Heck, R. (2010). Leadership for learning: Does collaborative leadership make a difference in school improvement? *Educational Management Administration and Leadership, 38*(6), 654-678.

Houston, P., Blankstein, A., & Cole, R. (2007). *Out-of-the-box leadership*. Thousand Oakes, CA: Corwin Press.

Idaho State Department of Education. (2012). *Idaho's five-star rating system.* Retrieved from http://www.sde.idaho.gove/site/edsource/2012/aug/fiveStar.htm

Jick, T. (1979). Mixing qualitative and quantitative methods: Triangulation in action. *Administrative Science Quarterly, 24,* 602-611.

Keeve, J., & Lakomski, G. (1999). *Issues in educational research*. Kidlington, England: Pergamon.

Kramer, M., & Crespy, D. (2011) Communication collaborative leadership. *The Leadership Quarterly, 22*(2011), 1024-1037.

Kvale, S. (2007). *Doing interviews.* Thousand Oaks, CA: Sage.

Laerd Statistics. (2013). *Laerd statistics.* Retrieved from http://statistics.laerd.com

Ledesma, P. (2012). *Why should teachers become teacher leaders?* Education Week. Retrieved from http://blogs.edweek.org

Leithwood, K., (1992). The move toward transformational leadership. *Educational Leadership, 49*(5), 8-12.

Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: Effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement, 17*(2), 201-227.

Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: The contributions of leader efficacy. *Education Administration Quarterly, 44*(4), 496-528.

Leithwood, K., & Louis, K. (2012). *Linking leadership to student learning.* San Francisco, CA: Jossey-Bass.

Leithwood, K., Louis, K., Anderson, S., & Wahlstrom, K. (2004). *Review of research: How leadership influences student learning*. Retrieved from http://www.wallacefoundation.org/knowledge-center/school-leadership/key-research/Documents/How-Leadership-influences-Student-Learning.pdf

Leithwood, K., & Mascall, B. (2008). Collective leadership effects on student achievement. *Educational Administration Quarterly, 44*(4), 529-561.

Leithwood, K., Patten, S., & Jantzi, D. (2010). Testing a concept of how school leadership influences student learning. *Educational Administration Quarterly, 46*(5), 671-706.

Leithwood, K., & Riehl, C. (2003). *What we know about successful school leadership*. Philadelphia. PA: Laboratory for Student Success, Temple University.

Lencioni, P. (2002). *The five dysfunctions of a team: A leadership fable.* Retrieved from https://nclp.umd.edu/resources/bookreviews/BookReview-The_Five_Dysfunctions_of_a_Team-Boyle-2011.pdf

Lincoln, Y.S., & Guba, E.G. (1985). *Naturalistic inquiry.* Beverly Hills, CA: Sage.

Little, J.W. (1990). The persistence of privacy: Autonomy and initiative in teachers' professional relations. *Teachers College Record, 91*(4), 509-536.

Lynn, M. (1986). Determination and quantification of content validity. *Nursing Research, 35*(3), 382-386.

Malina, M.A., Norreklit, H., & Selto, F.H. (2011). Lessons learned: Advantages and disadvantages of mixed methods research. *Qualitative Research in Accounting and Management, 8*(1), 59-71. doi:10.1108/11766091111124702

Martin, R. (2002). *The responsibility virus: How control freaks, shrinking violets – and the rest of us – can harness the power of true partnership.* Retrieved from https://scs.senecac.on.ca/~timothy.mckenna/PMC/PMC140_ResponsibilityVirus.pdf

Marks, H., & Printy, S. (2003). Principal leadership and school performance: An integration of transformational and instructional leadership. *Educational Administration Quarterly, 39*(3), 370-397.

Marshall, C., & Rossman, G. (2011). *Designing Qualitative Research.* Thousand Oaks, CA: Sage

Marzano, R., Waters, T., & McNulty, B. (2005). *School leadership that works: From research to results*. Aurora, CO: McREL.

Maxwell, J. C. (2007). *The 21 irrefutable laws of leadership: Follow them and people will follow you.* Nashville, TN: Nelson.

May, H., & Supovitz, J. (2010). The scope of principal efforts to improve instruction. *Educational Administration Quarterly, 47*(2), 332-352.

McLaughlin, M.W., & Talbert, J.E. (2001). *Professional communities and the work of high school teaching.* Chicago: University of Chicago Press.

McLeod, S. A. (2008). *Case study method.* Retrieved from http://www.simplypsychology.org/case-study.html

McMillan, J. H., & Schumacher, S. (2006). *Research in Education: Evidence-based inquiry* (6th ed.). Boston, MA: Pearson Education.

McWilliams, S. (2009). *Collaborative leadership in the context of appraisal* (Unpublished doctoral dissertation). Unitec Institute of Technology, Auckland, New Zealand.

Mendels, P. (2012). *The effective principal: Five pivotal practices that shape instructional leadership.* Retrieved from http://www.learningforward.org

Merriam, S.B. (1998). *Qualitative research and case study applications in education.* San Francisco, CA: Jossey-Bass.

Mills, G.E. (2007). *Action research: A guide for the teacher researcher (3rd ed.). Upper Saddle River, NJ: Pearson.*

Mulford, B. (2006). Leading change for student achievement. *Journal of Educational Change, 7*(1), 47-58.

National Association of Secondary Principals. (2010). *Breaking Ranks: 10 skills for successful school leaders.* Retrieved from http://www.nassp.org/Content/44755/TenSkills2nd_ed_exec_summ.pdf

National Association of Secondary Principals. (2013). *Leadership Matters*. Retrieved from http://www.nassp.org/Content/158/leadership_matters_screen.pdf.

National Association of Secondary Principals. (2014). *School improvement*. Retrieved from https://www.nassp.org/school-improvement

National Center for Restructuring Education, Schools, and Teaching. (2014). *Mission, mission on the wall…What role do missions play in successful schools?.* Retrieved from https://tc.columbia.edu/ncrest/onlinepub/practicBrief1.pdf

Newmann, F.M. & Wehlage, G.G. (1995). *Successful school restructuring: A report to the public and educators.* Madison, WI: Center on Organization and Restructuring of Schools.

Northhouse, P.G. (2010). Leadership theory & Practice. 5th ed. Los Angeles: Sage

Northwest Nazarene University. (2010). *Human research review committee handbook*. Retrieved from http://www.nnu.edu/offices/academic-affairs/hrrc/

Ontario Leadership Strategy. (2012). Ideas into action for school and system leaders. *Exploring five core leadership capacities promoting collaborative learning cultures: Putting the promise into practice.* Retrieved from http://www.edu.gov.on.ca/eng/policyfunding/leadership/IdeasIntoActionBulletin3.pdf

Piercey, D. (2010). *Why don't teachers collaborate? A leadership conundrum.* Retrieved from http://www.gcisd-k12.org/cms/lib/TX01000829/Centricity/Domain/78/Why_Dont_Teachers_Collaborate.pdf

Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendation. *Research in Nursing and Health, 29*(5), 489-497. doi: 10.1002/nur.20147

Printy, S. (2008). Leadership for teacher learning: A community of practice perspective. *Educational Administration Quarterly, 44*(2), 187-226.

Provenzo, E. (1986). *An introduction to education in American society.* Columbus, OH: Merrill.

Public Broadcasting System. (2014). *The story of American public education*. Retrieved from http://www.pbs.org/kcet/publicschool/

Pulliam, J. (1987). *History of education in American* (5th ed.). Columbus, OH: Merrill.

Reed, P. (2011). *Developing leadership skills: Planning and reflection*. Retrieve from http://www.nassp.org/Content/158/pl_dec11_brip.pdf.

Rourke, J. & Boone, E. (2008). A world of opportunity. *National Association of Secondary School Principals, 8*(10), 20-23.

Transformational Leadership Coaching & Consulting, LLC. (2014). *Dimensions of transformational leadership behaviors*. Retrieved from http://www.tlcc.biz/developing_transformational_leaders_through_executive_coaching.htm

Turner, D. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report, 15,* 754-760.

[redacted]. (2014). Your District. Retrieved from [redacted]Your_District/yourdistrict.html

[redacted] (2014). Policy Manual. Retrieved from [redacted]YourDistrict/Policy/tabid/181/Default.aspx

[redacted] (2014). 2010-2015 Strategic Plan. Retrieved from [redacted]2010-2015%20Strategic%20Plan-FINAL.pdf

Sampson, H. (2004). Navigating the waves: The usefulness of a pilot in qualitative research. *Qualitative Research, 4*(3), 383-402.

Sanzo, K., Sherman, W., & Clayton, J. (2010). Leadership practices of successful middle school principal. *Journal of Educational Administration, 49*(1), 31-45.

Shedd, J., & Bacharach, S. (1991). *Tangled hierarchies: Teachers as professionals and the management of schools*. San Francisco, CA: Jossey-Bass.

Shields, C. (2013). *Transformative leadership in education: Equitable change in an uncertain and complex world.* New York, NY: Routledge.

Simmons, E. W. (2002). The impact of home/school/community collaboration on student achievement: an analysis of Reading Renaissance. *Action Research Exchange.* Retrieved from http://chiron.valdosta.edu/are/Litreviews/vol1no1/simmons_litr.pdf.

Soy, S. (2006). *The case study as a research method*. Retrieved from http://ischool.utexas.edu

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage

St. Cloud State University. (2011). Teacher Quality Enhancement Center: Research Funded by a US Department of Education. Retrieved from http://www.stcloudstate.edu/oce/teaching/documents/collaborationtool-CSAT.pdf

Stronge, J., Ward, T., & Grant, L. (2011). What makes good teachers good? A cross-case analysis of the connection between teacher effectiveness and student achievement. *Journal of Teacher Association, 62*(4), 339-355.

Valli, L., & Buese, D. (2007). The changing roles of teachers in an era of high-stakes accountability. *American Educational Research Association, 44*(4), 519-558.

Vodicka, D. (2006). *The four elements of trust*. Retrieved from http://www.dvodicka.com/files/principal_trust_article.pdf

Wahlstrom, K., & Louis, K. (2008). How teachers experience principal leadership: The roles of professional community, trust, efficacy, and shared responsibility. *Educational Administration Quarterly, 44*(4), 458-495.

Wallace Foundation. (2012). *The making of the principal: Five lessons in leadership training*. Retrieved from http://www.wallacefoundation.org/knowledge-center/school-leadership/effective-principal-leadership/Documents/The-Making-of-the-Principal-Five-Lessons-in-Leadership-Training.pdf.

Waters, T., Marzano, R., & McNulty, B. (2003). *Balanced leadership: What 30 years of research tells us about the effect of leadership on student achievement*. Retrieve from http://www.ctc.ca.gov/educator-prep/ASC/5031RR_BalancedLeadership.pdf

Webb, L.D., Metha, A., & Jordan, K.F. (2000). *Foundations of American Education* (3rd ed.). Columbus, OH: Prentice Hall.

Weinstein, R., Madison, S., & Kuklinski, M. (1995). Raising expectations in schooling: Obstacles and opportunities for change. *American Educational Research Association, 32*(1), 121-159.

Westberg, K., & Archambault, F. (1997). A multi-site case of successful classroom practices for high ability students. *Gifted Child Quarterly, 41*(1), 42-51.

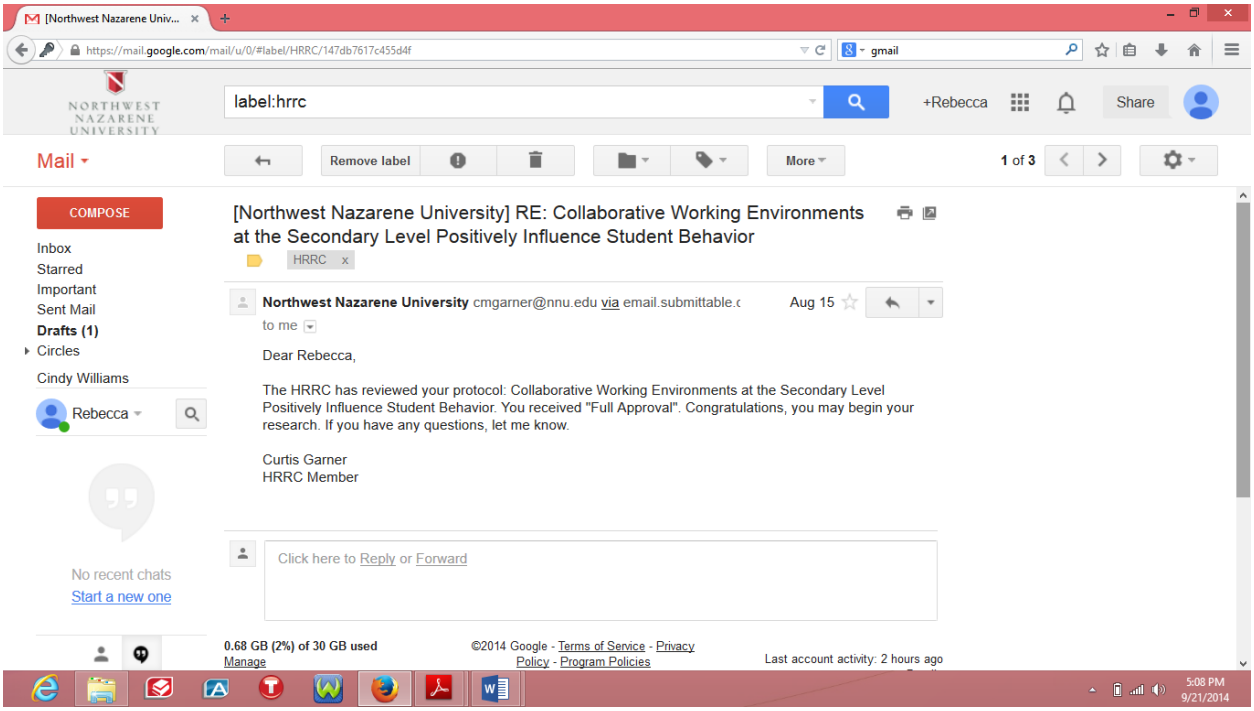
Whitaker, K. (1997). Developing teacher leadership and the management team concept: A case study. *The Teacher Education, 33*(1), 1-16.

Whitaker, T. (2012). *What great principal do differently: 18 things that matter most.* Larchmont, NY: Eye on Education.

Yin, R. (2009). *Case study research design and methods*. Thousand Oaks, CA: Sage.

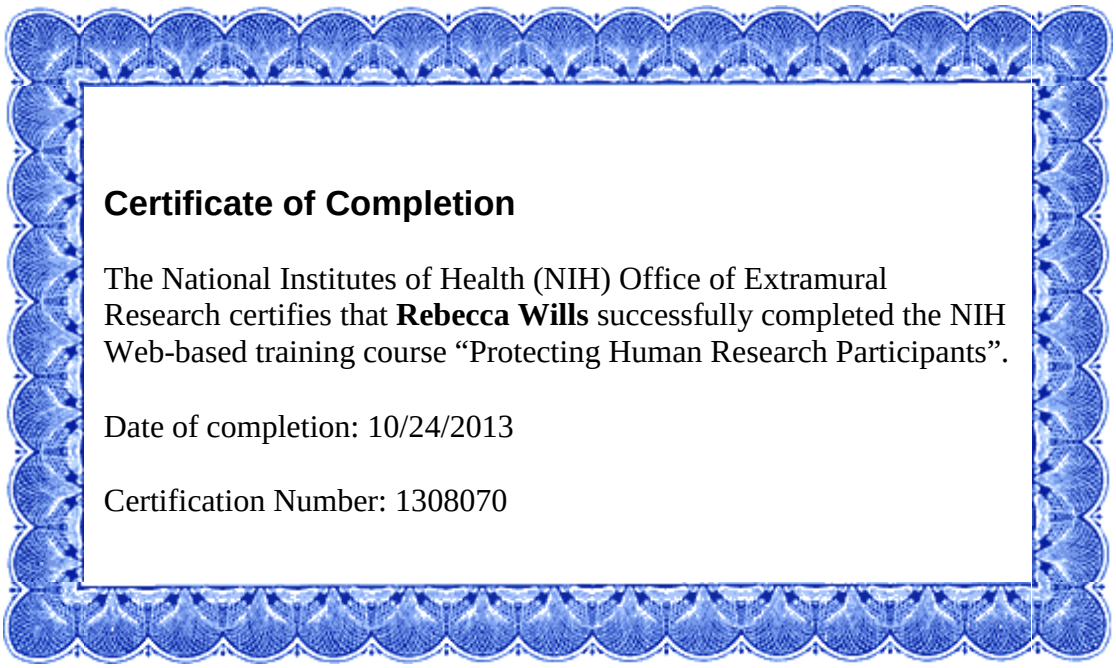
Appendix A

Human Research Review Committee Approval



Appendix B

National Institute for Health Certification



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Rebecca Wills** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 10/24/2013

Certification Number: 1308070

Appendix C

Research Site Approval Letter

[redacted]

Northwest Nazarene University
Attention: HRRC Committee
Helstrom Business Center 1st Floor
623 S University Boulevard
Nampa, Idaho 83686

RE: Research Proposal Site Access for [redacted]

Dear HRRC Members:

This letter is to inform the HRRC that Administration at [redacted] has reviewed the proposed dissertation research plan including subjects, intervention, assessments procedures, proposed data, and collection procedures, data analysis, and purpose of the study. [redacted] has permission to conduct her research with principals, department chairs, and selected teachers at the four secondary schools in [redacted]. The authorization dates for this research study are July 2014 to May 2015.

Sincerely,

[redacted]

Appendix D

District Approval Letter

February 1, 2014

[redacted]

I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my Action Research study, I would like to conduct a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the [redacted] through various classroom observations, surveys, interviews, and student achievement scores. I would like to have permission to use student data and assessments which are available to all our school's certified classroom teachers.

I would appreciate your support with this study and would be more than happy to visit with you on the specifics of the study. I believe this research study will benefit the administrators, teachers, and students of both schools. Thanks for your time and I look forward to your response.

Sincerely,

[redacted]

I have read this approval letter. :

YES_____, [redacted] may conduct her research study at secondary school in [redacted]

NO_____, [redacted] may NOT conduct her research study at secondary school in [redacted]

Superintendent's printed name [redacted]

Superintendent's signature [redacted]

Appendix E

Informed Consent Letter to Participants

A. PURPOSE AND BACKGROUND

Rebecca Wills, a doctoral student in the Department of Graduate Education at Northwest Nazarene University is conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place on the Twin Falls high school campus through various classroom observations, surveys, interviews, and student achievement scores. We appreciate your involvement in helping us investigate how to better serve and meet the needs of Northwest Nazarene University students.

You are being asked to participate in this study because you are a healthy volunteer, over the age of 18.

B. PROCEDURES

If you agree to be in the study, the following will occur:

1. You will be asked to sign an Informed Consent Form, volunteering to participate in the study.

2. You will answer a set of interview questions regarding the collaboration leadership at Twin Falls high school.

3. You will be observed in classroom which will focus on student learning and behavior.

4. You end-of-course assessments will be evaluated and analyzed.

5. You will participate in survey which will focus on your experiences and the pros and cons of collaborative leadership.

C. RISKS/DISCOMFORTS

1. Some of the discussion questions may make you uncomfortable or upset, but you are free to decline to answer any questions you do not wish to answer or to stop participation at any time.

2. For this research project, the researchers are requesting demographic information. Due to the make-up of Idaho's population, the combined answers to these questions may make an individual person identifiable. The researchers will make every effort to protect your confidentiality. However, if you are uncomfortable answering any of these questions, you may leave them blank.

Appendix E (continued)

Informed Consent Letter to Participants

3. Confidentiality: Participation in research may involve a loss of privacy; however, your records will be handled as confidentially as possible. No individual identities will be used in any reports or publications that may result from this study. All data from notes, audio tapes, and disks will be kept in a locked file cabinet in the Department and the key to the cabinet will be kept in a separate location. In compliance with the Federal wide Assurance Code, data from this study will be kept for three years, after which all data from the study will be destroyed (45 CFR 46.117).

D. BENEFITS
There will be no direct benefit to you from participating in this study. However, the information you provide may help educators to better understand how collaborative leadership has a positive influence on student achievement to better understand advising students using various forms of technology.

E. PAYMENTS
Each participant will receive a $5 gift card for participating.

F. QUESTIONS
If you have questions or concerns about participation in this study, please contact Rebecca Wills at [redacted]

G. CONSENT
You will be given a copy of this consent form to keep.

PARTICIPATION IN RESEARCH IS VOLUNTARY. You are free to decline to be in this study, or to withdraw from it at any point. Your decision as to whether or not to participate in this study will have no influence on your present or future status as a student at Northwest Nazarene University.

I give my consent to participate in this study:

_____ _____
Signature of Study Participant **Date**

I give my consent for the interview and discussion to be audio taped in this study:

_____ _____
Signature of Study Participant **Date**

I give my consent for direct quotes to be used in this study:

_____ _____
Signature of Study Participant **Date**

_____ _____
Signature of Person Obtaining Consent **Date**

Appendix F

Collaborative Self and Team Survey

This survey will help the researcher examine the relationship between the algebra teachers and the end-of-course algebra exam. The participants will answer each question honestly and to the best of their knowledge. This survey will address questions in regards to the individual teacher and to the secondary algebra department team.

For each item, circle the description that best describes your view of how often you or your department exhibits this behavior. Once you complete both sections, you will add your score and write the total number in the box provided. Thanks for your participation with this survey. All responses will be kept confidential and will only be used for the research study.

Secondary Algebra Self Assessment on Collaboration:				
Category	**1**	**2**	**3**	**4**
Individual Input	I tend not to share ideas, information, or resources.	I share ideas, information, and resources upon request.	I usually share ideas, information, and resources.	I freely share ideas, information, and resources.
Motivation/ Participation	I tend not to participate or remain engaged when a task moves away from my own immediate interests.	I sometimes make an effort to participate and remain engaged when a task moves away from my own immediate interests.	I often make an effort to participate and remain engaged even when a task moves away from my own immediate interests.	I can be relied on to participate and remain engaged even when a task moves away from my own immediate interests.
Quality of Work	My work reflects very little effort and often needs to be checked and/or redone by others to ensure quality.	My work reflects some effort but occasionally needs to be checked and/or redone by others to ensure quality.	My work reflects a strong effort. I self-monitor to improve the quality of my work.	My work reflects my best efforts. I continuously make small changes to improve the quality of my work.

Appendix F (continued)

Collaborative Self and Team Survey

Time Management	I rarely get things done by the deadline and others often have to adjust deadlines or work responsibilities.	I tend to procrastinate, meaning others may have to adjust deadlines or work responsibilities.	I usually use time well to ensure that things are done so others do not have to adjust deadlines or work responsibilities.	I routinely use time well to ensure things are done on time.
Team Support	I am often critical of the team or the work of fellow group members when I am in other settings.	Occasionally I am critical of the team or the work of fellow group members when I am in other settings.	I usually represent the team and the work of fellow group members in a positive manner when I am in other settings.	I represent the team and the work of fellow group members in a positive manner when I am in other settings.
Preparedness	I forget or lose materials needed to work.	I make an effort to bring or find materials/ new ideas needed to work, but often misplace things.	I usually bring needed materials/new ideas and come ready to work.	I consistently bring needed materials/ new ideas and come ready to work.
Problem Solving	I usually do not participate in group problem solving with an open mind. I either tend not to share my thoughts and ideas or I inhibit the contributions of others.	I make an effort to participate in group problem solving with an open mind. I generally share my thoughts and ideas, but I sometimes inhibit the contributions of others.	I usually participate in group problem solving with an open mind, sharing thoughts and ideas without inhibiting the contributions of others.	I consistently participate in group problem solving with an open mind, sharing thoughts and ideas without inhibiting the contributions of others.

Appendix F (continued)

Collaborative Self and Team Survey

Team Dynamics	I do not know how to gauge my own impact on the group, and am generally unaware of team dynamics.	I occasionally know how to gauge my own impact on the group and am somewhat aware of team dynamics.	I often know how to gauge my own impact on the group and generally aware of team dynamics.	I consistently know how to gauge my own impact on the group and am routinely aware of team dynamics.
Interactions with Others	I rarely listen to, respect, acknowledge, or support the efforts of others. I allow conflict or personal differences to interfere with communication.	I sometimes listen to, respect, acknowledge, or support the efforts of others, but at times allow conflict or personal differences to interfere with communication.	I usually listen to, respect, acknowledge, or support the efforts of others. I occasionally allow conflict or personal differences to interfere with communication.	I consistently listen to, respect, acknowledge, or support the efforts of others.
Role Flexibility	I like to either lead or follow but I am uncomfortable when functioning outside my perceived role.	I am uncomfortable with either leading or following, but attempt to move outside my perceived role.	I can assume both roles (leader and follower) but am more comfortable in one role than the other.	I can easily move between leader and follower, assuming either role as needed to accomplish the task.
Reflection	I rarely engage in self-reflection after collaborative activities but tend to focus on the behavior of others.	Self-reflection occurs after collaborative activities when prompted or reminded by others.	Self-reflections usually occur after collaborative activities, but most often when things don't go well.	I consistently use self-reflection after collaborative activities.

Appendix F (continued)

Collaborative Self and Team Survey

Secondary Algebra Team Assessment on Collaboration:				
Category	**1**	**2**	**3**	**4**
Mission and Vision	As a math department, we have not developed a mission & vision that guide our department towards raising student achievement & enhancing instructional strategies.	As a math department, we have been talking about developing a mission & vision that guide our department towards raising student achievement & enhancing instructional strategies but no action or agreement has taken place among each school.	As a math department, we have developed a mission & vision that helps guide our department towards raising student achievement & enhancing instructional strategies but it is not fully implemented by all schools.	As a math department, we have developed and fully implemented a mission & vision that guides our department towards raising student achievement and enhancing instructional strategies.
Collaborative Teams	There is no collaboration to achieve common goals among us & there is a lack of support from each other.	We attempt to work collaboratively to achieve common goals but we prefer to work independently.	We work cooperatively together to achieve common goals but there is great difficulty with the department agreeing on ways to improve and solve problems.	We work cooperatively together to achieve common goals and are able to work together to solve problems effectively.
Collaboration Time	We are not provided time during the school year to meet as a team & work collaboratively .	We are provided very little time during the school year to meet as a team & work collaboratively.	We are provided time during the school year to meet as a team & work collaboratively but there is not enough time.	We are provided with an adequate amount of time during the school year to meet as a team & work collaboratively.

Appendix F (continued)

Collaborative Self and Team Survey

Time Management	As a math department, we do not use our time wisely. It is spent on arguing, gossiping, and other business not related to math.	As a math department, we spend time discussing but we are unable to come to an agreement.	As a math department, we are able to discuss, develop new ideas to improve the curriculum to raise student achievement and improve instructional strategies but the collaborating time is not always used wisely.	As a math department, we are able to discuss, develop, and analyze curriculum to raise student achievement and improve instructional strategies. The collaborating time among the department is widely used.
Environment	As a math department, a safe and trusting environment does not exist to report and compare data and learn from one another while sharing best practices.	As a math department, a safe and trusting environment exists to report and compare data and learn from one another while sharing best practices but no one is willing to participate.	As a math department, a safe and trusting environment exists to report and compare data and learn from one another while sharing best practices but only a few teachers are willing to participate.	As a math department, we create a safe and trusting environment to report and compare data and learn from one another while sharing best practices.
Sharing Ideas	As a math department, rarely do any of the teachers generate and submit ideas which focus on improving student learning and instructional strategies.	As a math department, few teachers generate and submit ideas which focus on improving student learning and instructional strategies.	As a math department, some teachers will generate and submit ideas which focus on improving student learning and instructional strategies.	As a math department, each teacher generates and submits ideas which focus on improving student learning and instructional strategies.

Appendix F (continued)

Collaborative Self and Team Survey

Communication	As a math department, there is limited communication among our department.	As a math department, there is only one sided communication in our department.	As a math department, we attempt to communicate with each other but the varying opinions make it difficult to reach an agreement.	As a math department, we effectively communicate with each other by listening, respecting each other's opinions and valuing them. Decisions are made and followed through.
Accomplishments	As a math department, no recognition or celebration takes place.	As a math department, little recognition or celebration takes place but not as much as there should be.	As a math department, we recognize but do not celebrate individual and team success aligned to our goals of raising student achievement.	As a math department, we recognize and celebrate individual and team success aligned to our goals of raising student achievement.
Your Score: Add all the circled descriptions and write the number in the box.				

Guide to Scoring:

19-38: Collaboration skills need improvement and it is important to become more of a team player and adapt to change.

38-57: Collaboration skills are developing and you need to take the opportunities for growing as a team player.

57-76: Collaboration skills are established. You have created a safe and trusting environment where all members are willing to participate and share ideas in order to raise student achievement and improve instructional strategies.

Appendix G

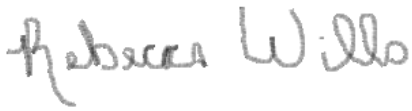
Collaborative Self Assessment Tool Permission

To Whom It May Concern:

I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my study, I will be conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the Twin Falls School District in Twin Falls, Idaho.

I have been reviewing your collaboration rubric: https://www.stcloudstate.edu/oce/teaching/documents/Collaborationtool-CSAT.pdf. Is this a validated survey on collaboration? If so, is it possible to use if for my research study? I believe this research study will benefit the administrators, teachers, and students of all participating schools. Thanks for your time and I look forward to your response.

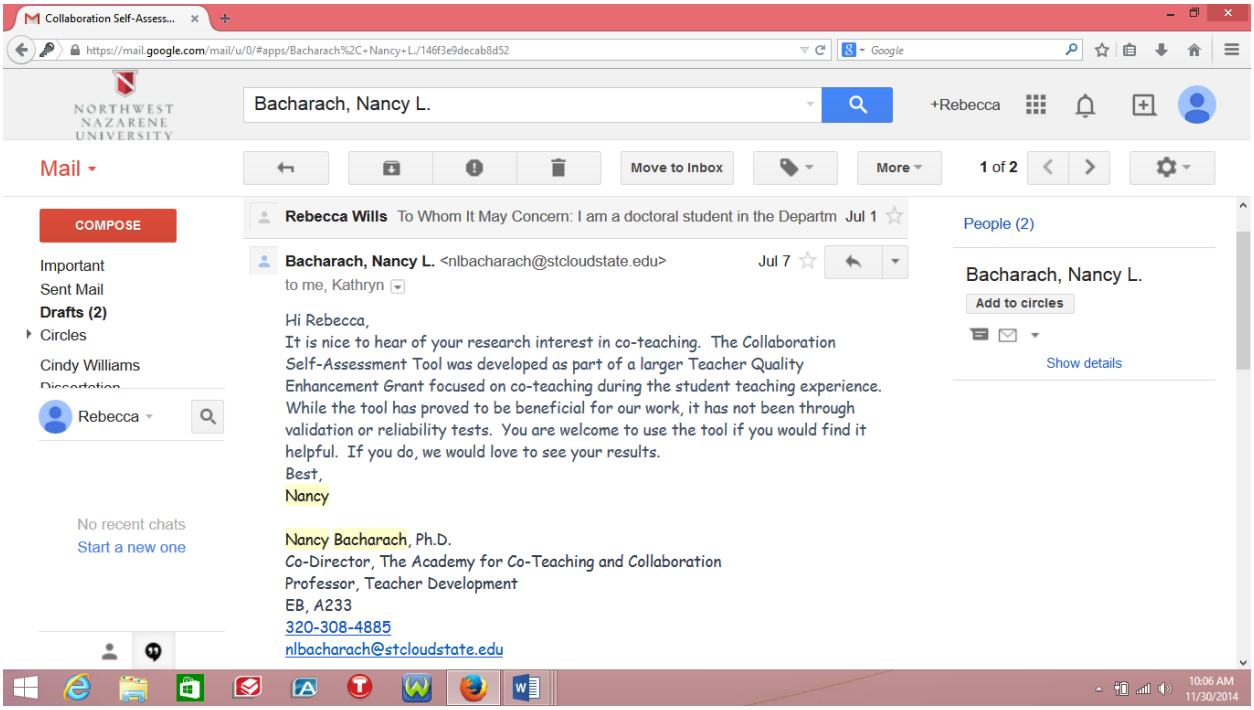
Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix G (continued)

Collaborative Self Assessment Tool Permission



Appendix H

Content Validity Index of Collaborative Survey

Self and Team Assessment	Experts											
	# 1	# 2	# 3	# 4	# 5	# 6	# 7	# 8	# 9	#10	# in Agreement	Item CVI
1												
A	x	x	x	0	x	x	x	x	x	x	9	0.9
B	x	x	x	0	x	x	x	x	x	x	9	0.9
C	x	x	x	0	x	x	x	x	x	x	9	0.9
D	x	x	x	0	x	x	x	x	x	x	9	0.9
2												
A	x	x	x	x	x	x	x	x	x	x	10	1.00
B	x	x	x	x	x	x	x	x	x	x	10	1.00
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
3												
A	x	x	x	0	x	x	x	x	x	x	9	0.9
B	x	x	x	0	x	x	x	x	x	x	9	0.9
C	x	x	x	0	x	x	x	x	x	x	9	0.9
D	x	x	x	0	x	x	x	x	x	x	9	0.9
4												
A	x	x	0	x	x	x	x	x	x	x	9	0.9
B	x	x	0	x	x	x	x	x	x	x	9	0.9
C	x	x	0	x	x	x	x	x	x	x	9	0.9
D	x	x	0	x	x	x	x	x	x	x	9	0.9
5												
A	x	x	x	x	x	x	x	x	0	x	9	0.9
B	x	x	x	x	x	x	x	x	0	x	9	0.9
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
6												
A	0	x	x	x	x	x	x	x	0	x	8	0.8
B	0	x	x	x	x	x	x	x	0	x	8	0.8
C	0	x	x	x	x	x	x	x	x	x	9	0.9
D	0	x	x	x	x	x	x	x	x	x	9	0.9

Appendix H (continued)

Content Validity Index of Collaborative Survey

7												
A	x	x	x	x	x	x	x	x	x	x	10	1.00
B	x	x	x	x	x	x	x	x	x	x	10	1.00
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
8												
A	x	x	x	x	x	x	x	x	x	x	10	1.00
B	x	x	x	x	x	x	x	x	x	x	10	1.00
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
9												
A	x	x	x	x	x	x	x	x	x	x	10	1.00
B	x	x	x	x	x	x	x	x	x	x	10	1.00
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
10												
A	x	x	x	x	x	x	x	0	x	x	9	0.9
B	x	x	x	x	x	x	x	0	0	x	8	0.8
C	x	x	x	x	x	x	x	0	x	x	9	0.9
D	x	x	x	x	x	x	x	0	x	x	9	0.9
11												
A	x	x	x	0	x	x	x	x	x	x	9	0.9
B	x	x	x	0	x	x	x	x	x	x	9	0.9
C	x	x	x	0	x	x	x	x	x	x	9	0.9
D	x	x	x	0	x	x	x	x	x	x	9	0.9
Team-Assessment												
12												
A	x	x	x	x	x	x	x	x	x	x	10	1.00
B	x	x	x	x	x	x	x	x	x	x	10	1.00
C	x	x	x	x	x	x	x	x	x	x	10	1.00
D	x	x	x	x	x	x	x	x	x	x	10	1.00
13												
A	x	x	0	x	x	x	x	x	x	x	9	0.9
B	x	x	0	x	x	x	x	x	x	x	9	0.9
C	x	x	0	x	x	x	x	x	x	x	9	0.9
D	x	x	0	x	x	x	x	x	x	x	9	0.9

Appendix H (continued)

Content Validity Index of Collaborative Survey

14												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	0	x	9	0.9
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00
15												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	x	x	10	1.00
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00
16												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	x	x	10	1.00
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00
17												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	x	x	10	1.00
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00
18												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	x	x	10	1.00
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00
19												
A	x	x	x	x	x	X	x	x	x	x	10	1.00
B	x	x	x	x	x	X	x	x	x	x	10	1.00
C	x	x	x	x	x	X	x	x	x	x	10	1.00
D	x	x	x	x	x	X	x	x	x	x	10	1.00

											Mean Item CVI	0.956
											S-CVI/UA	1
Proportion Relevant	0.95	1.00	0.89	0.84	1.00	1.00	1.00	0.95	0.89	1.00	Mean Expert Proportion	0.952

Appendix I

Email Request for Content Validity of Survey

Hello,

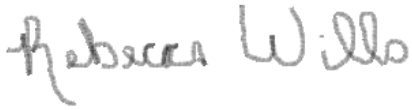
My name is Rebecca Wills and I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University in Idaho. As part of my case study, I will be conducting a research study related to the positive influences of a collaborative working environment and raising student achievement. I need input from instructional coaches in the State of Idaho on the following self and team assessment that I plan to give to teachers in August.

If you have time, would you take a moment to complete the excel sheet and email it back to me by Friday, July 11 (if possible) [redacted]

Here is what I need you to do with the excel sheet:

Mark an x for each answer to the questions highlighted in yellow. You are NOT answering the question, but rather helping to determine the strength of the self and team assessment. The purpose of this assessment is to gather information on the collaboration process among teachers within a school district. These questions address both individual and team efforts with the collaboration process within the school district. You may use the comment section if you have a suggestion to alter a question to make the question clearer or think different wording would produce a better outcome. Thank you for your time!

If you have questions or concerns, please email me at [redacted]. Thanks for your help.



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix J

Interview Questions #1

1) Discuss your educational background?

2) Discuss how many years have you been in education?

3) Tell me a bit about your employment with [redacted]?

4) Can you tell me about your extracurricular duties?

5) Tell me about your responsibilities as an algebra teacher?

6) Discuss the meaning of collaboration?

7) What do you think collaboration means to the district? Your school?

8) Discuss the collaboration among the math department at [redacted]?

9) What are the strengths of the collaboration process among the math department?

10) Talk a bit about conflict/disagreements within the math department at [redacted]?

11) Discuss the collaboration process among the math department at [redacted] currently? 5 years ago? 10 years ago?

12) Raising student achievement is part of [redacted] mission statement, discuss whether or not the collaboration process among the four secondary schools is helping raise student achievement and improve instructional strategies?

13) What do you think administrators can do to facilitate collaboration among the math department?

14) Discuss the challenges or areas of improvement for developing effective collaborative relationships among all math teachers?

15) Is there anything else about collaboration within your district you would like to add to this interview?

Appendix K

Interview Questions #2

Name: Date:

1) Have the collaborative in-service days helped improve teacher and classroom instruction?

2) Discuss the benefits of these additional work days?

3) Discuss the conflicts of these additional work days?

4) Tell me the significance of working collaboratively throughout the school year?

5) What do you think the areas of concern or improvements are suggest for improving collaborative leadership and enhancing student achievement?

Appendix L

Member Checking E-mail

December 1, 2014

Dear Interviewees:

Thank you for your participation in the study of collaboration among the math department and raising student achievement. The intention of this letter is to let you know the numerous themes that have resulted from each of the interviews I have completed. Please let me know if these accurately depicted our conversation, by responding to this email. If you have any suggestions or modifications, please let me know.

THEMES:

Collaboration among the Math Department

Working together for a common purpose/with grade level partners/common courses
Cooperation, team work, bouncing ideas, communicating with each other
Trust and respect; Coming to a consensus

Collaboration increases student achievement

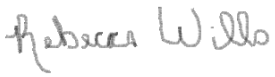
Better ideas, new methods; more time and better professional development
Consistency within the schools; Competiveness between schools
Planning, developing, and implementing as well as analyzing the data
Solving problems and improve curriculum and instruction

Roles of administrators and teacher leaders

Being visible in meetings and classrooms
Keeping teachers accountable
Providing more time, guidance, support, and funding
Communicating; Trust

Thank you again for your help, and I look forward to hearing from you.

Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix M

Participant Debrief

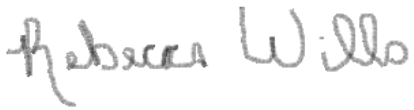
Thank you for participating in this study. As you know, being an educator is tough work. The goal of this study is to determine if collaboration among the math department helps increase student achievement. Hopefully, this study can provide both principals and teachers insight on collaboration and the importance of having time to work together in department to improve classroom instruction.

After I have had a chance to analyze the data, I will e-mail you the results and ask for feedback. The purpose of this communication is to ensure that I have captured our discussions accurately and portrayed your thoughts properly.

If you have any questions or concerns, Rebecca Wills can be contacted by phone at [redacted] or you can contact my dissertation chair [redacted]

Thank you for your participation.

Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix N

Verbatim Instructions for Interviews

Hi _____

Thank you for participating in this study. I truly appreciate it.

Semi-Structured, Audio-Recorded Interviews
Two semi-structured, face-to-face audio-recorded interviews will be conducted with each participant. These interviews will be completed at the location of the participant during a mutually decided upon time by both the participant and investigator. Each interview will take approximately 15-25 minutes.

This process is completely voluntary and you can select to leave the study at any time. If you feel uncomfortable with any question you can select not to answer that question.

Do you have any questions for me?

Thank you for participating

Appendix O

Confidential Agreement for Transcriber

Title of Research Project: A CASE STUDY INVESTIGATING COLLABORATIVE WORKING ENVIRONMENTS AT THE SECONDARY LEVEL AND THE INFLUENCE ON STUDENT ACHIEVEMENT

Transcriber:

As a member of this research team I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.

- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.

- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information, unless specifically authorized to do so by approved protocol or by the local principal investigator acting in response to applicable law or court order, or public health or clinical need.

- I understand that I am not to read information about study sites or participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for the purpose of performing my assigned duties on this research project.

_____	_____	_____
Signature of Transcriber	Date	Printed name

Appendix P

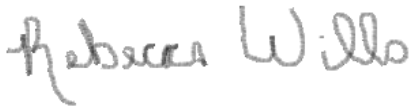
National Association of Secondary School Principals Permission for Collaborative Diagrams

Friday, May 2, 2014

To Whom It May Concern:

I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my study, I will be conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the [redacted]After visiting your website: https://www.nassp.org/school-improvement , there are two diagrams I would like permission to use in my research paper. The two diagrams are in the article titled comprehensive framework for school improvement. Please let me know what steps I need to take to include these diagrams in my research study. I believe this research study will benefit the administrators, teachers, and students of all participating schools. Thanks for your time and I look forward to your response.

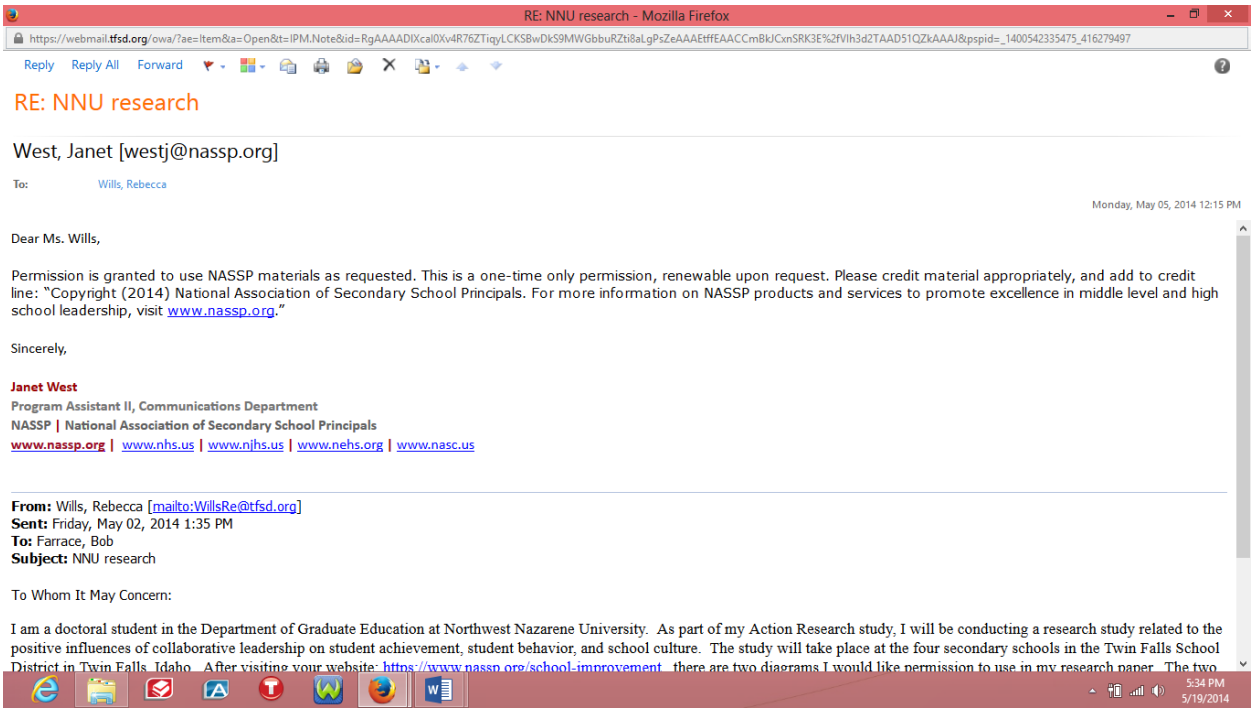
Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix P (continued)

National Association of Secondary School Principals Permission for Collaborative Diagrams



RE: NNU research - Mozilla Firefox

https://webmail.tfsd.org/owa/?ae=Item&a=Open&t=IPM.Note&id=RgAAAADIXcal0Xv4R76ZTiqyLCKSBwDkS9MWGbbuRZti8aLgPsZeAAAEtffEAACCmBkJCxnSRK3E%2fVIh3d2TAAD51QZkAAAJ&pspid=_1400542335475_416279497

Reply Reply All Forward

RE: NNU research

West, Janet [westj@nassp.org]

To: Wills, Rebecca

Monday, May 05, 2014 12:15 PM

Dear Ms. Wills,

Permission is granted to use NASSP materials as requested. This is a one-time only permission, renewable upon request. Please credit material appropriately, and add to credit line: "Copyright (2014) National Association of Secondary School Principals. For more information on NASSP products and services to promote excellence in middle level and high school leadership, visit www.nassp.org."

Sincerely,

Janet West
Program Assistant II, Communications Department
NASSP | National Association of Secondary School Principals
www.nassp.org | www.nhs.us | www.njhs.us | www.nehs.org | www.nasc.us

From: Wills, Rebecca [mailto:WillsRe@tfsd.org]
Sent: Friday, May 02, 2014 1:35 PM
To: Farrace, Bob
Subject: NNU research

To Whom It May Concern:

I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my Action Research study, I will be conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the Twin Falls School District in Twin Falls, Idaho. After visiting your website: https://www.nassp.org/school-improvement, there are two diagrams I would like permission to use in my research paper. The two

5:34 PM
5/19/2014

Appendix Q

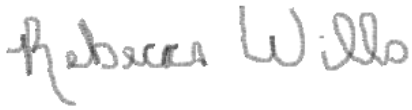
National Association of Secondary School Principals Permission for 21st Century Skills for School Leaders

Saturday, December 13, 2014

To Whom It May Concern:

I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my study, I will be conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the Twin Falls School District in Twin Falls, Idaho. After visiting your website: https://www.principals.org/Content/158/10_Skills_Present.pdf , I was wondering if I could get permission to use the 21st Century Skills for School Leaders diagram for my research paper. Please let me know what steps I need to take to include this diagram in my research study. I believe this research study will benefit the administrators, teachers, and students of all participating schools. Thanks for your time and I look forward to your response.

Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

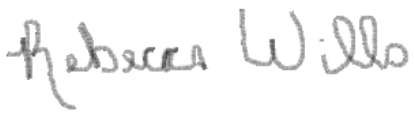
Appendix R

Leadership Model: Transformational Behaviors

Friday, May 28, 2014

To Whom It May Concern:

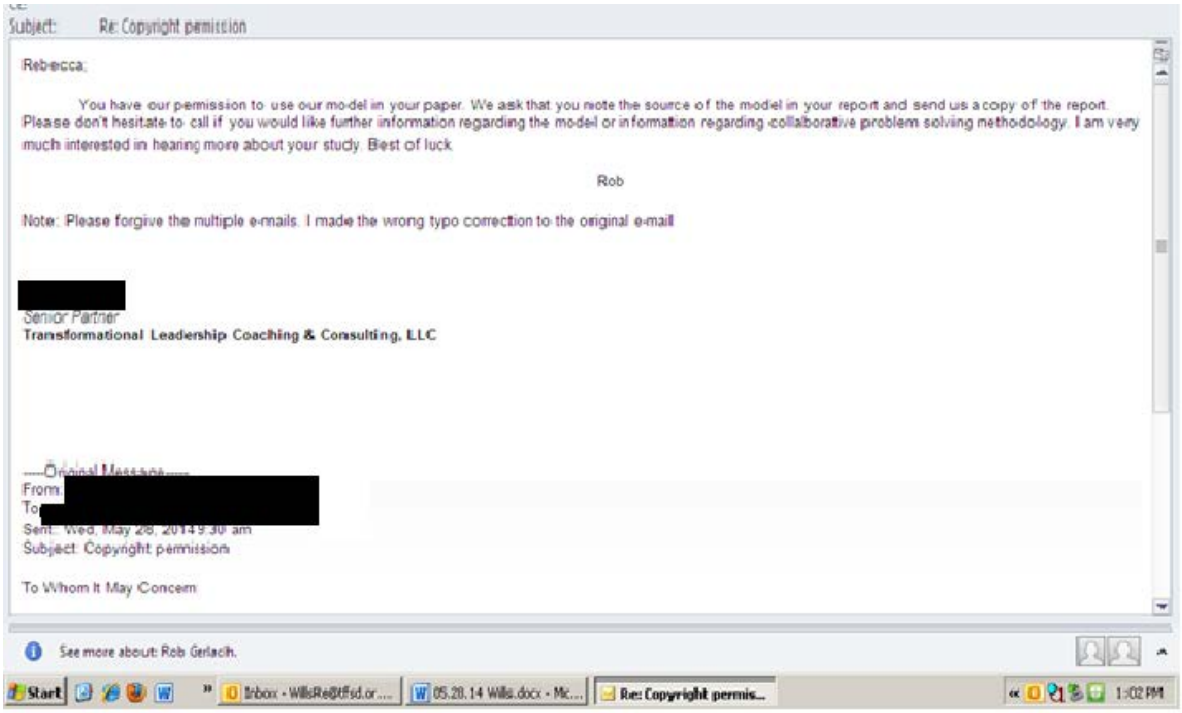
I am a doctoral student in the Department of Graduate Education at Northwest Nazarene University. As part of my study, I will be conducting a research study related to the positive influences of collaborative leadership on student achievement, student behavior, and school culture. The study will take place at the four secondary schools in the [redacted] After visiting your website: http://www.tlcc.biz/contact_us.htm , there is an image of the Leadership Model: Transformational Behaviors that I would like permission to use in my research paper. Please let me know what steps I need to take to include this image in my research study. I believe this research study will benefit the administrators, teachers, and students of all participating schools. Thanks for your time and I forward to your response.
Sincerely,



Rebecca Wills, Ed.S.
Doctoral Candidate
Northwest Nazarene University
[redacted]

Appendix R (continued)

Leadership Model: Transformational Behaviors



Subject: Re: Copyright permission

Rebecca:

You have our permission to use our model in your paper. We ask that you note the source of the model in your report and send us a copy of the report. Please don't hesitate to call if you would like further information regarding the model or information regarding collaborative problem solving methodology. I am very much interested in hearing more about your study. Best of luck.

Rob

Note: Please forgive the multiple e-mails. I made the wrong typo correction to the original e-mail

[redacted]
Senior Partner
Transformational Leadership Coaching & Consulting, LLC

-----Original Message-----
From: [redacted]
To:
Sent: Wed, May 28, 2014 9:30 am
Subject: Copyright permission

To Whom It May Concern

See more about: Rob Gerlach.

Start | Inbox - WillsRe@tffsd.or... | 05.28.14 Wills.docx - Mc... | Re: Copyright permis... | 1:02 PM