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Program Changes for Gifted Students and the Impact on Collaborative Efficacy

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Program Changes for Gifted Students and the Impact on Collaborative Efficacy

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Abstract

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Research suggests that academically gifted students are often underserved when it comes to the school setting. Academically gifted students require specialized instruction to challenge them. Several successful strategies exist for creating an educational environment that appropriately challenges and helps these students achieve academic growth; however, these strategies are rarely employed due to a lack of accountability, supports, or these students' ability to make passing scores on state assessments.

The school chosen for this study came out of analysis of state growth numbers for academically gifted students. Analysis revealed that while gifted students of this school were meeting proficiency standards on state tests, academic growth numbers were in the negative. Based on these findings, research-based strategies will be implemented to improve growth numbers.

The purpose of this study was to determine the effect program changes for academically gifted students have on the collaborative efficacy of teachers. Participants of the study were teachers from the school of study that teach math, English/language arts, science, and social studies. All of these participants receive a growth index number based on student performance on North Carolina final exams and end-of-grade assessments in Grades 6-8. Two measures were used to determine the change in teacher efficacy, North Carolina Growth Estimates (NC Growth Estimates) and Bandura's (1977) Teacher Self-Efficacy Scale. NC Growth Estimates from 2103 and 2016 were compared to determine the level of change. Additionally, Bandura's Teacher Self-Efficacy Scale results from 2013 were compared with those of 2016. These two measures determined the level of impact on collaborative efficacy for teachers as a whole.

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Chapter 1: Introduction

Introduction

America's public schools are full of diverse students of all types. Whether considering race, socioeconomic status, ability level, or gender, no two students are alike in every way. With training institutions only having a finite amount of time to develop future teachers, are all areas of diversity getting addressed equally? Further, are local, state, and federal governments providing funding and resources in equal amounts to various populations of students?

There is an enormous amount of effort, time, and money devoted to struggling students. Millions of dollars are allocated yearly by the federal government (Office of Management and Budget, 2015, p. 1) and the North Carolina state government (North Carolina Department of Public Instruction [NCDPI], 2014) for teachers, assistants, special programs, and services to meet the needs of underperforming students. Additionally, many publishers, software developers, and private entities have dedicated much of their efforts to phonics-based language programs and self-paced remedial products, but few programs exist to help teachers instruct and enrich academics for gifted students (White, 2012).

Efforts to aid struggling students can be heard and seen in every type of media outlet and are routinely discussed among teachers, principals, school officials, and legislators. There is a considerable deal of consciousness with regard to the need to assist students who have fallen behind. According to an online article on the website Franchise Chatter, "Tutoring and test preparation is a $4.5 billion industry fueled by parents who want their children to do well in their elementary, secondary and post-secondary education" (Bixler, 2014, para. 3).

Legislators have joined the movement to assist low-performing students by writing rules and regulations into law to protect this subgroup and hold educators accountable if all students were not meeting grade-level standards (Peterson & West, 2003). In 2002, federal legislation was put into place stating that "no child will be left behind" (Klein, 2015, para. 6). There is a nationwide emphasis placed on making sure every student performs at grade level; and no amount of time, money, or effort will stand in the way of closing the achievement gap. Money, time, and resources are devoted to research to determine the best methods and assistive programs and devices to spark growth and aid learning for the underachieving students. Additional educational programs such as More at Four, Title I, Exceptional Children's, Limited English Proficiency, and Alternative Learning were developed in an effort to close the achievement gap between these students and their peers (NCDPI, 2014).

In contrast, what is being done to provide additional educational opportunities and resources for our best and brightest students? According to a national study conducted by the Fordham Institute, 58% of teachers have received no professional development focused on teaching academically advanced students in the past few years; and 73% of teachers agreed that "Too often, the brightest students are bored and under-challenged in school – we're not giving them a sufficient chance to thrive" (Farkas & Duffet, 2008, para. 2).

Since Every Student Succeeds Act became law, a number of states including Illinois, California, Connecticut, and others, have either steadily cut or eliminated funding for educating the highest achieving students altogether. According to a 2012-2013 education budget analysis conducted by North Carolina public schools, 1% was allocated to the Academically and Intellectually Gifted (AIG) program, while 15% was

allocated for programs assisting underperforming students (NCDPI, 2014). This is a significant difference in funding. Maintaining focus on minimum performance standards neglects those students who learn faster than the minimum standards (Davidson Institute for Talent Development, 2006).

The National Association for Gifted Children reports that the lack of funding for gifted programs is a nationwide trend, while policy and data collection pertaining to academically gifted children varies throughout the nation. In the school year 2013-2104, 14 states provided no funding to local districts for gifted education. Furthermore, of the 25 states that provided funds to districts for gifted education, eight states provided $40 million or more and nine states provided between $1 million and $10 million. The National Association for Gifted Children also reported that nine states have policies specifically permitting the acceleration of students, and 22 states leave the decision to school districts. Pertaining to data collection on academically gifted children, 17 states do not collect demographic data about their gifted student population, while nine states report on the academic performance/learning growth of gifted students as a separate group on state report cards or other accountability measures (State of the Nation in Gifted Education, 2013).

Students grow and learn by varying rates and methods; thus, a variety of educational training programs in the country supports "differentiated instruction" as best practice. In fact, studies have shown that in classrooms where differentiated instruction is utilized, students made more growth than in classrooms where differentiated instruction was not employed (Valiandes, 2015). It is only natural, therefore, that with such diverse learners in one environment, disparities in achievement would exist without the proper training to differentiate instruction for differences in student groups.

With limited research in this area, the current study digs deeper into the question of what truly impacts academic success and growth of the brightest population of students. In this study, a curricular change was made and effects were assessed. The study team hypothesized a curricular change would have a positive impression on teacher efficiency and student performance which would translate into a school-wide efficacy change.

Background

Perhaps achievement gaps to some degree will always exist, but there is evidence that gaps are closing (Haycock, 2001). Public scrutiny from media outlets, additional resources, and greater accountability in the form of state and federal mandates have led to improved educational opportunities for struggling learners. The problem exists when growth for our highest students is examined. One of the contributing factors in a smaller achievement gap is the low or stagnate growth for students in the highest quintile. While the low students are performing at a higher standard, high-performing students are making low growth or not moving. If anything, gifted students are bored and disheartened with their public school experience (Whitaker & Robinson, 2010).

Because there are few federal mandates regarding gifted education, decisions based on gifted/talented programs are made at the state or local level. A few states are leaders in the field when considering one or more of the following factors: funding, identification execution, oversight and reporting, supportive policies, and teacher preparedness. Nevertheless, a larger number of states provide very little, if any, financial backing toward gifted education programs. During the 2013-2014 school year, 14 states provided no funding to local districts for gifted education. Because of the lack of consistency with gifted education funding, one district in a state could excel at providing

support or programs geared toward the needs of gifted students, while another could offer very little. In fact, one school within the same district could vary greatly from a neighboring school (Klein, 2015).

Studies conclude that if the teaching gap is closed, the achievement gap will close (Darling-Hammond, 2014-2015). This study and others focus on closing the gap by changing variables with teachers and underperforming students; however, despite these studies, the focus remains on moving the low-performing population up and not on challenging the highest achieving population**.**

Academically gifted and talented students in this country account for approximately 6-10% of the total student population, and these students contrast from typical peers in particulars of learning style, depth and complexity of comprehension, and potential. Because of their unique character and learning traits, the education program for gifted students should be modified to meet their needs (Klein, 2015). These students need an accelerated pace and more in-depth coverage of the content, also known as rigor. Curricular rigor and acceleration are needed to challenge these students to reach beyond what they already know. A simple analysis of proficiency on state tests or end-of-grade (EOG) exams would show that academically gifted students met state learning standards and are ready to progress to the next grade level but would not speak to the amount of academic growth. From these data observations, it could be inferred that students need additional provisions and enrichment opportunities to achieve academic growth instead of merely being on "grade level."

An abundance of research conducted over the last century suggests ability grouping and acceleration offer significant benefits to gifted students; therefore, the progression of instruction should be suited to the readiness of students instead of waiting

for a subjective age or grade to undertake it. This "vertical modification" allows the student flexibility with the opportunity to move up to work in the progression of knowledge and competencies from a higher standard for which the student is ready, instead of having to wait. With regard to grouping, students should be assembled with others of a similar standard level but provided assignments and goals for that of an advanced standard. Such an alteration requires administrative backing of the teacher and support to the student to bring about the transformation necessary to advance: materials, schedules, classroom assignments, curriculum requests (Steenbergen-Hu, Makel, & Olszewski-Kubilius, 2016).

When reflecting upon the limited research in this area, it is unclear what is causing gifted students to plateau or stagnate. Is it lack of government funding and resources? Are teachers not being offered appropriate training to reach these students within the regular classrooms? Could it be that gifted programs are lackluster and offer "filler activities" as opposed to truly enriching opportunities?

Whatever the exact causes, it appears many families with the means to pursue alternative educational opportunities are choosing to do so. It is still yet to be determined whether there is a direct correlation between movement to charter/private institutes and students not being challenged in traditional public schools; but anecdotal data, including movement in our home county, indicates this could be the case. The tragedy is when academically gifted students have no other option but public education, and there is little support to provide the educational opportunities they may need. Consider the massive number of future inventors, entrepreneurs, biomedical engineers, and community leaders who could be lost each year. Research has shown that approximately 1.5 million students need a more rigorous curriculum, between 10-20% of all high school dropouts test in the

gifted range, and at least 40% of all gifted students are underachievers (Davidson Institute for Talent Development, 2006).

The current study is needed to specifically address the learning needs of academically gifted students. What are their specific needs and how can all parties work collaboratively to address them? If we want a stronger, more globally competitive nation, we must invest in all students and create an educational environment that provides adequate pace and coverage of material for all to grow and flourish to an individual's maximum capacity. Such a setting not only benefits students but teachers, parents, and the nation as a whole. There must be a concerted effort on the part of all stakeholders to foster this group of academically gifted students. This combined effort and subsequent positive effects is also known as collaborative efficacy.

Problem Statement

Academically gifted students are our future leaders, yet many schools devote the smallest amount of time and resources to them (White, 2012). Acceleration of curriculum and additional enrichment opportunities have been shown to generate academic growth for these students; however, a number of public schools do not adequately meet their needs. Most gifted students receive the majority of their K-12 education in a regular classroom with their typically developing peers and teachers who are not trained to teach gifted students. High-achieving students are time and again asked to participate in instruction they have mastered. Curriculum compacting consolidates and modifies the grade-level curriculum by phasing out material that has already been mastered, reducing the peril of common pitfalls faced by high-achieving students: boredom, depression, inattentiveness, discipline issues, and underachievement. Less reiteration of previously mastered material can result in more learning for students.

Many high-achieving students feel that school is boring and their time spent there is wasted; they are "buying time" until they can skip a grade or graduate and attend a college or university that challenges them ("Gifted Education in the U.S.," n.d.).

We are in a time in this country where the practices of gifted education should be leading the way in educating all youth; yet based on previous research and survey responses in many school districts, practices are at the same level they were 30 or more years ago. It is time for a national dialogue focused on shaping the future of gifted education for the 21st century (Callahan, Moon, & Oh, 2014).

More research at all levels is needed to fully understand where the falsities lie and why academically gifted students stagnate in their growth. Previous research offers a number of suggestions and strategies, but overall, this area is under-researched, especially compared to the abundance of research that exists with regard to underperforming students.

Purpose of the Study

The purpose of this study was to examine the impact a curricular change has on teacher efficacy and effectiveness. The researcher hypothesized a curricular change would have a positive impact on overall school climate, bringing out a culture of excellence and a focus on standards-based, rigorous instruction.

While the overall focus was the overarching curricular change, areas of particular interest were professional development, acceleration and alignment activities, and the development of professional learning communities (PLCs) as they relate to overall improved student achievement for gifted students. One goal was to identify internal changes in teachers and school climate brought about as a result of a positive curricular change. Evidence shows when teacher confidence and school climate improve, academic

achievement and growth improve (Callahan et al., 2014).

In the past, professional development specifically aimed at providing educators with knowledge and expertise to provide services and instruction to gifted learners has been constrained. This is due to the fact that curriculum acceleration and alignment, professional development, and PLCs are each a part within a gifted program system. Research strongly proposes that gifted programs, in many cases, are not contributing the types of services paramount to completely address gifted youth's academic, social, and emotional needs to attain their full potential. Furthermore, based on this data, it also is apparent there has been narrow transfer, if any at all, of the work of experts (research and theory development) into the field of practice (Callahan et al., 2014).

The current study implemented a mixed-methods paradigm. A variety of assessment methods were utilized. Objective data such as standardized EOG test scores and reading assessment scores were analyzed. Action research methods such as observations, anecdotal notes taking, surveys, and interviews were also utilized. A combination of objective and subjective data allowed the research team to explore all levels of the curricular change and how it impacted students and faculty internally and externally.

Regarding comparison variables, two similar sample groups of students were compared before and after the curricular change was implemented. While the two groups of students possessed similar skills and achievement backgrounds, the curricular change was implemented with one group and not with the other. To assess how the curricular change impacted teacher efficiency, the research team compared survey data, interview results, and teacher growth.

Research Questions

Areas of interest were professional development, acceleration and alignment activities, and the development of PLCs as they relate to overall improvement in teacher effectiveness and overall collaborative efficacy.

1. What impact did curricular change have on teacher effectiveness?
2. What impact did curricular change have on the collaborative efficacy of all teachers involved?

Based on previous research, we expected positive results from implementing a curricular change that focuses on acceleration and ability grouping (White, 2012). Also based on past research, the team expected a positive correlation between teacher efficacy and student achievement/growth (Callahan et al., 2014).

On a site-based level, researchers hypothesized the curricular change would shift the school's overall mentality to one of rigor and excellence. A positive experience with a significant curricular change would hopefully motivate all teachers to focus on enrichment and higher level engagements when instructing gifted students. The team also hypothesized a positive experience would impact the entire school system. If outcomes were positive, it was expected the other middle schools in the system would implement the same curricular change.

Framework of the Study

Since the 1970s, studies have routinely demonstrated the benefits of positive efficacy on outcomes. There is a notable positive correlation between high efficacy (both self-efficacy and system-wide efficacy) and performance (Bandura, 1994). This trend is expected to hold true within a school. When teacher self-efficacy increases, overall school climate increases and, in effect, student achievement will benefit.

Further, studies indicate teacher training focus and funding are both heavily geared toward underperforming students compared to accelerated students (NCDPI, 2014). Observational and anecdotal data along with analysis of EOG test scores and growth patterns alerted school-based administrators to stagnant growth among the brightest students. All of these data combined led researchers to the curricular change highlighted in the current study.

The researcher hoped to see positive benefits at multiple levels including an increase in teacher efficiency, a more positive school climate, more intentional focus on rigor and acceleration, and higher academic growth for gifted students.

This study was conducted at a rural middle school in western North Carolina. The school serves students in Grades 6-8 and has a population of 910 students. After analyzing state, district, and school EOG and growth data, the school of study felt a curricular change was needed in order to meet the needs of accelerated students.

Over the span of 4 years, the school of study created a process which identifies accelerated students and developed curricular changes to intentionally impact the education of this student population. Table 1 provides student demographic information. This information was taken from the state report card. There is no specific data provided for students identified as academically gifted.

Table 1

Student Demographic Information

All Students	American Indian	Asian	Black	Hispanic	Two or More Races	White	Econom-ically Disadvan-taged Students	Limited English Profi-cient	Students With Disabilities
910	17	<5	10	59	18	792	484	19	133

Figure 1 provides teacher data for the school (NCDPI, 2016).

QUALITY TEACHERS

	Total Number of Classroom Teachers*	Fully Licensed Teachers	Classes Taught by Highly Qualified Teachers	Teachers with Advanced Degrees	National Board Certified Teachers*	Years of Teaching Experience			Teacher Turnover Rate
						0-3 years	4-10 years	10+ years	
Our School	62	96.8%	.	27.4%	20	24.2%	24.2%	51.6%	8.3%
District	41	97.5%	.	29.5%	11	51.6%	25.4%	23.0%	13.2%
State	42	94.4%	.	30.4%	6	23.7%	27.4%	49.0%	15.3%

* The total number of teachers in this school and the average number of teachers in schools with similar grade ranges at the district and state level.

Figure 1. Teacher Data.

Curricular change was driven out of a need to improve academic growth for the school's most academically gifted students. Students were identified using North Carolina Growth Estimates (NC Growth Estimates) provided by the state. NC Growth Estimates is a growth measurement system that identifies and places all students for the state into five quintiles, with quintile 1 being the lowest and 5 being the highest. Students with similar testing histories and EOG test performance are placed into quintiles. This creates a homogeneous group by which all teachers are measured. NC Growth Estimates measures the amount of academic growth for all students in the state of North Carolina and uses data comparatively from teacher to teacher. In analyzing quintile 5 student data, the school of study noticed that many of the teachers did not meet the expected amount of

growth with gifted students in the area of English/language arts (ELA). Growth could be seen however in math. Comparison of the two led the school of study to believe that a progression similar to math was needed in ELA. An accelerated curriculum was already in place for math but not for ELA. Further analysis revealed the following using NC Growth Estimates from 2011/2012: Gifted ELA students lost ground in sixth and seventh grade with a sixth-grade gain of -1.9 and a seventh-grade gain of -2.5. The overall student population also lost ground in sixth and seventh grade ELA with a sixth-grade gain of -2.5 and a seventh-grade gain of -4.3.

It was apparent that a systematic and deliberate approach to ELA instruction in all grades was needed. As a school-based administrative team, with backing from the central office staff, an initial plan for acceleration of ELA was developed by the school of study in consideration of NC Growth Estimates and research. It was determined that the school of study needed a systematic and intentional approach to address negative student growth numbers. With input and collaboration from all stakeholders, the school of study began to develop a progression similar to the one being used in math. The plan was to accelerate the ELA curriculum in sixth and seventh grade and offer English I in eighth grade. Students were screened and placed appropriately in all three grades using stringent guidelines created through collaborative meetings with the local district personnel and feeder high school.

Many people at the school of study, district level, and feeder high school were involved and consulted during the nature of this study. The process of implementing accelerated ELA classes and English I high school class offerings forced tough questions that had to be answered. This required the support of all stakeholders, since it would not only impact the middle school but the other high schools and middle schools in the

district.

Nature of the Study

Local quantitative NC Growth Estimates and anecdotal data from within the school of study clearly indicated a need for a more rigorous ELA curriculum. Once the curricular plan was created, the study team needed clear data to assess if the curricular change proved effective. The school of study had already compared longitudinal EOG test scores and growth factors and could see the highest students were stagnating. The current study determines if the curricular change not only improves academic growth for this population of students but also increases self-efficacy for faculty.

Generally, the new ELA curriculum was modeled after the existing math curriculum with offered acceleration in Grades 6 and 7 and a high school course in eighth grade. The curricular change highlighted in this study included accelerated language arts in sixth and seventh grade and the addition of English 1 into the eighth-grade curriculum. Prior to this, all eighth-grade students were enrolled in standard eighth grade language arts. The English I class compacted both eighth grade language arts and English I which is traditionally taught at the ninth-grade level.

Two groups of students were compared during this study. One group was made up of strong standard students who had comparable grades and EOG scores to the group being studied. The second group was our highest students who met criteria to enroll in English I.

Several different data collection instruments were used during this study. This created a mixed-method, quasi-experimental study. Quantitative data were collected using the Education Value-Added Assessment System (NC Growth Estimates), the Scholastic Reading Inventory (SRI), and EOG proficiency numbers. These three

measures provided quantitative data about student performance and the academic impact experienced by students as a result of the accelerated curriculum. Qualitative data were collected using a survey, Bandura's Teacher Self-Efficacy Scale, and teacher interviews. These instruments helped determine the efficacious impact on teachers involved in the study and how the individual efficacy could impact the school as a whole.

Definitions

There are a number of important terms relevant to the current study. These include collaborative efficacy, PLCs, differentiation, and academically gifted.

The first is collaborative efficacy. Collaborative efficacy is when all parties of an organization or educational unit have a shared set of beliefs and goals. These beliefs and goals are not the result of requirements or mandates but an intrinsically desired outcome for themselves and all others. This belief is not the independent belief of a single individual but of every member of the organization or school. Collaborative efficacy speaks to the expectations and culture of the body as a whole and works to build the capacity of the educational unit by increasing the efficiency and shared vision through common operational approaches and strategies. Entrenched are operational strategies that the staff believes and plays a part in developing (Bandura, 1994). Staff ownership in the school as a whole generates more positive outcomes, because it is personal and provides a sense of belonging.

One mode or function that helps foster collaborative efficacy is PLCs. PLCs are designed to establish common meeting times as well as curricular goals and lesson sharing. PLCs utilize the collective knowledge of a group and help establish common goals and strategies for instruction (DuFour, 2004). Comparative data analysis helps

illustrate each teacher's strengths and weaknesses which allows the group to focus on those strategies that have proven to be most effective. PLCs also help generate curriculum pacing so that adequate coverage of state standards and learning targets are met. A level of collegiality is established through common goals, content, and instructional objectives. Effective PLCs function as an effective part of the greater organization or school's mission and help foster the overall climate or collaborative efficacy of the school.

PLCs should establish a climate that promotes rigor for all students. Accepting that all students have unique learning needs, it is important to understand the concept of differentiation (Tomlinson, 1999). Differentiation is made possible through the collective practices of all members of the PLC. Shared struggles to reach all students provide common ground for discussion, and data fuel consensus reached among all participants (DuFour, 2004).

Differentiation in a school setting exists when varied instructional plans co-exist. These plans are devised with the unique needs of students in mind. If these plans are developed correctly, a challenging and stimulating lesson plan is developed that addresses the strengths and weaknesses of each student. Differentiated lesson plans acknowledge that some students will progress more rapidly, and others may need support in attaining concepts to be learned. Differentiated lesson plans also acknowledge that some students may already be familiar with concepts and will need enrichment activities that require those students to apply, explain, or make connections to other subjects. This is a crucial factor for the academic growth of academically gifted students. Without it, students do not receive the challenging content or rigor they need (Huebner, 2010).

What constitutes being "academically gifted?" These students perform in the

90th percentiles in comparative data. Percentiles are typically established using statewide comparison data. They show mastery of all grade-level content as well as knowledge of content beyond established grade-level content and learning targets. Embedded questions are placed in EOG exams and assessments that measure student knowledge of content in subsequent grade levels. Academically gifted students will be able to not only show mastery of grade-level concepts but also of content expected for the next grade level. Some of these students are placed in AIG programs, but not all. Regardless, AIG programs fall short of providing the daily challenge or rigor needed for these students to show academic growth; nor should this status be used in determining whether a student is academically gifted ("Definitions of Giftedness," n.d.).

Academic growth is measured by comparing what a student knows entering a grade level versus the amount of information gained upon completion of a grade level or subject. Academic growth served as a common goal for all participants in this study. It provided the basis for which change was needed and overall plan was developed. It accessed the common goal that all teachers possess either for intrinsic or extrinsic reasons (Adams, 2015).

Assumptions

It could be assumed that all accelerated students will work hard in this new curriculum because they have been "bored" thus far with their ELA curriculum; however, the study team cannot know for sure if all students will participate fully to achieve full benefits. It could be that students of this caliber have gotten so accustomed to not having to work very hard for good grades, they become overwhelmed or burdened with a sudden onset of a rigorous course. It could also be that because they have not been challenged appropriately in previous years, their brains may not even be developmentally ready to

take on the scope and sequence of a high school course.

The study team needed the sample student population to work to their maximum ability and engage in the curriculum so the study results would be as accurate as possible.

Scope and Delimitations

A number of elements were addressed in the current study. Many things played a role in the final outcome of this study. A significant curricular change was instituted at the school which inherently impacted all involved, including administrators, curriculum coaches, teachers, support staff, parents, and students.

Several components impacted the effectiveness of the curricular change, including commitment and productivity of PLCs, availability of resources, teacher ability to execute the new curriculum, parent confidence in the teachers to effectively offer a new course, and student' willingness to work and engage to an optimal degree. If all of this happened, the results of the study would be more accurate and influential for long-term planning.

Limitations

This study was conducted in a rural western North Carolina school district. Participants of the study comprised a homogenous group with regard to socioeconomic status, race, and ethnicity. This is a reflection of the community for which the study was conducted rather than the selection process. Participants for the study were predominantly White (non-Hispanic). A more diverse cross-section of students would help establish effectiveness for students from a variety of backgrounds, socioeconomic status, geographic location, and race. Also, the number of teachers and students involved was small. A larger number of participants would have provided a larger data set for greater reliability; however, the data are sufficient for determining the impact

acceleration has on teacher effectiveness and efficacy. Academic giftedness is not exclusive to a particular race or socioeconomic status. The results of accelerating curriculum could vary by degree within groups though.

For this study, the school of study focused primarily on ELA, because that is where the most significant changes were made; however, the school of study also made changes within the math department. The following year, higher functioning math students in Grade 7 (those predicted to enter Algebra 1 in Grade 8) will be placed in an accelerated math class. These classes called "Advanced CMP," will offer an acceleration/compaction of the math content and will include the core standards from both seventh and eighth grades providing the brightest math students an opportunity to engage in learning that is beyond the designated curriculum for seventh grade. At the end of the year, these students were screened for Algebra 1 placement for Grade 8 using set criteria. Criteria included team recommendation, math performance (math grade), benchmark data (Case 21), math ability (Orleans Hannah Prognosis Test), and NC Growth Estimates predictability data.

Students meeting the criteria were placed in Algebra 1 in Grade 8. They took both the end-of-course (EOC) and EOG tests. Students achieving Level 3 or 4 on the Algebra EOC received high school math credit for Algebra 1, but their mark in the course did NOT count toward their high school GPA.

The school of study was also concerned that self-efficacy would be affected by other variables such as low pay, larger class sizes, budget issues, and other factors unrelated to the implementation of the accelerated curriculum. The school of study encouraged teachers to focus on how the curricular change affected their self-efficacy, although the school of study understood it would be a challenge to emotionally and

cognitively separate various variables that culminate in a broad effect such as efficacy.

Similarly, a larger and more diverse body of teachers would assist in substantiating results found for school climate. For limited purpose, it will provide a basis to consider the impact a curricular change has on teachers and the overall change in school climate. Similar results could be anticipated since teacher preparation and credentialing is similar throughout teacher education programs.

Significance

As it is currently, all students are expected to pace at the same rate throughout the year. In combating a lack of appropriate educational opportunities for gifted students, the hope is to identify key organizational elements that will allow us to not only meet the needs of our students but create an overall climate change and shift in thinking to what we know is best for gifted students (Callahan et al., 2014).

Based on a National Association of Gifted Children (NAGC) study, the typical gifted program does not operate within an aligned system. NAGC Programming Standards are used in less than half of the districts; one fourth of respondents at the elementary level and one third at the middle school level indicated that their gifted program had no specific curricular materials that guided program activities; at the high school level, the predominant default curriculum was Advanced Placement (AP) courses, a program now widely believed to be suitable for all high school students (Callahan et al., 2014).

The researcher studied a program with compacted curriculum in Grades 6-8 where gifted students received grade level curriculum as well as a portion of the curriculum in the subsequent grade level within a single year. Teachers from across grade levels met to align curriculums from each of the respective grade levels in order to

not overlap or omit critical content needed for growth among gifted students.

The use of clearly identified learner outcomes and routine cycles for program evaluation are rarities for gifted programs at all school levels. Without these components as an integral part of gifted programming, school districts cannot ascertain whether their efforts in all other stages of program development and implementation are producing the desired outcome—high-quality education for gifted students (Callahan et al., 2014). In creating the change needed for gifted students, the school of study will need to examine the changes in activities and attitudes of teachers.

Summary

The school of study felt the need for a significant curricular shift with regard to the accelerated program within the regular education environment. Prior to the curricular change cited in this study, very little was offered to gifted student outside the gifted program offered as an elective course. The ultimate, overarching goal of this study is a paradigm shift within the school regarding what type of curriculum is needed for accelerated students to grow and thrive.

With such an intense curricular change taking place, the school needed data to measure success and form direction for the future. Two different groups of eighth-grade students were compared during this study. Both groups of students were similar with regard to ability, previous test scores, and motivation; but one group was slightly more accelerated and reached the criterion to be placed into English I.

The control group participated in standard eighth grade language arts, while the experimental group participated in English I, the new course implemented during this study. At the conclusion of the study, SRI and EOG scores were compared to see which group made more growth. Further, qualitative data were analyzed to see if and how the

curricular change impacted teacher self-efficacy and the school's collective efficacy.

Significant research exists on the topic of gifted education and the lack of funding and resources, especially when compared to funding and resources offered students performing below grade level.

Chapter 2: Literature Review

Literature Review Introduction

Schools continually talk about meeting student needs, but the reality is countless gifted students must pace through school at a predetermined rate and be provided concepts they have already mastered which do not translate to truly "meeting their needs" (Colangelo, Assouline, & Gross, 2004, Vol.1, p. 1). In this chapter, research relevant to best practices for gifted students is discussed.

Additionally, research regarding the supports needed to facilitate an organizational change in purpose and approach is analyzed as well as the effects an organizational shift has on individual teachers and the educational unit as a whole. The following section includes synthesis of findings on the topics of acceleration, identification of gifted students, applied learning, professional development, and school climate. There is a significant need for further research in the area of gifted education as well as ways and means to meet the needs of advanced students.

Literature Search Strategy

Before the curricular change was even developed and fleshed out for implementation, existing literature on the topic was reviewed. Before the study and during the study, multiple databases were utilized including ERIC database, Gardner-Webb University's library database, books from the Waynesville Middle School professional library and the Haywood County Schools professional library, and online searches.

This study looks at a number of individual factors which are listed and described in the literature review. To ensure information was gathered on all relevant topics, the research team searched the following key terms: gifted education, gifted students,

accelerated learning, acceleration, identification of gifted students, applied learning, professional development, school climate, self-efficacy, collective efficacy, PLCs, ability grouping, funding, North Carolina state education budget, federal education budget, and teacher training programs.

Literature Review

Acceleration. In trying to meet the needs of gifted students, one method that research has shown to be highly effective is acceleration. Acceleration is simply providing the content to be learned at a more rapid pace or at a pace that is better suited for more capable learners. In a national report titled, "A Nation Deceived: How Schools Hold Back America's Brightest Youth," there were two volumes dedicated to acceleration (Colangelo et al., 2004). Researchers maintained that acceleration is ideally suited as an intervention for academically gifted students who "possess the capacity to learn more at a faster rate" (Colangelo et al., 2004, Vo.1, p. 8).

The importance of acceleration can be found in a meta-analysis published in the American Educational Research Journal. The data analysis from 26 controlled studies revealed that "accelerates" examination performance surpassed that of "non-accelerates" of equivalent age and ability by nearly one grade level (Kulik & Kulik, 1982). Far greater implications exist beyond a single examination or even an academic career. A 20-year longitudinal study traced the academic, social, and emotional development of 60 young Australians with IQs of 160 and above. Findings of this study concluded that significant differences exist in educational status and direction, life satisfaction, social relationships, and self-esteem as a function of the academic acceleration their schools provided. Those with 2 years of acceleration reported "a greater degree of life satisfaction, have taken research degrees at leading universities, have professional

careers, and report facilitative social and love relationships" (Gross, 2003, p. 404). The implications of these findings state that acceleration has a wider impact than merely academic performance; it has an impact on gifted students' overall well-being later in life.

Research suggests that the quicker students progress toward grade-level completion requirements, the more likely they are to complete college (Bowen, Chingos, & McPherson, 2009). In a synthesis of research, Rogers (2002) concluded that an average of one third to one half an additional year's achievement growth (effect size [ES] =.34 to .49) is possible within a school talent development program when the child participates in daily growth activities such as acceleration. Highly capable students could be losing one third to one half of a year of growth each year without the needed modifications.

There are many forms of acceleration; 18 types are identified in Volume II of "A Nation Deceived" (Colangelo et al., 2004, Vol. II, p. 1). These include early entrance to school, whole-grade acceleration and grade skipping, or subject matter only acceleration, such as math only. In these forms of acceleration, the school provides changes in student schedules with parent support in order to provide the content to be learned at a more rapid pace or at a pace that is better suited for more capable learners. Other types of acceleration include self-paced instruction, gender-based or apprentice-type mentoring, and curriculum compacting. These acceleration types provide in-class supports and modifications for advanced learners with teachers providing differentiation to once again provide content to be learned at a more rapid or suitable pace. Finally, AP courses and allowing early entrance to college (Colangelo et al., 2004, Vol. II) are further examples of acceleration to meet the needs of gifted students.

Many of these forms of acceleration are designed for individual students. Some forms allow small or larger groups to accelerate together (Colangelo et al., 2004. Vol. II). In any event, structures at the school level and in the classroom must be present to allow for individual or group advancement between grades outside of traditional year-long promotion standards and curriculums (VanTassel-Baska, 2003). If there are no structures in place to support curriculum compacting in the classroom, there will be a loss of acceleration in subsequent years due to a lack of additional opportunities (Colangelo et al., 2004, Vol. II). Schools need certain nonnegotiable factors to respond effectively to gifted students (VanTassel-Baska, 2003).

Findings recommend "accelerative practices coupled with the use of technology option" which would allow flexibility within the learning environment when staff constraints may occur (VanTassel-Baska, 2003). Technology alone offers a number of benefits to gifted students including content differentiation, differentiated assignments, interest-based choices and communication tools. Technology, if used wisely, can help gifted students maximize their potential (Jurkovic, 2012). The most recent model which capitalizes on both teacher interpersonal skills and student interest in technology is called "blended learning." With this model of instruction, traditional face-to-face methods are combined with modern technology to offer a high tech yet personable approach to instruction. Many schools across the country are seeing significant progress with instruction involving blended learning models (P.K. Yonge Developmental Research School, 2014).

While many leading researchers support the use of acceleration, it is not without opposition. Many school districts and school officials are reluctant to employ acceleration as a way to meet the needs of gifted students. Some feel it will have harmful

emotional and social effects on students (Southern, Jones, & Fiscus, 1989). Several studies have worked to refute or substantiate this perception. Results from a broad research study concluded that "grade skipping, early school entrance, and early admission to college" are not harmful but instead show positive "socio-affective benefits" (Neihart, 2007, p. 67). This is however dependent upon gifted students being selected on the basis of demonstrated academic, social, and emotional maturity. Placements based solely on the basis of IQ, achievement, or social maturity could prove harmful (Neihart, 2007). Advocates of acceleration and research findings, including those from "A Nation Deceived," dispel the idea of harmful emotional and social affects as well. The study concludes that a proper implementation of acceleration provides exactly what gifted students need academically, emotionally, and socially (Colangelo et al., 2004, Vol. I).

Schools must be malleable enough to accommodate gifted student desires to advance at a rate that is often faster than that of their peers. Acceleration pairs the "level and complexity of the curriculum with the readiness and motivation of the child" (Colangelo et al., 2004, Vol. I, p. 5). Too often, educational interventions have been implemented without fidelity or with a weak to nonexistent research base. Acceleration is no exception. This gives skeptics an opportunity to make their case for why it should not be used. The reality is that the few problems that have been experienced with acceleration have stemmed from incomplete or improper planning (Colangelo et al., 2004, Vol. I). It is often difficult to make strong generalizations about research in education since scholars often present contradictory findings, but acceleration stands as a striking exception to the rule (Gross, 2003).

When embarking on a path to acceleration, there are some crucial things to consider. VanTassel-Baska (2003) called these elements nonnegotiables. As was

mentioned earlier, a flexible and supportive structure must be in place. This structure needs to be able to adapt to the changing speed and numbers of students it serves. This means that the idea of traditional year-long courses and grade levels determined by age must be disenfranchised from the policies of the school (VanTassel-Baska, 2003).

Additionally, in schools where advanced classes and curriculum are limited, differentiated instruction within the regular classroom needs to be implemented with fidelity, consistency, and integrity (Parke, 1989). For many schools, this will require professional development opportunities for teachers to learn about differentiation strategies. These strategies should be utilized by all teachers in all subject areas. Teachers will need to be able to design differentiated or compacted curricula to accelerate learning for their students as well as be able to use diversified instructional delivery methods. Appropriate assessment strategies are also a must to ensure what is being taught is learned by students. Outside opportunities such as self-paced learning technology and programs must also be made available in preparation and acknowledgement of those times gifted students exceed the capacity of the school (VanTassel-Baska, 2003).

Identification of gifted students. In order to place students correctly into an accelerated program or identify them as academically gifted, it is important to have a valid process for selection. Many see the identification process as separating the "winners" from "losers" (Schroth & Helfer, 2008); however, it is a crucial step to ensuring students are well suited for the pace at which content will be delivered. Agreement on the best methods and criteria to use for selection is an ongoing debate. A recent study by *The Journal for Education of the Gifted* analyzed the differences in perceptions among educators on what the appropriate criteria should be (Lohman, 2005).

The criteria considered were standardized tests, teacher nominations, parent nominations, peer nominations, portfolios of student work, performance assessments by experts, and observations. The study concluded that perceptions and experiences skewed the view of all educators in some way and no conclusive identifiers were named from the above list (Schroth & Helfer, 2008).

Studies have shown that signs of giftedness are present very early in life. Noticeable intellectual and physical characteristics of young gifted children include unusually early and fluent speech; early mobility (the child crawls, walks, or runs earlier than same-age-peers); early reading (the child spontaneously "picks up" reading from television, street signs, or advertisements); unusually retentive memory; intense curiosity; a very long attention span; eagerness to learn; a mature sense of humor; and less need for sleep than same-age peers of average ability (Gross, 1993).

In an educational setting, the focus should be on aptitude or potential due to the limited number of performance opportunities (Lohman, 2005). It is important however that performance tasks be closely related to the domain for which placement is being considered (McGrew & Evans, 2004; Traub & McGrew, 2004). Failure to do so can result in improper identification (Lohman, 2005). For example, phonemic awareness skills that facilitate early reading in Spanish for Hispanic students also facilitate early reading in English for these students (Lindsey, Manis, & Bailey, 2003). Thus, one can estimate the probability that Spanish-speaking students will learn to read English by measuring their phonemic awareness skills in Spanish. Similarly, dance instructors screen potential students by evaluating their body proportions, ability to turn their feet outwards, and ability to emulate physical movements (Subotnik & Jarvin, 2005). Although none of these characteristics require a student to dance, it does determine

whether they have the necessary aptitudes to learn a dance.

Applied learning. Once an accelerated structure has been established and the appropriate students identified, it is important to facilitate learning in a way that is meaningful. In 1956, Benjamin Bloom and his team developed a framework for categorizing educational goals. The six original categories were revised in 2001 (Anderson & Krahtwohl, 2001). Today's educators use the Revised Bloom's Taxonomy which includes the following continuum of six categories that moves from simple to complex and concrete to abstract: remember, understand, apply, analyze, evaluate, create. When planning, instructing, and assessing, successful and effective teachers differentiate among learners using Revised Bloom's Taxonomy (Armstrong, n.d.). Educators also utilize Webb's (1997) Depth of Knowledge (DOK) model, which is a model employed to analyze the cognitive expectation demanded by standards, curricular activities, and assessment tasks. Educators should use Bloom's Taxonomy and Webb's DOK framework when planning units and instructing gifted students (New South Wales Department of Education and Training, 2004).

Today, institutions like The Davidson Academy are leading the way for gifted education by utilizing the upper tiers of Revised Bloom's Taxonomy to instruct gifted and talented students. Teachers at this academy rarely lecture. Instead, they serve as facilitators for project-based learning, student-led discussions and field experiences (Kronholz, 2011). Lesson units should provide each student with the appropriate amount of challenge and remediation to maximize the learning experience (Kaplan, 2005; Tomlinson et al., 2003).

In considering learning for gifted students and how lesson units should be designed, it is important to understand how gifted students learn. When presented a

problem they are unable to solve, the gifted student will often seek alternative ways rather than resort to trial and error (Shore, 2000). Another distinction in how gifted students learn is the way they process information. The gifted child will often conceptualize more readily than the average learner. They are able to grasp and store concepts in long-term memory with an understanding of interconnected parts, whereas the average learner processes small chunks of information where the teacher aids students in making connections between parts (Krutetskii, 1976).

Professional development. In considering accelerated curriculum and applied learning for gifted students, it poses the question of teacher preparedness to plan and deliver instruction using these methods. Schools commonly offer teachers some type of professional development regarding differentiating instruction to meet the needs of gifted learners. Determining the most "effective" model for professional development is often a difficult task due to a lack of agreement between practitioners and researchers. Fullan (1995) analyzed 13 of the most recent research-based models and analyzed the common traits noted. Of the models Fullan studied, he was able show a link between their identified characteristics and specific measures for achievement. Fullan's findings concluded that research-based models for professional development were typically dependent on opinions of researchers and educators and often have no direct correlation (Fullan, 1995). Fullan (1995) contended that similar to NISE and ETS models, the main goal of professional development should be focused on enhancement of student learning in order to make improvements.

The context for which professional development will be implemented is also an important consideration. This is derived from differences in teachers and students that comprise an educational setting. For example, low socioeconomic schools often have

teachers who teach out of subject due to turnover. These teachers would benefit from professional development focused on increasing content knowledge for teachers. To the contrary, affluent schools are likely to attract and retain teachers with advanced degrees and training in a particular content area. Professional development in this context is likely to be focused on pedagogical strategies (Fullan, 1995).

Within the process of professional development, teachers must become "change agents." Fullan (1995) examined why people enter the teaching profession. The most common response was to make a difference in the lives of students. It is therefore important to engage teachers in professional development combining noble purpose with the goal to make change (Fullan, 1995). A merge of research would indicate that professional development should be focused on individual and institutional goals with consideration given to the context for which it is set to occur. Its effectiveness should be measured by the direct correlation it has on academic improvements. Measurable academic improvements for students will contribute to the moral purpose for which the majority of people enter the profession, increasing the likeliness to remain in the profession. This contribution in personal fulfillment is a path to organizational growth (Fullan, 1995).

School climate. As Fullan (1995) stated, personal purpose is the route to organizational change. Psychologist Albert Bandura has focused much of his career profession on efficacy studies. In 1977, Bandura investigated self-efficacy and its impact on social/behavioral therapy. In his study, he found that performance accomplishments were specifically influential in relation to self-efficacy. Recurring successes raise mastery expectations while repeated failures reduce them. Furthermore, after strong efficacy expectations are created, the significance of an occasional failure is reduced.

While Bandura demonstrated that mastery experiences were significant at the individual level, Goddard, Hoy, and Hoy (2004) established that they were also influential at the group level. Similar to Bandura's discoveries on self-efficacy, past successes of a school build teacher support in the collective power of the school to achieve success, whereas an account of failure tends to weaken positive collective efficacy.

Research indicates that poor self-efficacy leads to faster teacher burnout (Skaalvik & Skaalvik, 2007). Researchers Skaalvik and Skaalvik (2007) at the Norwegian University of Science and Technology developed and factor analyzed the Norwegian Teacher Self-Efficacy Scale (NTSES). Their sample included 244 elementary and middle school teachers. Results revealed a particularly strong correlation between teacher self-efficacy and teacher burnout (Skaalvik & Skaalvik, 2007). These findings may simply reflect the greater number of females in the teaching profession.

Similar to the findings of Skaalvik and Skaalvik (2007), other researchers have demonstrated a positive correlation between teacher collective efficacy and job satisfaction (Klassen, Usher, & Bong, 2010). Interestingly, research findings indicated that job stress from workload and student behavior was higher for female teachers than for male teachers, but there was no difference in teacher collective efficacy, job stress, or job satisfaction across school levels (Klassen et al., 2010).

In a 2004 meta-analysis, Goddard et al. reviewed current research to determine how teacher practice and student learning are affected by perceived collective efficacy. The authors pointed out that individual or group efficacy judgments are beliefs about individual or group capabilities and may not necessarily reflect accurate assessments of those capabilities. The confidence possessed by a person or a group of people is very powerful and can lead to positive outcomes. Likewise, individuals or groups with

persistent self-doubt may not experience success even if they possess the necessary skills (Goddard et al., 2004).

Though self-efficacy exists at the individual level, studies have demonstrated a positive correlation between self-efficacy and collective efficacy. Essentially, a group of people with positive self-efficacy will demonstrate stronger collective efficacy (Calik, Sezgin, Kavgaci, & Kilinc, 2012; Skaalvik & Skaalvik, 2007).

Several studies (Bandura, 1993; Evans, 2009; Francera & Bliss, 2011; Goddard et al., 2004; Tschannen-Moran & Barr, 2004) support a link between collective efficacy and differences in student achievement among schools. The effect of collective efficacy on student achievement was stronger than the link between student achievement and socioeconomic status (Bandura, 1993). According to the meta-analysis by Goddard et al. (2004), "research suggests that a school's culture of perceived collective efficacy may exert a strong influence on teachers' sense of efficacy for instruction" (p. 8). Moreover, research indicates that when school faculty feel empowered to influence instructionally relevant decisions and are allowed to exert some control over school decisions, collective efficacy is strengthened (Derrington & Angelle, 2013; Goddard et al., 2004).

Longitudinal research indicates that efficacy beliefs, both at the individual level and group level, can significantly impact the achievement level of a school (Bandura, 1993; Goddard et al., 2004). Studies suggest that unsupported federal mandates lead to unprecedented levels of stress within schools. Pressure to perform to a certain standard with little support leads to stress at the individual level which ultimately leads to stress at the group level (Daly & Chrispeels, 2005).

Educational leaders within a school building have the capacity to change collective efficacy beliefs within the school (Goddard et al., 2004); furthermore,

instructional leadership affects collective efficacy indirectly through teacher self-efficacy. Goddard et al. (2004) identified eight factors as integral in developing collective efficacy within a school. These factors included a positive and supportive environment; clear vision and goals; high expectations (teachers, principal, and parents); strong support system (teachers, principal, and parents); meaningful professional development; shared leadership; innovative practice; and structured and productive collaboration. When school principals demonstrated instructional leadership behaviors, teacher beliefs in their abilities and perceptions about their own self-efficacy grew stronger (Calik et al., 2012).

Summary and Conclusions

The literature review conducted as part of this study indicated limited research in the area of gifted education. The research that does exist clearly indicates much less funding is provided for the most accelerated students. Solid programs do not exist for most school systems, and many gifted and talented students stagnate by middle school and become bored and apathetic.

This literature review supported the research team's hypothesis that lack of rigor and engagement for accelerated students was not specific to the school and system used in the study. This issue exists throughout the entire country; and while some individual states and school systems are doing better than others, it is still a far-reaching problem that needs ameliorating.

Further research is needed to determine if heterogeneous or homogeneous grouping is optimal for accelerated students and whether or not these results are consistent across content areas. Robust evidence does not exist to support the idea that heterogeneous classroom grouping, per se, significantly increases the risk for adjustment problems among moderately gifted students. Recommendations for best practice based

on the available evidence are presented (Neihart, 2007).

Leading specialists in the field of education (Matthews, 1992; VanTassel-Baska, 1992) recommended that heterogeneous groups are most appropriate when students are working on open-ended problem-solving tasks or science inquiry activities. Furthermore, Mathews (1992) and VanTassel-Baska (1992) recommended that it is appropriate for students to work in heterogeneous groups when they are discussing concepts that are new to all students, while homogeneous groups are more appropriate when students are working on skill development or reviewing material they have already learned. Grouping strategies in the classroom should be flexible, and students should be allowed to work independently at least occasionally according to their preferences. Likewise, these specialists recommended that students should have opportunities to select their own groups based on common interests. They stressed the importance that all students need to learn the skills of working together before cooperative learning activities will be successful (Matthews, 1992; VanTassel-Baska, 1992).

Further research is needed to determine if results are consistent over content areas. The current study focuses primarily on the results of a group of English students.

Chapter 3: Methodology

Introduction to Methodology

In creating an educational setting that is suited for gifted students, research indicates structures are needed at the school level (Callahan et al., 2014). This study examined the efficacious impact, if any, a curricular change had on teachers. The significance of this study is that it sought to positively impact the academic performance of gifted students rather than focusing on students who struggle to meet grade-level expectations. This subgroup was selected because the school had identified, through analysis of data, that gifted students were showing a decline in their performance on end-of-year assessments. Since there are few federal regulations governing gifted education, determining whether collaborative efficacy was improved will help in replicating results as a form of self-regulation for schools in the absence of federal mandates (Callahan et al., 2014). The researcher intended to answer the following questions.

1. What impact did curricular change have on teacher effectiveness?
2. What impact did curricular change have on the collaborative efficacy of all teachers involved?

To complete this, the school of study developed an instructional model to compact the curriculum in Grades 6, 7, and 8, culminating with English I class offerings in Grade 8. The study team, comprised of the building principal, eighth-grade assistant principal, and instructional coaches, hypothesized that curricular change would have a positive impact on overall school climate, bring out a culture of excellence, and foster a focus on standards-based, rigorous instruction. Areas of particular interest were professional development, curriculum acceleration and alignment activities, and the development of PLCs as they relate to overall improved student achievement for "gifted

students."

Setting

It is important to note the setting of this study because the population of the school of study is very homogenous in terms of ethnicity, which offers advantages and disadvantages. It is advantageous in that extraneous variables could be factored out when comparing the two sample groups. It is disadvantageous because it may be more difficult to transfer results to other schools or systems with more diverse student populations.

The school of study is located in a rural western region of North Carolina. At the time of the study, it served 908 middle school aged students in Grades 6-8. The student population was comprised of 488 males and 420 females. Of that population, 867 were White/Non-Hispanic, 24 Hispanic, eight Multi-race, four American Indian/Alaskan Native, two African-American, two Asian, and one Native Hawaiian/Pacific Islander (NCEdCloud, 2014). Fifty-three and a half percent were economically disadvantaged (Meals Plus Student Eligibility Education Management System, 2014). Student demographic data suggested a homogeneous group of White-Non-Hispanic males and females. Results of the study may not be applicable to more diverse populations.

Research Rationale and Design

In the school of study, the ELA curriculum in Grades 6, 7, and 8 were compacted, culminating with a high school offering of English 1 in Grade 8. This plan was derived from an analysis of both AIG/Talent Pool data and the School Improvement Plan (SIP) Goal 1: Prepare students for high school success. Using the Education Value-Added Assessment System (NC Growth Estimates) data, the school of study saw that in 2011-2012, students identified as gifted in ELA failed to show growth in sixth grade with a-1.9 loss as well as in seventh grade with a -2.5 loss. The school of study's SIP stated that

data would be used “to drive instruction” and “provide enrichment opportunities for identified students.” The value-added system clearly identified AIG students as needing additional support. Additionally, Goal 3 of the district’s improvement plan stated that students would be provided “a learning environment that is inviting, respectful, supportive, inclusive, and flexible for student success.”

During the 2012-2013 school year, probing questions from district personnel and analysis of student data by the school of study revealed the limited support available for gifted students, especially in the area of ELA. As previously stated, this population of students were either remaining stagnant or regressing with regard to academic growth (NCDPI, 2012). At that time, students identified as gifted and talented were clustered in groups of at least six students in ELA classes and individual teachers worked with the AIG specialist to develop and implement plans for differentiation. There was no school-wide plan to ensure fidelity. Furthermore, in the area of math, the only accelerated course offering was Math I (formerly called Algebra 1) in eighth grade; however, without progression or curriculum compacting in sixth and seventh grades, students were expected to cover Algebra 1 and eighth-grade curricula simultaneously within the same year. School wide, the only additional support for gifted students was an AIG elective class and individual teacher plans for differentiation. The data indicated that these measures were not successfully addressing the gifted students in ELA and only partially addressed the needs of students gifted in math.

While teachers were differentiating in their classrooms for students identified as AIG, the lack of growth and stagnation as evidenced by the Education Value-Added Assessment System (NC Growth Estimates) growth numbers for the top 20% of students highlighted this as a group in need of academic intervention. The school of study showed

negative growth numbers over a 2-year period. While a rudimentary plan for students who excelled in math was in existence, there was no such plan for ELA.

Research for gifted education. Based on Dr. Richard D. Courtright, gifted education research specialist at Duke University, differentiation gives advanced students (especially the highest 1-10%) the opportunity to navigate through the curriculum at a more accelerated pace than typically developing peers at the same age of standard and of normal intelligence or ability (Fullan, 1995). Furthermore, the progression of curriculum should be adapted to the readiness of the student to learn it rather than waiting for a subjective age or grade to undertake it. Students should be grouped with others of the same standard level and provided materials and objectives for that of a higher standard. This is known as a vertical modification in which the student moves up to work in progression of knowledge and skills from a higher standard, rather than having to wait. Providing vertical modification requires administrative support to the teacher and to the student to bring about the changes necessary for acceleration: materials, schedules, classroom assignments, curriculum requests. Dr. Courtright asserted that acceleration has the strongest support based on these research results indicating effectiveness and benefits for gifted students. In the book, *A Nation Deceived: How Schools Hold Back America's Brightest Students*, James J. Gallagher from the University of North Carolina at Chapel Hill stated, "there is little doubt that educators have been largely negative about the practice of acceleration, despite abundant research evidence attesting to its viability" (Makel, Wai, Putallaz, & Malone, 2015).

Tomlinson et al. (2003) stated that achieving students are frequently asked to participate in practice or instruction that they have already mastered; thus, according to David Lubinski of Vanderbilt University, creating "learning environments that move too

slowly and result in boredom" (Colangelo et al., 2004, p. 8).

Curriculum compacting streamlines and transforms the grade-level curriculum by eliminating material that has formerly been mastered. It reduces the danger of common problems faced by high-achieving students such as boredom, depression, inattentiveness, discipline issues, and underachievement. Acceleration lessens repetition of previously learned material and typically results in more learning for students; "for many gifted students, accelerative options can provide a better personal maturity match with peers than do no-accelerated programs, to say nothing of a better cognitive match" (Colangelo et al., 2004, p. 8).

Conferred with peers. After reviewing research about gifted students, the study team (building principal/researcher, eighth grade assistant principal, and instructional coaches) identified model schools already using a systematic approach for acceleration. Preliminary results revealed varying structures and situations in schools throughout the state. Selection of a comparison middle school came following a visit to a neighboring school district that offered an abundance of high school classes and had 3 years of data for their English 1 students. The selected middle school offered five high school classes: Algebra 1, Geometry 1, English 1, Earth and Environmental Science, and World Geography. That school's enrollment numbers were approximately the same as the school of study with a student population of almost 800. The comparison middle school offered two classes of eighth grade English 1; and in 2012, their EOC results for English 1 were 100% proficient with 83.3% achieving a Level 4, which was the highest achievement level at that time.

Attended middle school conference. Dr. Jennifer Richotte of UNC Charlotte was a guest speaker at the 2012 North Carolina Middle School Conference. Her presentation

titled “The Underachievement of Bright Middle School Students” cited research regarding gifted education. Analysis of research in this area demonstrated that middle school academic performance and engagement are believed to predict whether or not a student will drop out of high school. Efforts to intervene in high school are often too late. This makes curricular change at the middle school level imperative (Orthner, Jones-Sanpei, Akos, & Rose, 2013). Middle school is a critical time for the onset of underachievement (Peterson & Colangelo, 1996). An unchallenging middle school curriculum intensifies gifted students’ boredom and leads to underachievement (Kanevsky & Keighly, 2003).

High school guidelines for middle grades placement. The North Carolina State Board of Education Policy manual states that English 1 may be taken in middle school along with Math 1, Geometry, Math II, Biology, Earth/Environmental Science and a physical science, Civics and Economics, US History, World History and World Language I and II. Students taking a high school course in middle school must achieve a Level 3 or 4 on an EOC, if available, shall use high school course codes, and shall be aligned to the Common Core/Essential Standards. These high school courses count toward graduation requirements, but student GPAs will be computed solely with courses taken during the high school years.

Considerations. With a new program of high school class offerings at the middle school level came a variety of factors for consideration. Leadership at the school of study was concerned with curriculum mastery versus exposure as well as vertical implications between grade levels. These factors required administrative support for teachers and considerations into qualified staff for accelerated classes at the sixth- and seventh-grade level, with English I high school classes offered in eighth grade. Vertical PLCs between

all three grades of middle school teachers were important as well as collaborative discussions between middle school teachers and the high school English department to develop alignment with the high school curriculum. The school of study was interested in how the change of classes at the middle school level would impact student choice at the high school level with open sections created for accelerated students. Further concerns included high school GPA points forgone by taking English I in eighth grade rather than Honors English I in ninth grade and accelerated students not electing to take AP English classes in twelfth grade.

Other considerations for the school of study included the acquisition of materials for both the accelerated classes to support the English I curriculum and for the English I classes. The school of study needed high school level reading materials including basal readers and novels as well as a high school vocabulary program aligned with ACT/SAT requirements. Another factor of consideration for the school of study was scheduling additional high school class offerings. Scheduling classes and students around the school of study's current Math I classes and special education inclusion classes and looking at balanced heterogeneous groupings across curricular content classes was a challenge. The school of study was also interested in adding high school class offerings in other content areas at the eighth-grade level in the future, such as Accelerated Science or ninth-grade Earth and Environmental Science.

Finally, student maturity and parental support were two important considerations for the school of study. Developmentally, moving middle school students into English I curricular content required administrative, faculty, and parental support systems. Multiple high school class offerings would impact student workloads and require middle school students to deal with high school English concepts, themes, and expectations.

Role of the Researcher

The role of the researcher was observer-participant as the principal and leader of the middle school of study. The professional relationship the researcher had with the faculty participants of content curriculum specialists and instructional coaches, lead teacher, test coordinator, data manager, AIG specialist, and teachers as well as with the student and parent participants was supervisory. Ethical issues included doing a study within the researcher's own work environment and power differentials between a principal and faculty. Researcher biases and/or power relationships were managed through the involvement of the School Improvement Team with a wide panel of faculty members mentioned above from sixth, seventh and eighth grades as well as teacher-centered PLCs to ensure collaboration among all stakeholders. The researcher created a group of faculty members to run student diagnostic assessments, analyze student data points, and collaboratively make decisions for the school of study with the School Improvement Team and grade level PLCs. The researcher communicated the procedures, results, and plans with district level school officials and high school administrators.

Methodology

The study was a mixed methods research design. Qualitative and quantitative data were used to measure the impact curricular acceleration or program change had on teacher effectiveness and collaborative efficacy. Qualitative data were gathered using Bandura's Teacher Self-Efficacy Scale found in the appendix. Bandura's Teacher Self-Efficacy Scale was distributed and collected in paper form via a teacher representative prior to any changes. Permission to use his self-efficacy scale was secured via email exchange. A second administration occurred in the same manner following measures to change curriculum. A paired sample *t* test was used to determine if there was a

significant difference in efficacy before and after the curricular change. A *p* value of .05 was used to determine if the change was statistically significant.

In conjunction with Bandura's Teacher Self-Efficacy Scale, the research team created a survey to assess curricular areas. The survey was vetted by another middle school in the school system. The vetting had an 80% response rate where all approved the content of the survey. The only changes were semantic. They suggested word changes. For instance, the original questions used the prompting phrase "how much" and they suggested using "to what extent" to help make the survey more objective. The survey can be seen in Figure 2.

Please read the following questions to determine user-friendliness. The goal of these questions is to determine the effectiveness of key curricular activities in a learning environment.

1. To what extent can your involvement in Professional Learning Communities empower you to change the learning environment?

   1 2 3 4 5 6 7 8 9
   None Very Little Some Quite a Bit A Great Deal

2. How much can vertical alignment activities help you in achieving overall learning goals of the school?

   1 2 3 4 5 6 7 8 9
   None Very Little Some Quite a Bit A Great Deal

3. How much can the school's use of Bloom's Taxonomy impact your teaching?

   1 2 3 4 5 6 7 8 9
   None Very Little Some Quite a Bit A Great Deal

4. How much can curriculum acceleration impact your students learning?

   1 2 3 4 5 6 7 8 9
   None Very Little Some Quite a Bit A Great Deal

5. Please describe the most important activity or resource that generated a positive change in your teaching.

Figure 2. Survey.

Quantitative measures for this study involved analysis of teacher effectiveness data before and after curriculum change as determined by North Carolina teacher growth index. A paired sample *t* test was used to determine if a change occurred in teacher effectiveness as a result of curricular change. Teacher performance data served as a function of efficacy with regard to effectiveness. This was the dependent variable to be considered in determining if an efficacious change occurred as a whole or as an

individual (University of Wisconsin Stout, 2015).

Participants

The initial study involved middle school teachers and middle school-aged students in a rural western North Carolina school district. For the initial component of the study, two teachers were surveyed. These two eighth-grade teachers were teaching English I, so they could form a PLC. After 2 years of this configuration, they decided that one teacher should teach both sections, while the other teacher focused on the inclusion population. Participants for the concluding portion of the study included 54 students and one English I teacher.

Students involved in the study included 60 total: 36 female and 24 male. Regarding ethnic background, 59 students were White/non-Hispanic and one was multi-racial. All students considered in the study were higher functioning ELA students as shown by state NC Growth Estimates, grades, and the result of the Assessing Reading: Multiple Measures screener (Diamond, 2008). Identification of these potential student candidates for English I occurred through the use of NC Growth Estimates. Using a lens dedicated to "mastery" rather than "exposure," the school of study used NC Growth Estimates to examine the achievement probability for the English 1 EOC (now the Final Exam) for the current seventh graders. Sixty-six seventh-grade students were projected to pass the English 1 EOC (discontinued) with a 90-99% achievement probability. Forty-six of those 66 students were projected to make a Level 4 with an 80-99% achievement probability. Of those 46 students, 41 were AIG in reading. Again, using NC Growth Estimates, the school of study looked at the achievement probability for current sixth graders. Ninety-six sixth-grade students were projected to pass the English 1 EOC with a 90-99% achievement probability. Forty-four of those 96 students were projected to make

a Level 4 with an 80-99% achievement probability. Of these 44 students, 37 were AIG in reading, and two were AIG in math only.

Instrumentation

Several different data collection instruments were used for a mixed-method, quasi-experimental study. The goal was to determine the overall impact program changes for gifted students had on collaborative efficacy. Quantitative data were collected using the Education Value-Added Assessment System (NC Growth Estimates). This measure provided quantitative data about teacher effectiveness as a result of program changes. Qualitative data were collected using a survey and Bandura's Teacher Self-Efficacy Scale. These instruments helped determine the efficacious impact on teachers involved in the study and how the individual efficacy impacted the school as a whole.

The impact the curricular change had on teacher effectiveness was determined using North Carolina teacher growth index. This measure was chosen because it compares all teachers in the state. Growth calculations factor a standard deviation of negative 2 to positive 2 with 0 being the median. Teachers falling within this range are considered to have met expected growth for the year. Teachers with a growth index of 2 or greater are considered to have exceeded growth expectations, while teachers negative 2 and below are considered to have made insufficient growth. Probability sampling was used for this study. Teacher Effectiveness Data were collected for 2013, 2014, 2015, and 2016. The researcher measured the level of change, if any, in teacher effectiveness during this time period. Only teachers who were on staff in 2013 and remained in the same subject and grade level were used. This helped eliminate other variables such as new staff and familiarity with content. Teacher Effectiveness Data were aggregated for

2014, 2015, and 2016 to determine if effectiveness was consistently higher than 2013 for the staff as a whole. Positive values would reflect increases in effectiveness, while negative values would reflect decreases in effectiveness. A positive, negative, or null correlation was determined by movement on this scale (NCDPI, 2016). A paired sample *t* test was used to determine if a change occurred in teacher effectiveness as a result of curricular change. A *p* value of .05 was used to determine if the change in teacher effectiveness was statistically significant.

The impact acceleration had on teacher efficacy was measured using a survey and Bandura's Teacher Self-Efficacy Scale. For this portion of the study, probability sampling was used. Bandura's Teacher Self-Efficacy Scale was distributed prior to any program change. No scale was identified by name for anonymity. A teacher representative distributed paper copies to all teachers following a faculty meeting. The researcher was not present at this time. The teacher representative collected and returned completed scales to the researcher. Forty-eight teachers responded to the survey. According to Hogg, Tanis, and Zimmerman (2006), a sample size should be over 30. Bandura's Teacher Self-Efficacy Scale was scored using "some influence" as the median and then determining whether teachers scored above or below the median. Movement above or below the median was measured. Movement away from the median was considered to have a positive or negative correlation. A paired sample *t* test was used to compare results before and after curricular change to determine if there was a significant difference in efficacy. A *p* value of .05 was used to determine if the change in efficacy was statistically significant.

Surveys were used in addition to Bandura's Teacher Self-Efficacy Scale for the second administration. This helped identify which, if any, curricular changes contributed

to a change in efficacy. This study is representative of one school in the district. The purpose was to eliminate other unknown variables or potential program and staff changes that could potentially skew the data. The survey used open-ended and Likert scale questions that invited teachers to share their perspective with regard to professional development and alignment activities before, during, and after implementation. Table 2 is a data alignment table that illustrates the instruments used and how data were analyzed.

Table 2

Data Alignment Table

Research Question	Type of data to collect	Method of data collection	Information Source	Analysis Procedures	Interpretation procedures and criteria
What impact did curricular change have on teacher effectiveness?	Quantitative	Growth Index	NC Dept. of Public Instruction	A Paired Sample *t* test with growth indexes for teachers that remained in same subject and grade in 2013, 2014, 2015, and 2016.	A *p* value of .05 or greater was considered a statistically significant change between the before and after implementation growth index.
What impact did curricular change have on the collaborative efficacy of all teachers	Quantitative	Bandura's Teacher Self-Efficacy Scale	Teacher response	A Paired Sample *t* test with growth indexes for teachers that remained in same subject and grade in 2013, 2014, 2015, and 2016.	A *p* value of .05 or greater was considered a statistically significant change between the before and after implementation efficacy rating.
	Qualitative	Survey	Teacher response	Thematic Content Analysis	a priori coding

Procedures

While there are three middle schools in the system, this study focused on the school where the curricular change took place. The research team did not have control over variables at the other two schools.

The school of study's plan to advance the ELA curriculum in sixth and seventh grade and offer English I in eighth grade was presented to the associate superintendent, superintendent, and secondary supervisor for approval. All in attendance were in agreement with the plan, and the next step was to communicate the plan to the feeder high school where most of the students would finish out their secondary education. After several meetings, a stringent criteria for placement was agreed upon by both the middle school of study and the feeder high school. The criteria for placement in English I at the eighth-grade level corresponded with the high school placement for honors-level classes from ninth through twelfth grades. The criteria for selection, which paralleled the school's model that had been used for over a decade to place students in Math 1, assigned students points as follows: 1-4 points for a ninth-grade placement test, 1-4 points for a 27-week benchmark (Case 21), 1-4 points for the ELA class grade, 1 point for a team recommendation, and 1 point for AIG status. The total points needed for placement were 12 or higher. This process resulted in the placement of 60 students in English I.

The school of study administered a fall screening to all sixth-grade students to identify top performing ELA students. Those students who met the criteria of NC Growth Estimates, fifth grade ELA performance, and results of the fall screener were placed in an accelerated ELA class, compacting the traditional sixth and seventh grade ELA instruction. Furthermore, using NC Growth Estimates, 27-week benchmark data, EOG results, and team recommendation, the school of study continued with accelerated

ELA class offerings in seventh grade.

Further meetings occurred with the feeder high school administration and English I department to ensure vertical alignment and course offerings. The high school agreed to ensure a continuum of placement for successful English 1 students in AP classes in conjunction with the local community college. Additionally, it was agreed upon that Honors English II would be offered to successful accelerated students of English I using the same placement point criteria as above. The school of study's ELA instructional coach also created a summer reading list devised in cooperation with the high school English department for eighth grade English I student participants.

When the initial meetings with school district personnel and the feeder high school were concluded for approval and general planning, the staff within the school of study was made aware of the plan through grade-level meetings. Faculty teachers were selected to teach accelerated and English I classes by considering teacher strengths, dispositions, and certifications to ensure qualified and capable teacher assignments. A decision was made to have two English I teachers to provide opportunities for collaborative lesson planning and comparison of performance during the first 2 years of the new program. The school of study's ELA instructional coach met with ELA staff across grade levels to develop common pacing guides and assessments for coverage and mastery of ELA concepts from sixth grade to ninth grade. Common Core strands were analyzed, and enrichment activities and texts were provided to staff that mirrored those of the high school. Furthermore, money was budgeted for appropriate materials out of PRC 24 funds.

In order to communicate to parents and identified students, a letter explaining the plan was sent home to parents with the summer reading attached for students. An initial

parent meeting was held to answer questions before the end of the 2012-2013 school year. During the summer months, the school schedule was rebuilt to accommodate curriculum changes. The eighth grade was reconfigured from middle school teams of four teachers to four content departments (ELA, math, science, social studies) with three teachers each to eliminate overages in classes and avoid social barriers. The school year began with two sections each of sixth and seventh grade accelerated English and English I classes offered with two different teachers in each grade level. Another parent information meeting was held after the start of the 2013-2014 school year. Grade-level teachers explained the accelerated curriculum and articulated expectations for placement into English I and Honors English II at the feeder high school.

Limitations

This study was conducted in a rural western North Carolina school district. Participants of the study were a homogenous group with regard to socioeconomic status, race, and ethnicity. This is a reflection of the community for which the study was conducted rather than the selection process. Participants for the study were predominantly White (non-Hispanic). A more diverse cross-section of students would help establish effectiveness for students from a variety of backgrounds, socioeconomic status, geographic location, and race. Also, the number of students involved was small. A larger number of participants would have provided a larger data set for greater reliability; however, the data were sufficient for determining the impact acceleration had on academic growth for gifted students. Academic giftedness is not exclusive to a particular race or socioeconomic status. The results of accelerating curriculum could vary by degree within groups though.

For this study, the school of study focused primarily on ELA because that is

where the most significant changes were made; however, the school of study also made changes within the math department. The following year, higher functioning math students in Grade 7 (those predicted to enter Algebra 1 in Grade 8) were placed in an accelerated math class. These classes called "Advanced CMP" offered an acceleration/compaction of the math content and included the core standards from both seventh and eighth grades providing the brightest math students an opportunity to engage in learning that went beyond the designated curriculum for seventh grade. At the end of the year, these students were screened for Algebra 1 placement for Grade 8 using set criteria. Criteria included team recommendation, math performance (math grade), benchmark data (Case 21), math ability (Orleans Hannah Prognosis Test) and NC Growth Estimates predictability data.

Students meeting the criteria were placed in Algebra 1 in Grade 8. They took both the EOC and EOG. Students achieving a Level 3 or 4 on the Algebra EOC received high school math credit for Algebra 1, but their mark in the course did NOT count toward their high school GPA.

Those involved with the study were concerned that self-efficacy was affected by other variables such as low pay, larger class sizes, budget issues, and other factors unrelated to the implementation of the accelerated curriculum. The researcher encouraged teachers to focus on how the curricular change affected their self-efficacy, although it should be acknowledged that it was a challenge to emotionally and cognitively separate various variables that culminate in a broad effect such as efficacy.

Similarly, a larger and more diverse body of teachers would assist in substantiating results found for school climate. For limited purposes, it provided a basis to consider the impact a curricular change had on teachers and the overall change in

school climate. Similar results could be anticipated since teacher preparation and credentialing is similar throughout teacher education programs.

Summary

The curricular program was initially developed at the school level and presented to administrators at the system-wide level. Once the change was approved, the research team at the school developed appropriate methodology and procedures to assess the effectiveness of the curricular change on accelerated student growth.

A significant amount of time was spent planning this study and ensuring the correct students were selected as the sample groups. A variety of data points were gathered using several different subjective and objective methods of measurements. While the principal served as lead researcher, he conferred and worked with a number of other educational professionals throughout the study.

Chapter 4: Results

Introduction

The purpose of this study was to examine the effects of curricular change on collaborative efficacy among teachers. A positive correlation between the two could assist educators in creating an educational environment to facilitate learning for students and growth among teachers. In this study, a measure of teacher growth, as determined by the Education Value-Added Assessment System (NC Growth Estimates), as well as using Bandura's Teacher Self-Efficacy Scale were used for answering the following research questions.

1. What impact did curricular change have on teacher effectiveness?
2. What impact did curricular change have on the collaborative efficacy of all teachers involved?

These two measures will aid in determining what, if any, impact a curricular change had on teachers within the school of study. The significance will be the potential to create systemic change for teachers based on the findings. A positive correlation between curricular change and collaborative efficacy could provide a baseline of activities to bring about improved educational settings in similar schools. Subsequent paragraphs of this chapter detail the setting, demographics, and data collection and analysis as well as results and the reliability of results for this study.

Setting

The researcher for this study was the direct supervisor for all participants; therefore, participant results were potentially influenced by the researcher. Selection of instruments and delivery of those instruments were carefully prescribed in order to minimize any potential bias on data. There were initially 48 study participants; but some

were removed to eliminate variability due to changes in grade level, content, and lack of continuity during the time the study was being conducted. All participants were equally licensed in his/her respective subjects and deemed highly qualified for the subject taught. No program changes were present outside of the curricular change designed to accelerate learning for academically gifted students for which this study was conducted.

Demographics

Initially, the study involved 48 participants who were given Bandura's Teacher Self-Efficacy Scale. These participants comprised all teachers from the core subject areas of ELA, math, science, and social studies as well as five exceptional children teachers. Seven of the teachers had 1-4 years of teaching experience, 13 had 5-9 years of experience, and 28 of them had 10 plus years of experience. Fifteen of the respondents were male, and 33 were female. This group was selected based on the availability of teacher growth information generated by the state Education Value-Added Assessment System. This group of participants provided a baseline of growth and efficacy measures prior to any curricular change. Over the duration of the study, some participants were excluded from the findings due to a change in grade level, subject, or lack of continuity in their teaching assignment. The study concluded with 18 of the original 48 participants who had no change in teaching assignment as well as growth data from 2013 to 2016. Among these remaining teachers, two had 1-4 years of experience, three had 5-9 years of experience, and 13 had 10 plus years of teaching experience. Four were male, and 14 were female. All participants were highly qualified in their subject and were teaching in their licensed specialty.

Data Collection

The study began with 48 participants. These participants completed Bandura's

Teacher Self-Efficacy Scale in the fall of 2013 prior to any curricular changes. The survey was given to all ELA, math, science, and social studies teachers on a voluntary basis in paper form. The survey was administered by the teacher appointed professional organization representative following a faculty meeting. No identifying information was requested on the survey. Surveys were collected by the representative and returned to the researcher. The researcher was not present at any time during the administration. Concurrently, teacher growth data were released by the Education Value-Added Assessment System (NC Growth Estimates) for the 2012-2013 school year. The researcher took no part in the calculations for growth. These two measures would serve as baselines for teacher effectiveness and the level of collaborative efficacy at the study's inception.

Study results concluded with 18 participants in the fall of 2017. Bandura's Teacher Self-Efficacy Scale was given a second time to eligible participants. The second administration of Bandura's survey was conducted in exactly the same manner as the first administration. Eligibility was determined by continuity in teaching assignment as prescribed. Only those teachers who remained in the same grade level and subject were used in study results. One modification was made on the part of the researcher. Additional survey questions were created and given during the second administration. The purpose for this change was to gain more insight into how teachers viewed key activities involved in the curricular change. This information will provide greater understanding of which activities teachers felt were most impactful to a change in efficacy and effectiveness.

Data Analysis

In this study, qualitative and quantitative data were collected. Bandura's Teacher

Self-Efficacy Scale was used to collect qualitative data using a Likert scale. Teachers from the school of study provided responses to questions and scale scores were recorded. The survey was administered on two separate occasions. The first administration of the survey was given in the fall of 2013 prior to the introduction of a curricular change. The second administration of the survey occurred in the fall of 2017 following 4 years of curricular change activities and adjustments. The only differences in the two administrations were the number of eligible participants and the addition of survey questions. Eligibility for the first administration was determined by availability of growth scores as determined by Education Value-Added Assessment System (NC Growth Estimates) in the areas of ELA, math, science, and social studies. Forty-eight teachers completed the survey during the first administration based on this criterion. For the second administration, 24 teachers participated in the survey. Eligibility of these 24 teachers was determined by continuity of teaching assignment within grade level and subject area as well as availability of growth numbers for all 4 years. The significance in determining eligibility for the second administration was to ensure that no change in ratings or teacher effectiveness was impacted by new teachers or changes in teaching assignment. Additional survey questions were given in conjunction with Bandura's Teacher Self-Efficacy Scale to gain greater understanding of the impact of curricular activities. Both administrations of the survey maintained complete anonymity through paper copy distribution, collection by a third party, and the absence of identifying information on the survey. Participants responded to questions and rated how much he/she can do to impact change from a selection of "Nothing," "Very Little," "Some Influence," Quite a Bit," and "A Great Deal." Pre- and post-Likert scale ratings were compared to determine whether efficacy of teachers as a whole had changed and, if so, to

what extent. The statistical significance of this change was determined using a paired sample *t* test.

Quantitative data were collected for teacher effectiveness by using the Education Value-Added Assessment System (NC Growth Estimates). For teachers to be included in the study, his/her growth numbers were represented as positive or negative numbers with 0 being the median. Positive numbers above the median are considered increased effectiveness. Negative numbers below the median are considered decreased effectiveness. Teachers with growth numbers that fall between -1.9 and 1.9 are considered to have met expected growth for the year. This range reflects the allowance provided for standard deviation. Teachers with growth numbers greater than 2 are considered to have exceeded expected growth, while teachers with -2 and greater are considered not to have met expected growth. Data analysis for this study looked at an aggregate number for participants to determine if a change occurred and, if so, to what extent.

Quantitative Results

Using NC Growth Estimates from 2013 to 2016, the researcher sought to answer the following research question: "What impact did curricular change have on teacher effectiveness?" Twenty-three teachers were eligible for use in the results. These teachers remained in the same subject and grade level during the 4-year period the study was conducted. Growth estimates were also available for each of these teachers during the 4-year period. 2013 teacher growth data would serve as the baseline for comparison of growth data in 2016 following a change in curricular acceleration. The researcher had no part in the calculation of growth estimates. NC Growth Estimates are calculated and provided to school districts as part of annual reporting.

To test the hypothesis that the 2013 EVAAS means (*M*=-.5765, *SD*=2.67751) and the 2016 EVAAS means (*M*=.5496, *SD*=1.98987) were equal, a paired sample *t* test was conducted. Prior to conducting the paired sample *t* test, the assumption of normally distributed difference scores (2016 EVAAS minus 2013 EVAAS) was examined. Figure 3 indicates that there are no outliers in the data.

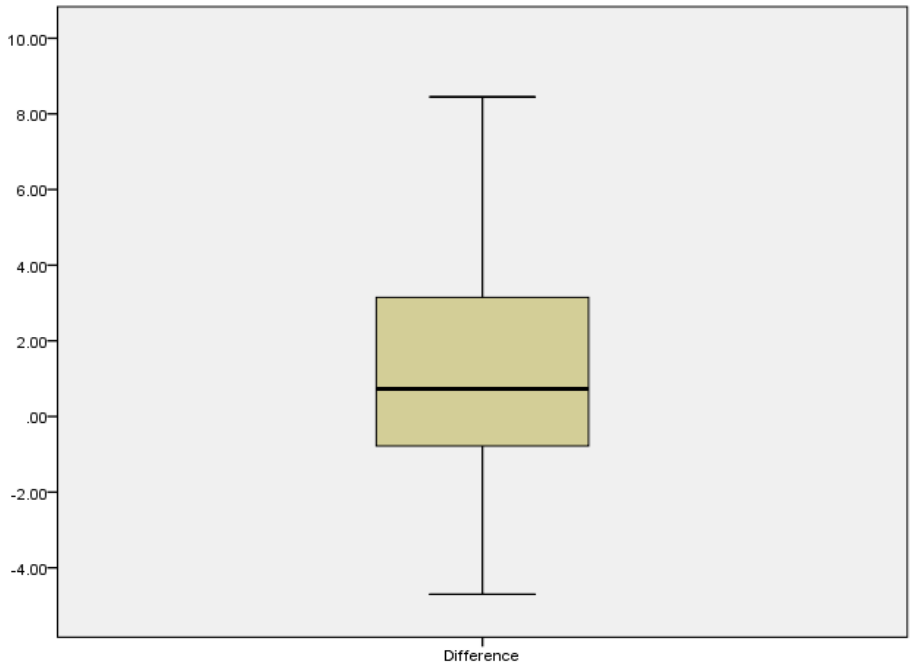

Figure 3. Paired Sample *t*-Test Boxplot for EVAAS 2013 and 2016 Difference Score.

The distribution of the difference score is normal as assessed by Shapiro-Wilk's test (*p*=.911; see Table 3). Furthermore, the skew and kurtosis levels were estimated at .289 and .371 respectively, which is less than the maximum allowable values for *t* tests (that is, skew <|2.0| and kurtosis <|9.0|; Posten, 1984), hence this assumption was satisfied (see Table 4).

Table 3

Tests of Normal Distribution of Difference Scores on EVAAS Measure

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Difference	.111	23	.200*	.980	23	.911

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Table 4

Skewness and Kurtosis Levels of Difference Scores on EVAAS Measure

Descriptive Statistics						
	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Difference	23	1.1261	.289	.481	.371	.935
Valid N (listwise)	23					

The results also indicate that the correlation between both conditions was estimated at r=.204, p=.350. A low correlation could be the result of small sample size or variability of teachers and students beyond control measures. The null hypothesis of equal EVAAS means was rejected, $t(22)$=-1.805, p=0.04. The EVAAS mean after the curriculum change (EVAAS 2016) was statistically significantly higher than the EVAAS means prior to curriculum change (EVAAS 2013). Cohen's d was estimated as -0.376, which indicates a relatively small effect based on Cohen's 1992 guidelines.

Table 5

Paired Sample Statistics on EVAAS Measure

Paired Sample Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Score_2013	-.5765	23	2.67751	.55830
	Score_2016	.5496	23	1.98987	.41492

Table 6

Paired Sample Correlations on EVAAS Measure

Paired Sample Correlations				
		N	Correlation	Sig.
Pair 1	Score_2013 & Score_2016	23	.204	.350

Table 7

Paired Sample Tests on EVAAS Measure

Paired Sample Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Score 2013 – Score 2016	-1.12609	2.99205	.62389	-2.41995	.16777	-1.805	22	.085

This test measures the mean value before and after some treatment of a population. In paired sample *t* tests, there are three critical indicators as to the validity of the results: *t* value, *p* value, and a Pearson Correlation. The *t* value determines whether results are statistically significant or not. A larger *t* value indicates greater significance of results. The *p* value determines the likeliness results were due to chance. *P* values less than 5% would indicate that results are not due to chance. The Pearson Correlation

determines the strength of the relationship between two variables. The scale ranges from -1 to 1. A value of 0 would indicate no relationship between variables.

Using the paired sample *t* test, NC Growth Estimate data from 2013 and 2016 were collected to determine if change had occurred. A null hypothesis was used in the calculation, meaning no change was anticipated or a value of 0. The mean value of 2013 teacher growth was -0.58. In comparison, the 2016 mean teacher growth was 0.55. The difference between the two samples shows a change in mean of 0.97. This would indicate that the mean for teacher growth in 2016 was greater than it was in 2013 prior to a curricular change. A *t* value of -1.8 indicates these findings are statistically significant and proves the null hypothesis untrue.

Calculations for comparative teacher growth data would also reveal a *p* value of 4.2%. This would indicate the change was not likely due to chance; however, the Pearson Correlation was 0.20, with 0 being no relationship, which suggests a weak correlation between teacher growth samples taken in 2013 and 2016. There are many possible causes for a weak correlation. Multiple factors contribute to teacher growth data such as student motivation and aptitude, the amount of available instructional time, experience level of teacher, and the level of teacher preparation. A small sample size or the change that occurred in sample size from one observation to the next could have also attributed to a weaker correlation. Therefore, the researcher concludes that although positive changes in teacher growth were detected and considered to be statistically significant, a weak relationship between the two samples makes findings inconclusive.

Qualitative Results

Using Bandura's Teacher Self-Efficacy Scale, the researcher sought to answer the following research question: "What impact did curricular change have on the

collaborative efficacy of all teachers involved?" All teachers in the core subject areas of ELA, math, science, and social studies were included in an initial administration of Bandura's Teacher Self-Efficacy Scale at the start of the 2013-2014 school year. This group was determined by availability of NC Growth Estimates. Teachers were asked to indicate their level of efficacy or influence in a variety of areas using the following ratings: Nothing, Very Little, Some Influence, Quite a Bit, and A Great Deal. The results of the first administration were recorded, and a second administration was conducted at the end of the 2016-2017 school year. Bandura's Teacher Self-Efficacy Scale was again used but only provided to those teachers with available NC Growth Estimates who had remained in the same subject and grade level from the 2013-2014 to the 2016-2017 school years. By allowing only teachers who had remained in the same subject and grade, the researcher could eliminate variability due to these changes. Additional survey questions were added to Bandura's Teacher Self-Efficacy Scale to help the researcher determine the impact of activities associated with the curricular change. Understanding the importance of these activities would be helpful for replication of results. Bandura's survey was administered and collected in the absence of the researcher. Surveys also did not require any identifying information to ensure complete anonymity. These measures were taken to promote open and honest responses by all participants since the researcher is principal of the school of study.

To test the hypothesis that the Average 1 means (M=5.7710, SD=.86495) and Average 2 means (M=5.9327, SD=1.09793) were equal, a paired sample t test was conducted. Prior to conducting the paired sample t test, the assumption of normally distributed difference scores (Average 2 minus Average 1) was examined. Figure 4 indicates that there was an outlier in the data, but a closer examination of its values

reveals that it is not extreme; therefore, it was kept in the analysis.

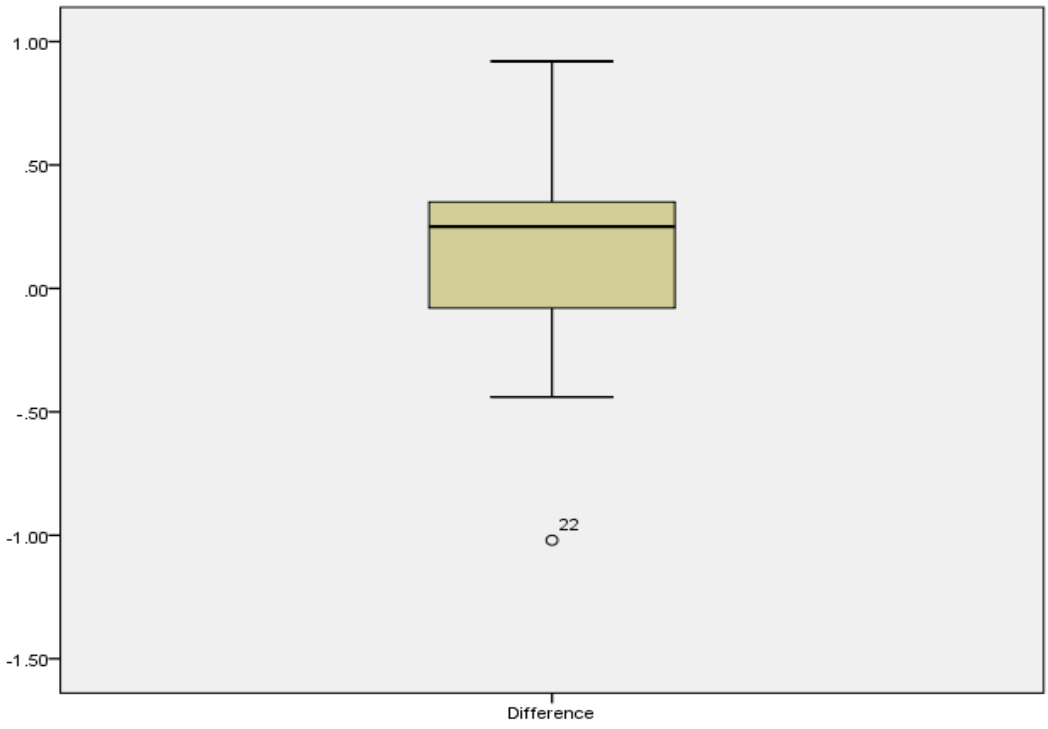

Figure 4. Paired Sample *t*-Test Boxplot for Bandura's Scale; Average 1 and Average 2 Difference Scores.

The distribution of the difference score is normal as assessed by Shapiro-Wilk's test (p=.194; see Table 8).

Table 8

Tests of Normal Distribution of Difference Scores for the Bandura's Scale

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Difference	.126	30	.200*	.952	30	.194

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Furthermore, the skew and kurtosis levels were estimated at -.819 and 1.627 respectively, which is less than the maximum allowable values for *t* tests (that is, skew

<|2.0| and kurtosis <|9.0|; Posten, 1984), hence this assumption was satisfied (see Table 9).

Table 9

Skewness and Kurtosis Levels of Difference Scores on Bandura's Scale

Descriptive Statistics						
	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Difference	30	.1617	-.819	.427	1.627	.833
Valid N (listwise)	30					

The results also indicate that the correlation between both conditions was estimated at r=.947, p<.001, which is an indication that the paired sample test is appropriate. The null hypothesis of equal averages was rejected, $t(29)$=-2.253, p=0.016. The average scores on the Bandura measure after the curriculum change were statistically significantly higher than those recorded prior to curriculum change. Cohen's d was estimated as 0.411, which indicates a relatively small effect based on Cohen's 1992 guidelines.

Table 10

Paired Sample Statistics on Bandura's Scale

Paired Sample Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Average_1	5.7710	30	.86495	.15792
	Average_2	5.9327	30	1.09793	.20045

Table 11

Paired Sample Correlations on Bandura's Scale

Paired Sample Correlations				
		N	Correlation	Sig.
Pair 1	Average_1 & Average_2	30	.947	.000

Table 12

Paired Sample Test on Bandura's Scale

Paired Sample Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Average 1 – Average 2	-.16167	.39303	.07176	-.30843	-.01491	-2.253	29	.032

Key indicators used for determining the significance of the results were *t* value, *p* value, and Pearson Correlation. The mean value for the initial administration of Bandura's Teacher Self-Efficacy survey was 5.72. This mean efficacy rating falls between "some influence" and "quite a bit" with some influence being a 5 on a 9-point Likert scale. The second administration showed a mean efficacy level of 5.88 which was an increase of .16 from the initial administration. The *t* value generated from the paired sample *t* test would indicate these findings to be significant. The *t* value was -3.7 which shows considerable amount of movement away from 0 and would prove the null hypothesis to be untrue. Results also revealed a strong *p* value of .03%. This value indicates that the change in efficacy levels was highly unlikely to be the result of chance or other variables. The Pearson Correlation confirms findings further by showing a

strong relationship between sample results from 2013-2014 and 2016-2017. The Pearson Correlation was .98. Results nearer to 1 or -1 mean that a strong relationship exists between the two variables; therefore, the researcher concludes that efficacy levels positively and significantly changed from 2013-2014 to 2016-2017. This would seem to indicate that the curricular change that occurred between survey administrations had a positive impact on overall efficacy levels of teachers.

To further understand these results, additional questions were attached to Bandura's survey for the second administration about specific activities that occurred from 2013-2014 to 2016-2017. The researcher analyzed survey responses about key activities involved in curricular change. Participants were asked how much involvement in PLCs, vertical alignment activities, use of Bloom's Taxonomy, and curriculum acceleration impacted their teaching and student learning. Teachers were asked to rate the impact of each using Bandura's 9-point Likert scale.

The survey contained one open-ended question which asked teachers to explain the most important activity or resource that generated a positive change in their teaching. The most common response was the support of administration or leadership. This response was provided by five of 17 respondents. The next most common response that teachers felt provided a positive change in their teaching was PLCs or the ability to collaborate. This was recorded by four of 17 respondents. The remaining responses were a variety of professional development opportunities, but none of them repeated from one respondent to the next. This could be attributed to strengths and weaknesses of the teacher with each of them finding professional development more or less meaningful based on need. A more consistent response rate from a larger sample size would have made these findings more significant for future applications; therefore, the researcher

concludes that the contributions of specific activities are inconclusive. The sum of these activities was part of the overall curricular change, and findings show a statistically significant improvement in overall efficacy among teachers.

Trustworthiness of Results

NC Growth Estimates, Bandura's Teacher Self-Efficacy Scale, and supplemental survey question results were generated by vetted and well-established instruments. These instruments have proven to be credible tools for gathering information in the areas of teacher effectiveness and efficacy. Supplemental questions were generated by the researcher and subject to question; however, they were written using Bandura's question stems and 9-point Likert scale answer choices. The supplemental questions were also vetted and approved by staff from another middle school to ensure fidelity. All three instruments were administered by a third party and in the absence of the researcher. Instruments required no identifying information, or results were reported by an independent entity. In the case of NC Growth Estimates, growth measures were calculated and reported for all qualifying teachers in the state. The researcher had no involvement in the calculation or reporting of these results. Bandura's Teacher Self-Efficacy Scale and supplemental questions were provided and collected by the media assistant at the school of study. No identifying information was required for participation in the survey to promote open and honest answers to questions.

Sample size and demographics would deny transferability of this study. The sample size was intentional but not large enough to ensure replication in other settings. The sample size was limited to a singular school of study to control extraneous variables that might be present at other schools. There was a total of 48 teachers involved at the onset. This number diminished due to measures to alleviate variability among teachers.

Some participants were removed from the final administration of Bandura's Teacher Self-Efficacy Scale due to a change of school, grade level, or subject. It is also prudent to acknowledge the uniqueness of the school of study as determined by demographics. Findings of this study may only be applicable to schools with like teaching staff in terms of years of experience, gender, race, and ethnicity.

Criteria for participation in the study and the methodology remained consistent for the term in which the study was conducted; however, maintaining consistency contributed to a smaller sample size and eliminated the possibility of a greater cross-section of teachers. Inconsistency that needs to be considered is the change in student population over a 4-year period. This factor could not be controlled and would require further research over a longer period of time to determine what, if any, impact student population played in the results.

Summary

The researcher sought to determine answers to the following questions.

1. What impact did curricular change have on teacher effectiveness?
2. What impact did curricular change have on the collaborative efficacy of all teachers involved?

Statistical analysis of efficacy results shows a strong relationship between the before and after results of a curricular change. Results were found to be statistically significant and not the result of chance. Therefore, it would seem that the curricular change positively promoted a greater level of efficacy among teachers involved in the study. Results would also suggest that a positive trend was observed in teacher effectiveness. These results were found to be statistically significant and not the result of chance. A weak relationship between the mean in 2013-2014 and 2015-2016 does not allow the researcher

to conclusively say that teacher effectiveness is a valid outcome of curricular change. This could be attributable to a small or decreasing sample size from the start to finish of the study. In either case, the findings of this study would seem to indicate increases in the efficacy levels of teachers and effectiveness. More research is needed with a larger cross-section of teachers and a greater longitudinal study for results to be conclusive and transferrable.

Chapter 5: Discussion

Introduction

We are in a time in this country where the practices of gifted education should be preeminent in leading the way in educating all youth; however, based on previous research and survey responses in many school districts, operations are at the same level they were 30 or more years ago. It is time for a national conversation focused on molding the future of gifted education for the 21st century (Callahan et al., 2014). This study began out of analysis of performance data for a rural middle school in western North Carolina. Data analysis would show that while academically gifted students continued to achieve proficiency on state EOG exams, growth among these students was either stagnate or declining as determined by NC Growth Estimates. More expansive research revealed that a national problem exists in educating and challenging academically gifted students. Many high-achieving students feel that school is boring and their time spent there is wasted; they are "buying time" until they can skip a grade or graduate and attend a college or university that challenges them ("Gifted Education in the U.S.," n.d.).

For this study, curriculum acceleration was introduced as a method of meeting the needs of academically gifted students. Research supports curriculum acceleration as an effective method of promoting growth among academically gifted students (Colangelo et al., 2004). The purpose of this study was to examine the impact a curricular change has on teacher efficacy and effectiveness. It was hypothesized a curricular change would have a positive impact on overall school climate, bringing out a culture of excellence and a focus on standards-based, rigorous instruction. This coincides with the findings of Callahan et al. (2014) who also found a positive correlation between teacher efficacy and

student achievement/growth.

Findings indicate that hypothesizing a curricular change would have a positive impact on teacher effectiveness and efficacy was true. Positive correlations were observed with regard to teacher effectiveness and efficacy. The NC Growth Estimate (EVAAS) mean after the curriculum change (EVAAS 2016) was statistically significantly higher than the EVAAS mean prior to curriculum change (EVAAS 2013); however, the overall effect (-0.376) of the curricular change on teacher effectiveness was determined to be small according to Cohen's d 1992 guidelines. With regard to teacher efficacy, Bandura's Teacher Self-Efficacy Scale would produce similar results. The average scores on the Bandura measure after the curriculum change were statistically significantly higher than those recorded prior to curriculum change. The effect of this change (0.411) was again determined to be small with regard to Cohen's d 1992 guidelines. Therefore, it can be concluded that curricular change has a positive effect on teacher effectiveness and efficacy, but the overall effect was small for this study. The small effect could be a function of variables that could not be controlled such as student motivation and aptitude, the amount of available instructional time, experience level of the teacher, and the level of teacher preparation. A small sample size or the change that occurred in sample size from one observation to the next could have also attributed to a smaller effect.

The additional survey questions that were intended to provide insight about the types of activities that contributed to a positive change in mean effectiveness and efficacy did not yield any definitive results. Response rates with regard to the importance of key activities involved in curricular change were varied with the most common responses indicating a positive change in teaching as a result of PLCs (13.6%) and administrative

support (17%). Results of the study and prior research would indicate that these activities contributed in some way to a positive change in teacher efficacy and effectiveness. These elements or activities helped create an overall climate change and shift in thinking to what we know is best for gifted students (Callahan et al., 2014).

Interpretation of Findings

Regardless of the effect size of curricular change, a positive mean increase in teacher effectiveness and efficacy was observed in this study. The curricular acceleration served two purposes. It addressed the needs of academically gifted students and provided a tool for teachers to meet the needs of those students. According to a national study conducted by the Fordham Institute, 58% of teachers have received no professional development focused on teaching academically advanced students in the past few years, and 73% of teachers agreed that "Too often, the brightest students are bored and under-challenged in school – we're not giving them a sufficient chance to thrive" (Farkas & Duffet, 2008, para. 2). By introducing a curricular acceleration, teachers were given a chance to be successful with all students and it helped close gaps in teacher prowess. Curricular acceleration provided a structure and best practice for teachers working with academically gifted students. This vertical modification allows the student flexibility with the student moving up to work in the development of knowledge and skills from a higher standard for which the student is ready, rather than having to wait. Such a modification requires administrative support to the teacher and to the student to bring about the changes necessary to accelerate: materials, schedules, classroom assignments, curriculum requests (Steenbergen-Hu et al., 2016). This falls in line with the additional survey questions of this study. Teachers named administrative support and PLCs most commonly as items which helped improve their teaching. The findings of this study

provide at a minimum a way to make positive gains in teacher effectiveness and efficacy through curricular acceleration. No one facet of curricular acceleration can be identified as critical to a positive change in teachers, but the process as a whole was found to be beneficial. It provides an opportunity and structure for growth in which teachers can learn collectively from one another and through the process apply what research has found to be best practice. Evidence shows when teacher confidence and school climate improve, academic achievement and growth improve (Callahan et al., 2014).

Limitations of the Study

This study was conducted in a rural western North Carolina school district. Participants of the study compromised a homogenous group with regard to socioeconomic status, race, and ethnicity. This is a reflection of the community for which the study was conducted rather than the selection process. Participants for the study were predominantly White (non-Hispanic). A more diverse cross-section of students would help establish effectiveness for students from a variety of backgrounds, socioeconomic status, geographic location, and race. Also, the number of teachers and students involved was small. A larger number of participants would have provided a larger data set for greater reliability; however, the data are sufficient for determining the impact acceleration has on teacher effectiveness and efficacy. Academic giftedness is not exclusive to a particular race or socioeconomic status. The results of accelerating curriculum could vary by degree within groups though.

Recommendations

The strength of this study is that it applies what research suggests for providing the appropriate learning opportunities for academically gifted students with strategies for increasing teacher effectiveness and efficacy. The two go hand in hand. Since the 1970s,

studies have routinely demonstrated the benefits of positive efficacy on outcomes. There is a notable positive correlation between high efficacy (both self- and system-wide) and performance (Bandura, 1994). Similarly, positive outcomes have been shown to improve efficacy. Bandura found that performance accomplishments were especially influential with regard to self-efficacy. Repeated successes raise mastery expectations, while repeated failures lower them. Furthermore, after strong efficacy expectations are developed, the impact of an occasional failure is reduced (Bandura, 1977). Similarly, the results of this study show a positive change in mean teacher efficacy and effectiveness. Further research is recommended using a larger, more diverse group of teachers and students. This would assure greater reliability of results in a variety of populations and settings. It is possible that characteristics of this particular setting and population positively or negatively impacted the findings of this study. Cohen's d determined the effect of curricular acceleration on teacher efficacy and effectiveness to be small; however, according to Cohen's 1992 guidelines, it was near to having a medium effect. This measure could have been impacted adversely by the relatively small number of participants. A larger population cross-section of teachers, students, and settings is needed not only for reliability of effect size but also for applicability of findings in different settings.

Implications

Academically gifted students are our future leaders, yet many schools devote the smallest amount of time and resources to them (White, 2012). Combining what research says about meeting the needs of academically gifted students with research about teacher efficacy and effectiveness provides a model that others can use to create a positive change in the educational setting for students and teachers. Most gifted students receive

the majority of their K-12 education in a regular classroom with their typically developing peers and teachers who are not trained to teach gifted students. Curriculum compacting streamlines and modifies the grade-level curriculum by eliminating material that has previously been mastered, reducing the threat of common problems faced by high-achieving students such as boredom, depression, inattentiveness, discipline issues, and underachievement ("Gifted Education in the U.S.," n.d.). Reducing the risk of these common side effects is not only a benefit to the educational setting but to academically gifted students on an individual level and society as a whole. Consider the massive number of future inventors, entrepreneurs, biomedical engineers, and community leaders who could be lost each year. Between 10-20% of all high school dropouts test in the gifted range (Davidson Institute for Talent Development, 2006). The findings of this study conclude that curriculum acceleration provides a viable way for school leaders to increase the mean teacher effectiveness and improve efficacy while serving the needs of academically gifted students. Studies have shown that as efficacy increases, so does performance. By utilizing curriculum acceleration for academically gifted students, individual and organizational goals are able to be met due to increases in the level of teacher efficacy. Evidence shows when teacher confidence and school climate improve, academic achievement and growth improve (Callahan et al., 2014).

It is important for school leaders to provide a structure that supports curriculum acceleration. Such a modification requires administrative support and flexibility for teachers and students to accelerate: materials, schedules, classroom assignments, curriculum requests (Steenbergen-Hu et al., 2016). This study cannot produce any conclusive findings with regard to any one activity that was of greatest importance, but rather a collection of activities that produced a positive correlation between accelerated

curriculum and teacher effectiveness and efficacy. In reflecting upon the steps involved in this study, teachers were asked to establish criteria for identifying academically gifted students. Teachers met collectively to align curriculums from grade level to grade level. Teachers were provided with support materials for enrichment and the Revised Bloom's Taxonomy. Required reading and writing components were established, and professional development was provided in the areas of differentiation and applied learning. All of these steps contributed to improvement on the part of the teacher and student. These steps are coherent with what previous research has found to be productive. Each step provided the opportunity for ownership and produced a framework that supports what is known about organizational change. Change was centered around the ineffectiveness of instruction for academically gifted students. Linking materials and professional development to academic improvements contributed to the moral purpose for which the majority of people enter education. These supports led to personal fulfillment for each teacher and a change in mean efficacy for all teachers involved (Fullan, 1995). Identifying the need to provide accelerated instruction and promote growth provided a common struggle and common ground for discussion and consensus among all participants (DuFour, 2004); thus, the mean efficacy for all teachers involved was greater than before curriculum acceleration was introduced.

Research strongly suggests gifted programs contain curriculum acceleration and alignment, professional development, and PLCs as components to fully address gifted youth's academic, social, and emotional needs (Callahan et al., 2014). All of these components were utilized in this study. These components provide the structure that is needed for teachers to fulfill their personal purpose of teaching. It provides an opportunity for individual success and fulfillment through the collective efforts of many.

This in turn translates to a greater overall level of efficacy and helps the school meet organizational goals. As Fullan (1995) stated, personal purpose is the route to organizational change.

The improved outcomes in teacher effectiveness and efficacy were a culmination of all the steps involved in curricular acceleration. The results of the additional survey questions were inconclusive as a result of the varied responses among teachers. Each teacher found one of the steps in the process to be more valuable to him/her than the other; therefore, each step in the process is important for fulfilling the varying needs of teachers just as it is with meeting the needs of students. Teachers become students in the path to acceleration and have varying levels of training and knowledge when it comes to acceleration of curriculum. In replicating the results of this study, it is important that none of the activities be left out because all are pertinent to the change process that occurs with teachers individually. It is the change in teachers that occurred that will benefit others who may choose to replicate this study in the future.

It is therefore important to understand the steps or activities involved in this process of acceleration. Teachers were required to participate in PLCs. Teachers met weekly on a designated day to review student data. Initially, the focus was on the greatest area of need for improvement in growth which was gifted students. These data provided a common focus and purpose for discussion among teachers in a particular subject and grade level. Through this process, teachers learned from the strength and weaknesses of each teacher who comprised the PLC; and it accessed the moral purpose for which teachers join the profession, which is helping kids. The collective set of knowledge and skills of each teacher contributed to a stronger and more effective teacher by filling gaps in teaching prowess among the individual teachers of the group.

Another step or activity in curriculum acceleration that contributed to overall effectiveness and efficacy of the teacher was curricular or vertical alignment. From these activities, teachers grew in their knowledge of scope and sequence of the curriculum. This is an important piece to acceleration and helps teachers disenfranchise from the idea of year-long courses and grades that are determined by age. Alignment activities fostered discussion of materials and activities in a sequence of events and helped teachers fulfill a basic need of being better prepared to serve students in a given grade level. Student preparedness for each step in a sequence of curricular activities allowed teachers to eliminate remedial or redundant activities in their teaching practice which allows students to move at a more accelerated rate.

Also important to the findings of this study is the use of Bloom's Taxonomy. Teachers were asked to consider the questions, methods, and types of assignments given to students in a particular subject. Teachers were provided resources for enriching their content areas so gifted students were challenged appropriately and could continue to grow in his/her understanding of the content beyond minimum proficiency standards. Bloom's Taxonomy provided a platform or launching point for discussion of current teaching practice and allowed teachers to begin consideration of alternate methods for achieving growth regardless of established content standards. Teachers were able to consider the ways in which content is presented and begin to formulate new ways to challenge students in the depth and complexity of his/her current level of understanding. It was also a growth opportunity for teachers to strengthen their current level of teaching prowess.

The last but certainly not least step in the path to acceleration that contributed to a positive change in teacher efficacy and effectiveness is administrative support. This

response was provided commonly in the open-ended question of the survey that was provided to teachers during the second administration of Bandura's efficacy survey. It is important for principals/administrators to provide a structure where all of the aforementioned activities can take place. A supportive and flexible structure is needed for teachers to meet and consider the quality of instruction provided to each student regardless of his/her current level of understanding. By providing a structure that provides time for PLCs that evaluate student data and consider the use of Bloom's Taxonomy, all teachers are given an opportunity to reflect and learn from the collective knowledge of the group as a whole. The findings of this study are applicable not only for improved growth of gifted students but for all students. Student growth improved for all students in all grade levels and subjects as a result of change in teacher effectiveness and efficacy. It is the change in teachers observed in this study that administrators/principals must focus on to bring about positive outcomes in student performance. The positive change in teachers is the outcome of a structure that allows teachers to analyze data, reflect, consider, and be an active member in the change process. It is the totality of the activities and structure of the process utilized in this study that will bring about real change for all stakeholders.

The results of this study conclude that a research-based strategy of acceleration and the steps involved in implementing this curricular change are not only helpful for gifted students, but for all students. The mean teacher effectiveness results from this study are a reflection of all students taught in ELA, math, science, and social studies in Grades 6, 7, and 8. Teacher effectiveness results are also representative of the complete spectrum of students from low to high achievement and ability levels. The take away from the results of this study is that high-yield strategies are beneficial to all students

regardless of grade, subject, or student aptitude. Through the aforementioned process of acceleration, teachers became more effective and yielded increases in efficacy as was found in results from Bandura's survey. The systemic change that occurred from curricular acceleration brought positive gains in mean efficacy and effectiveness for all teachers, not just those who work with gifted students.

Conclusion

Studies indicate that academically gifted and talented students in this country make up approximately 6-10% of the total student population (Klein, 2015). Academically gifted students have been underserved for far too long. It is time for a shift in the amount of time, training, and emphasis being placed on the potential leaders of tomorrow. We must be compelled to do so in the absence of mandates, regulations, and legislation, no matter what it takes. Studies conclude that significant differences exist in educational status and direction, life satisfaction, social relationships, and self-esteem for academically gifted students who were appropriately challenged and not. Students with 2 years of acceleration reported "a greater degree of life satisfaction, have taken research degrees at leading universities, have professional careers, and report facilitative social and love relationships" (Gross, 2003, p. 404).

Hopefully this study will serve as a call for educational leaders to move to action. Administrators and principals have the ability to create change that best serves academically gifted students. When school principals demonstrated instructional leadership behaviors, teacher beliefs in their abilities and perceptions about their own self-efficacy grew stronger (Calik et al., 2012). It is time to reflect on growth, not proficiency, for these students and provide a structure for teachers to be more efficacious and effective. The ramifications of not doing so far exceed the potential harm for

individual students. Society as a whole suffers. Potential inventors, researchers, and designers are lost and so also are the potential for significant contributions made to society.

Curriculum acceleration is a proven method, not only in this study but others, for promoting growth among academically gifted students and also provides a valuable method for teachers to adopt and increase instructional effectiveness. Through this process, teachers become more certain of their own abilities resulting in performance improvements for the individual teacher and for the group as a whole. Curriculum acceleration is a high-yield strategy that not only benefits gifted students and the teachers who teach them, but all students and teachers. The results of this study show that teachers from three different grade levels across four different subject areas made gains with students from the lowest in ability or skill set to the highest.

Teachers made gains in teaching prowess from key components associated with curriculum acceleration. PLCs allowed teachers to learn from the collective set of knowledge and skills of other teachers in their subject and grade level. Vertical alignment activities provided an opportunity for teachers to reflect on what they know about curriculum and the content that comes before and after. Bloom's Taxonomy materials fostered discussions about presentation of material and how best to assess student understanding of content covered.

The components of acceleration provide an opportunity for growth among teachers. Teachers were involved in activities such as PLCs, vertical alignment activities, and Bloom's Taxonomy discussions that provided a platform for teachers to reflect on their current skills and knowledge and increase effectiveness by working collectively with others. These components also improved overall efficacy as was found in survey

results from Bandura's Teacher Self-Efficacy Scale. Teachers were invested members of the process which brought about systemic change both in student performance and teacher effectiveness. It is the change in teachers that allows what is learned from this study to be applicable in other school settings. School leaders have the ability to create a flexible and inclusive structure in which teachers can take part in growth activities such as PLCs, vertical alignment, and discussions of Bloom's Taxonomy. The result is greater confidence in each teacher's ability to create positive change in student growth as well as his/her growth in teaching prowess.

Change is needed for academically gifted students and the teachers who serve them. Improvements that were observed in this study are not reserved for gifted students and teachers. It is up to school leaders to facilitate a structure that is supportive and flexible for both teacher and student. The findings of this study would conclude that organizational change is possible in small effect due to a change in curriculum. The result of this change led to a positive change in teacher efficacy and effectiveness which is helpful for improvement in other educational settings. Curriculum acceleration was found not only helpful to gifted students and teachers, but to all. The PLCs, vertical alignment, and discussions of Bloom's Taxonomy helped teachers reflect, analyze, and consider the way in which they teach and learn from the collective knowledge of teachers as a whole. Our students, teachers, and society as a whole need change. It is up to instructional leaders to usher in systemic change that brings about positive outcomes for teachers and students. In short, good teaching is good teaching and yields positive benefits for all those involved; therefore, it is imperative for educational leaders to create a flexible and supportive structure, so students and teachers can make gains in overall effectiveness and growth.

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Appendix

Bandura's Instrument Teacher Self-Efficacy Scale

BANDURA'S INSTRUMENT
TEACHER SELF-EFFICACY SCALE

This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinions about each of the statements below by circling the appropriate number. Your answers will be kept strictly confidential and will not be identified by name.

Efficacy to Influence Decision making

How much can you influence the decisions that are made in the school?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you express your views freely on important school matters?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

Efficacy to Influence School Resources

How much can you do to get the instructional materials and equipment you need?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

Instructional Self-Efficacy

How much can you do to influence the class sizes in your school?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you do to get through to the most difficult students?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you do to promote learning when there is lack of support from the home?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you do to keep students on task on difficult assignments?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you do to increase students' memory of what they have been taught in previous lessons?

1 Nothing 2 3 Very Little 4 5 Some Influence 6 7 Quite a Bit 8 9 A Great Deal

How much can you do to motivate students who show low interest in schoolwork?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get students to work together?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to overcome the influence of adverse community conditions on students' learning?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get children to do their homework?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Disciplinary Self-Efficacy

How much can you do to get children to follow classroom rules?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to control disruptive behavior in the classroom?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to prevent problem behavior on the school grounds?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Efficacy to Enlist Parental Involvement

How much can you do to get parents to become involved in school activities?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you assist parents in helping their children do well in school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

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Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to make parents feel comfortable coming to school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Efficacy to Enlist Community Involvement

How much can you do to get community groups involved in working with the schools?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get churches involved in working with the school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get businesses involved in working with the school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get local colleges and universities involved in working with the school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Efficacy to Create a Positive School Climate

How much can you do to make the school a safe place?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to make students enjoy coming to school?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get students to trust teachers?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you help other teachers with their teaching skills?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to enhance collaboration between teachers and the administration to make the school run effectively?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to reduce school dropout?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to reduce school absenteeism?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

How much can you do to get students to believe they can do well in schoolwork?

1	2	3	4	5	6	7	8	9
Nothing		Very Little		Some Influence		Quite a Bit		A Great Deal

Bandura's Teacher Self-Efficacy Scale (The Ohio State University, 2014).