ABSTRACT

GILLESPIE, JR., RONALD EUGENE. An Investigation into EVAAS use and Math Placement in Middle Schools in North Carolina. (Under the direction of Dr. Matt Militello).

In 2007, every district in North Carolina received access to EVAAS (Education Valued-Added Assessment System), a statistical tool designed to give principals a resource to make strong instructional decisions for their schools. The use of EVAAS has now worked its way into state law and its use is mandated in teacher evaluation. However, EVAAS is also a tool that can provide principals with knowledge about every child in their buildings who has taken EOG and EOC tests. The purpose of this study is to determine if and how middle school administrators are using EVAAS data to place students in Algebra I/Math I in middle school. The use of EVAAS and other academic data to make educational decisions is a part of North Carolina’s Race to the Top grant. A survey sent to 62 middle school principals in central North Carolina provided an opportunity for principals to be part of a qualitative study of perceptions of EVAAS use in middle school to place students in rigorous math classes in middle school. An exploratory case study in two middle school sites provided insight into how EVAAS is being used to place students in math classes at middle school, perceptions of the use of EVAAS data, positive and negative impacts of EVAAS, and ways schools are using EVAAS data other than math placement. The information gained from this study should be both timely and useful to principals and school districts as more and more emphasis is placed on data-driven decision making in public schools.
An Investigation into EVAAS use and Math Placement in Middle Schools in North Carolina

by
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DEDICATION

Throughout this entire exercise, the classes, the papers, the study sessions, the weekends of writing, and the various piles of books and papers scattered throughout several rooms of our house, I would like to dedicate this project to my lovely, and loving wife, Melissa. Thank you for encouraging me to continue this dream, even when there were times when I didn’t really want to. You took on the role of mom and dad when I was home researching, writing, editing and being a grouch.

To my boys, Gibson and William, thanks for allowing me to miss practices, games, concerts, ski trips, and other things to complete this task. To my mom and dad, I thank you both for finding a way for me to go to college so many years ago, and then always believing in me and encouraging me to follow my dreams.
BIOGRAPHY

Ronald Eugene “Gus” Gillespie, Jr. was born in Shelby, North Carolina in 1966. He attended North Carolina State University, where he graduated in 1989 with a degree in English and a minor in Education. He taught English at two high schools in Wake County, starting the Paideia program at Sanderson High School. He then served as an assistant principal for three years in Wake County before moving his family to Granville County in 2000. He has served as both a principal and central office administrator in Granville County, and is currently in his fifth year as principal of Butner-Stem Elementary School.
ACKNOWLEDGMENTS

I would like to thank all of the professors at North Carolina State University who provided guidance along the way as I completed this completely voluntary and unnecessary task. Each professor challenged me in a new way and caused me to stretch myself professionally to be a better educator.

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CHAPTER 1

INTRODUCTION

Water, water, everywhere,
And all the boards did shrink.
Water, water, everywhere,
Nor any drop to drink. (Coleridge, S. T., n.d.)

When Congress reauthorized the Elementary and Secondary Education School Act with the No Child Left Behind (NCLB) Act of 2002, testing became an even larger part of the American schooling experience. As schools received labels as a result of student performance on tests, data became more important to schools than ever before. There had always been an abundance of data, but now mining the data for vital information became an essential tool for administrators at the school and district level (Luo, 2008). Business terms such as “data-driven decision making” began working their way into the education lexicon, followed by “value-added models.” Schools, especially administrators, were expected to use the data to drive instruction, which would lead to better classroom learning and higher test scores. Popham (2004) says the tail (data) began wagging the dog (schools) on a large scale. Researchers, such as Dr. William Sanders from Tennessee, began developing algorithms to determine if the instruction in the classroom was value-added. Now there is an even greater incentive as federal Race to the Top (RttT) funds have entered the educational landscape, requiring states to use data to determine classroom effectiveness. North Carolina is one of 12 states selected to receive these federal funds. In order to qualify for the $400 million in
In the North Carolina plan submitted to the Department of Education, North Carolina Governor Beverly Perdue addresses a plan that will “align the State’s education system so that it meets the needs of all NC citizens ‘from the high chair to the rocking chair’” ("Race to the Top," p. 3). North Carolina’s plan also states the following:

The Governor’s plan will drive NC to ensure that every student, from pre-kindergarten through graduate school:

- Comes to school prepared to progress successfully through PK-20 education;
- Meets clear, ambitious state standards for knowledge, skills, and abilities; and
- Receives guidance from excellent teachers and principals who are able to help the student achieve those standards (p. 3).

An important aspect of this commitment is the third objective, indicating teachers and principals will help students achieve these higher standards. The stakes are now higher for teachers and principals to increase student achievement and proficiency on standardized tests, as they must provide the guidance students need to realize these higher standards.

So, nine years into the reauthorization of NCLB, school personnel should be experts at data-driven decision making (DDDM), and value-added models (VAM) should be integrated into the schools, yet that is not necessarily the case. In fact, there is concern that
very little data is being used to make decisions in America’s public schools (Bernhardt, 2004). In *The Rime of the Ancient Mariner* quoted at the beginning of this chapter, the captain and his crew are in great despair. Even though they are surrounded by miles of water, none of it is drinkable. They are surrounded by an unusable form of the very substance they need to sustain life. In allegorical fashion, this is similar to the situation in schools today. Principals and teachers are surrounded by data that may not be usable or in a form that they can access. Some researchers indicate administrators and teachers do not know how to use the data that is so abundantly scattered about them (Fusarelli, 2008; Kerr, Marsh, Ikemoto, Darilek, & Barney, 2006). Douglas B. Reeves, an educational assessment expert, stated, “‘Even when information is abundant and clear, some school leaders may just ‘stare directly at the information available to them and then blithely ignore it’’” (quoted in Luo, 2008, p. 609).

In spite of this North Carolina has been recognized nationally for its leadership in testing students and using the data for instructional purposes. North Carolina implemented its testing program, *The ABCs of Public Education*, in the 1995-1996 school year. The North Carolina model “emphasizes accountability at the school level and instruction in basic core subjects” (”Number of,” 2007). Students test in reading and math in grades three through eight and in three high school subjects: Algebra I/Math I, Biology, and English I. North Carolina tested many more subjects in high school, but has recently reduced standardized testing to these three EOC tests. In addition, students in grades five and eight also test in science. Students take tests based upon their current grade level or the course they are taking
at the time of the testing window. In grades three through eight, students take a reading and math test for that grade level. For example, a third-grade student would take a third-grade End-of-Grade (EOG) test in reading and math. The following year this same student as a fourth-grader would take a fourth-grade EOG test in reading and math. This would occur in each grade until the student reaches high school, where the courses change from the lock-step design of grades three through eight. One exception to this system of testing by grade level is in the middle school years, grades six through eight, where some students can be placed in more rigorous math classes, such as Algebra I/Math I or Geometry/Math II before going to high school.

In middle school, students are identified who should be successful in Algebra I/Math I and are allowed to take this high school level math course in place of the grade-assigned math course. This placement occurs throughout the state of North Carolina, with little or no guidance as to who should be taking these courses. Principals could use previous test data, teacher anecdotal information, suggestions from guidance counselors, parental requests, and other data to make these placements. In the past, many principals often played it safe and only placed students they felt were guaranteed to be successful in the more rigorous math courses. With all of the pressure for good test scores from NCLB and the North Carolina testing program, principals are not prone to take lots of risks.

However, as more focus is being placed on national scores in science and math, it would logically follow that there will be even greater pressure for students to take more rigorous math courses in school. Newspaper articles detail how America is falling behind
other countries in the areas of math and science. Pressure to increase students’ performance in math comes from many sides, including school boards, parents, industry, government and even students themselves. The National Assessment of Educational Progress (NAEP), the Nation’s Report Card, began reporting students’ performance in math and other subjects in 1969, and continues to test students in fourth, eighth and twelfth grades in several subject areas and issues performance reports on how states are doing compared to one another. States often use this data as a measuring stick to see how they are doing compared to other states. While there has been criticism of NAEP in recent years, NAEP scores are still used as a rallying cry for states to raise math achievement to be more competitive with other countries (Cavanaugh, 2009; Lewis, 2008; Steen, 2003; “U.S. Students Trail,” 2010).

While the NAEP reports are a type of internal measuring stick within the United States, there are other reports that are critical of the United States and how American students trail students from other nations in the area of math performance. A Google search of “2009 PISA math results” resulted in close to 2 million articles and reports. The 2009 Program for International Assessment (PISA) compared the math performance of students in the United States to math scores of students in 64 other countries (Preston, 2010; “U.S. Students Trail,” 2010). PISA results indicated that American students ranked 31st out of the 65 countries who participated in the study. One could argue that the tests do not assess the same types of students or that other countries are more selective in who takes the tests, but Arnie Duncan says that the results should serve as a wake-up call and the United States must treat the results as if they are accurate and act upon them (Preston, 2010). Further analysis of the
PISA results by Stanford economist Eric Hanushek also points out the validity of the results and that the United States has fallen behind in the area of mathematics education (Ripley, 2010).

Some critics want to point to another international study, Trends in Mathematics and Science Study (TIMSS), which found U.S. eighth graders were 9th in their math performance against other countries. However, 22 of the countries that outperformed the U.S. on the PISA were not included in the TIMSS report (Hanusek & Peterson, 2010). It does not take a math major to see that $9 + 22 = 31$, the same rank American students received on the PISA.

Dr. Freeman A. Hrabowski, III, President of the University of Maryland, Baltimore County, is greatly concerned over the diminishing numbers of American students who are graduating from college with a technical degree. Dr. Hrabowski is a much sought-after speaker and frequently advocates for more students, especially minority students, to study math and science in college and earn degrees in math and science-related careers. Dr. Hrabowski has written books and articles with suggestions for increasing the number of students in these areas, and he indicates that one thing that teachers and administrators can do is to have higher standards for students, especially minority students, in the areas of science and math (Hrabowski, 2003; Summers & Hrabowski, 2006).

President Obama has made several references for the need to increase math proficiency for American students. In several speeches in states across the country, President Obama has stressed the importance of educating students in the areas of science, technology,
engineering, and math (STEM) as the United States continues to fall behind other countries in science and math. President Obama said,

The key to improving our health and well-being, to harnessing clean energy, to protecting our security and succeeding in the global economy will be reaffirming and strengthening America’s role as the world’s engine of scientific discovery and technological innovation…That’s why education in math and science is so important (Hoover, 2009, np).

With this increased emphasis from the federal government, and pressure to add more STEM programs at the college and K-12 level, higher achievement in mathematics is certainly in the public spotlight.

So, as the pressure builds to improve student performance in math, accelerating the rigor of math would be an area that North Carolina educators could turn to in order to provide these advanced courses at the middle school grades. A barrier to placing students in these classes has been a lack of useful data. Because of the way North Carolina tests students and reports scores, there were no indicators that allowed administrators and teachers to peer into the future to see how a student might perform in these advanced math courses. There is no state-wide placement test for students to predict their performance in algebra. Lori Roy’s (2007) dissertation looked at the need for a placement test for algebra for use in middle and high school. Roy indicates that proper math placement is important and “has far-reaching” ramifications because of the correlation between math achievement and many other facets of success later in life (p. 2). So, while North Carolina has no placement test for algebra, there
is a source of information that can be valuable when placing students in math classes at the middle school level. In 2006, 16 districts piloted a new data tool that could provide principals with predictions of students who could be successful in these accelerated math classes. The product, Education Value-Added Assessment System (EVAAS), was provided to all districts and charter schools the following year.

**What is EVAAS?**

EVAAS is the result of the research begun by Dr. William L. Sanders in the mid-1980s when he was a researcher at the University of Tennessee. Sanders did not like the current method of test analysis that looked for ways to account for “differences in a student’s background, such as family income and parents’ education levels” (Schaeffer, 2004, p. 20). If he could remove these factors, then each child’s scores would be his own, not some standard to compare him to other students in his grade level, district or state. Dr. Sanders found that by using longitudinal data, he could account for these differences, and see if there was a way to account for an individual student’s growth based upon where they started from, not from where an aggregate of students started from (Ballou, Sanders, & Wright, 2004).

Independent research found that the statistical model used in EVAAS eliminates bias and provides a highly reliable model (Wright, 2004). Yet, it was not until 1992 that the first state decided to try these value added assessment methods. Now several states use EVAAS, but only states that meet Dr. Sanders’ high testing standard. Dr. Sanders will only allow states to participate that have a testing program linked to a standard curriculum that also tests all students. In other words, the testing system must be robust enough to withstand the analysis
EVAAS puts it through. North Carolina meets these stringent requirements and North Carolina is part of the SAS EVAAS program, which is an on-line version of EVAAS.

SAS receives End-of-Grade (EOG) and End-of-Course (EOC) testing data on all students from the North Carolina Department of Public Instruction (NCDPI), makes sure it is clean, and then uses it to create several EVAAS reports on districts, students, and even teachers. These reports can be accessed at the district, school or teacher level, depending on the desires of the district. EVAAS allows users to access reports that show everything from teacher effectiveness, to student probability of success in a future course, to reports that provide all students who are at-risk of not being proficient on state-wide assessments. All of the reports are based upon the students receiving an average year of schooling. With EVAAS data at their fingertips, one could easily assume administrators and teachers across North Carolina would be using this data to place more students in Algebra I at the middle school level than before. However, as an EVAAS trainer who has provided workshops through the Principal’s Executive Program and several Regional Educational Service Areas (RESA), I have discovered that this is not necessarily the case.

If this data tool is available there should be an expectation of use associated with it. It is important that educational leaders at the state level have answers to the following question: In the midst of a mandate to use EVAAS in placing students in academic classes, what are the perceptions of middle school teachers and administrators regarding the use of EVAAS? Do school personnel have enough information about EVAAS to use it to make these important placement decisions, and are students benefitting from the use of EVAAS data?
To provide some insight into these questions this study will focus on how two districts in central North Carolina are using EVAAS in their schools.

**Purpose of this Study**

The purpose of this study is as follows: In the midst of a mandate to use EVAAS in placing students in academic classes, what are the perceptions of middle school teachers and administrators regarding the use of EVAAS? This information could be of great value to districts as more emphasis is placed on rigor for 21st century learners (Black & William, 1998). Also, new federal mandates and programs, such as RttT, are requiring the use of data to appropriately place students in rigorous courses. State law requires administrators to use EVAAS data as part of the teacher evaluation process. The fact that EVAAS is now a part of state law, and there is so little known about it, is somewhat shocking. The use of EVAAS is a significant mandate that has the potential to change the way all administrators go about their work. More needs to be known about EVAAS, its use, and its potential for accelerating student achievement. All of these reasons indicate that administrators should be using EVAAS data to make sound educational decisions about students and learning. But just because something makes good sense, or is even policy, does not necessarily indicate compliance. Therefore, it is important to determine the extent to which EVAAS is being used to place students in rigorous courses, specifically Algebra I/Math I at the middle school level. Three primary questions guided this study:

1. How much knowledge do teachers and administrators possess about EVAAS and its use in middle schools?
2. What are the perceptions of teachers and administrators about the use of EVAAS data to place students in math in middle school?

3. How are middle schools using EVAAS data?

**Significance of this Study**

While various data have been in schools for decades, the use of data to drive instruction is becoming more prevalent than in years past. With the addition of state and federal legislation that require the use of data for everything from evaluating teachers to increasing student performance, it is certain that the demands placed on schools to use data to make educational decisions will only increase (Coburn & Talbert, 2006). With RttT funds driving a new focus on the use of data in the classroom, and the expectation for EVAAS use in North Carolina, it is imperative for researchers to focus on these areas in order to add to the body of knowledge on this topic. While the author found no studies centering on principal’s use of EVAAS for placement in Algebra I, there is evidence of data use in schools that this research can build upon. The results of this research may compel other school leaders to look at how data, specifically EVAAS, can help them make more informed educational decisions for the students they serve. This study may further highlight the most effective ways to utilize the various reports EVAAS can provide to improve student achievement.

**Definition of Terms**

*End-of-Grade/End-of-Course Tests* – End-of-Grade (EOG) and End-of-Course (EOC) tests are state administered tests designed to test student proficiency in specific subjects. Tests are
given at the end of the year or course. EOGs are administered in grades three through eight in reading and math, and grade five and eight in science. EOCs are administered in the three subjects – English I, Algebra I, and Biology. North Carolina establishes cut scores for four different levels of proficiency, I through IV. Level I is the lowest and Level IV is the highest. North Carolina labels students who score a Level III or Level IV as proficient.

*Education Value-Added Assessment System* – Education Value-Added Assessment System (EVAAS) is a statistical model developed by Dr. William Sanders to look at student data longitudinally, combining up to five years of data, across all subjects, to determine whether the classroom instruction provided for each student is value-added.

*Race to the Top* – Race to the Top (RttT) is a federal educational grant program introduced by President Barak Obama to reward states for implementing innovative educational solutions to increase student proficiency. States could complete an application, and the states with the highest scores received federal funds. North Carolina received a RttT grant of $400 million.

*Value-Added Models* – Value-Added Models (VAMs) are statistical models to evaluate school and teacher effects on student learning. North Carolina uses SAS EVAAS as its VAM.

**Summary**

This chapter looked at the importance of mathematics in our country as well as the demands placed on administrators to use data to make data-based instructional decisions in schools. Programs such as NCLB and RttT are mandating changes in the current educational
arena. The next chapter will look at several literature streams to build a better understanding of this study. The literature review will look at VAM use in education, the importance of math in public education, and data use by administrators. In addition, there will be a focus on studies that define and shape the conceptual framework of the theory of information.
CHAPTER 2

REVIEW OF LITERATURE

In chapter one, it was stated that the purpose of this study is to determine the perceptions of middle school teachers and administrators regarding the use of EVAAS in placing students in advanced math classes, such as Algebra I/Math I. In order to understand their perceptions and use of EVAAS, it is essential to review the literature regarding value-added models (VAMs), EVAAS in North Carolina, the importance of math in our schools, and the research examining the use of data by teachers and administrators in schools.

Harris Cooper (1998) discusses several concepts of conducting research and a process he calls research synthesis best fits this study. Cooper says the purpose of a literature review “can attempt to integrate what others have done and said” (p. 3). He further states that literature reviews can be divided into two types: research synthesis and theoretical review. Research synthesis best fits the type of literature review for this study because Cooper indicates research synthesizes:

seek to summarize past research by drawing overall conclusions from many separate investigations…to present the state of knowledge concerning the relation(s) of interest and then highlight important issues that research has left unresolved…and to direct future research so that it yields a maximum amount of new information (p. 3).

The literature review will focus on studies that center on the three topics identified above: value-added models (VAMs), the importance of math in our schools, and the use of data by teachers and administrators in schools. The research synthesis will include studies, books,
articles, reports and other literature that focuses on these areas and helps provide a framework for the research questions. The research synthesis will direct the research for this study and provide avenues for future research. Even though EVAAS is a driving force for this study, it is already a part of state law; therefore, it is important to understand what VAMs, such as EVAAS, can do. It is important to understand what they are being used for and where they are being implemented. From there, the research will focus on math, which is one of the most direct uses of EVAAS for student improvement. The linchpin of the study is whether principals are actually using this powerful data tool to make educational decisions, which is where the literature review will conclude.

**Value-Added Models in Education**

While the term value-added models, or value-added modeling has been used in business and research circles for years, it has only recently entered the educational lexicon. Much of the reason for the recent interest in VAMs in education is a result of the research started in the mid-1980s by Dr. William L. Sanders at the University of Tennessee, where he was a professor for 34 years (McGhee, 2008). Sanders first thought of the idea of using value added models in education from his years working on his family’s farm in Tennessee. In the early development of his statistical model, detractors noted that his original model was based upon agriculture and had little or no relation to education and what happened in schools (Edwards, 2001). Over the years Sanders refined his statistical model to be a more accurate predictor of student and teacher success in the classroom. Dr. Sanders began his research before the era of high-stakes testing we now find ourselves in the midst of, and with
the increased emphasis on testing and student proficiency prompted by NCLB and RttT, finding a tool that is considered a more reliable predictor of student and teacher success is “like inventing a state-of-the art mining tool during a gold rush” (Archer, 1999, p. 26).

As a result more and more states are turning to VAMs to evaluate teachers, schools, educational programs, and school systems, and more research is being directed in this area. Eckert and Dabrowski (2010) refer to value-added models as “the idea du jour” (p. 88). They add, that even though “value-added models vary in complexity, … they’re generally based on an intuitively acceptable premise: By observing at least two data points at different times on vertically aligned tests, we can determine a student’s growth over time” (p. 88). This premise drives states and school systems to look at value-added models as a way to evaluate various aspects of schools, from teacher effectiveness to individual student growth.

More states may be turning to VAMs because current methods and practices are providing little if any significant change in America’s schools. Some researchers point out that the current practices of providing sanctions for failure to meet unattainable performance measures, such as the federal model of NCLB, are not bringing the desired changes lawmakers had hoped they would (Mintrop & Sunderman, 2009). However, it is because of NCLB’s reliance on high stakes tests with sanctions for low performance that VAMs have attracted so much attention and have such obvious appeal to school systems and lawmakers (Braun, Chudowsky, & Koenig, 2010).
The Freedom Foundation, a non-profit watch group critical of public education, based in Washington State, says that value-added assessment has the potential to provide many benefits when analyzing student scores:

**Focus:** Value-added assessment changes the focus of education statistics from quibbling over demographic factors to asking the essential question: How well are students progressing?

**Equitable comparison:** By focusing on student growth, value-added provides a way to recognize outstanding student growth accomplished by teachers. This is especially important in schools with high populations of learning disadvantaged students.

**Accountability:** Because value-added assessment provides results that are less tied to student demographics and more tied to teacher effectiveness, they provide a fairer accountability measure for schools and teachers.

**Diagnostic:** Value-added assessment alone cannot identify the cause of poor student achievement. But where the data is sufficiently detailed, it can identify where failures and successes are occurring, giving staff a starting place to begin asking questions and making data-driven decisions. The more extensive forms of value-added provide a gold mine of data for education research (Freedom Foundation, nd, p. VA-3).

Another attraction of VAMs is their break from conventional testing practices of comparing a grade level’s proficiency to the same grade the year before. This type of comparison does not take into account the fact that different students with different characteristics compose these grade levels from year to year. VAMs on the other hand look...
at cohorts of students and look for growth at the individual student level, which can then be further linked to the teacher, the school and the district (Bracey, 2006; Harris, 2011). North Carolina has long seen the importance of looking at individual student growth and was one of the first states to receive permission from the federal government to use a growth model in addition to the proficiency model for determining Annual Yearly Progress (AYP) (“North Carolina Schools,” 2006).

Harris (2011) discusses different aspects of VAMs in his book, using modern examples from the banking industry, early industrialism and modern technology. He sees VAMs as a possible answer to the problem with the current testing program in the United States that places a large amount of emphasis on snap-shot testing, and uses high-stakes testing results to evaluate everything from teachers, to principals, to entire states’ ability to educate its students. He indicates that such a system fails to take into account the discrepancies between what different students bring to the classroom. It is noted throughout the literature that students in poverty tend to bring less prior knowledge to the classroom than their peers who have not been raised in an impoverished environment (Scafidi, Sjoquist, & Stinebrickner, 2007).

Further research exists indicating students in poverty who attend schools in poverty-ridden areas tend to be taught by less qualified teachers (Machtinger, 2007; Sass, Hannaway, Xu, Figlio, & Feng, 2010; Scafidi, et al., 2007). These students who already have less background knowledge to begin with are then taught by less-experienced teachers and are then expected to take the same high-stakes tests and perform as well as their peers who have
been raised in rich environments and have access to better teachers. The current testing system does not take these factors into account, but Harris (2011) indicates that VAMs may provide an alternative to the current testing system and enable us to “develop an accountability system that more accurately assesses school performance” (66). VAMs may also be able to determine the effect good teachers have in schools where there is higher poverty (Sass et al., 2010). Other researchers hope that “appropriate data [from VAMs] would allow teachers and principals to improve instruction by providing evidence of the efficacy of alternative approaches” (Andrejko, 2004, p.7).

While the use of VAMs over the assessment practices seems a step in the right direction, not all of the reviews of VAMs are positive. Some of the same researchers who point out positive aspects of VAMs express the need to proceed with caution as there are questions about VAMs that need answering before moving forward with compete confidence in VAMs. There are also outright critics of VAMs who do not see their place in education, and are opposed to their use for any type of evaluation. While there are many concerns, the majority of criticisms focus on validity errors and using them as the exclusive determinant for educational decisions.

Some researchers have spent a great deal of time looking at VAMs, and specifically, EVAAS, the model North Carolina is currently using. Amrein-Beardsley (2008) looked at EVAAS and noted methodological issues connected to the model. Amrein-Beardsley points out no fewer than seven concerns with the current EVAAS model, ranging from validity to lack of peer review to its inconsistencies with the National Board Certified Teacher process.
She points out that proper peer reviews of many of Sanders’ claims would have provided different results than those he reports. She contradicts Sanders’ claim that EVAAS controls for socioeconomic factors, something that all other research indicates plays a tremendous role in student performance on standardized testing. She further indicates that students are never truly randomly placed in classes since administrators balance classes for gender, ethnicity and personality each year as they prepare class rosters.

Amrein-Beardsley also indicates that the complexity of EVAAS prevents it from being used in formative ways, as Sanders indicates it should be used. She indicated that few states that are using Sanders’ model are providing training to administrators on how to interpret and use the data provided by EVAAS, an issue that will be discussed further in this chapter. This is certainly a flaw in the program theory. Interestingly, as Amrein-Beardsley closes her evaluation she notes that in spite of its flaws, it is still the best available indicator of teacher value-added effectiveness. But, because of its flaws results must be used carefully.

There are also other criticisms of the use of VAMs in educational settings. Much of the criticism of TVAAS and EVAAS centers on using their analyses to make high-stakes decisions (Harris, 2011; Lockwood, et al., 2006). In the era of high-stakes testing, decisions are going to be made on data, so critics argue that the models used must be as flawless as possible in order to minimize damage based upon their use (Lockwood, et al., 2006; Zvoch & Stevens, 2008).
One of the main premises of value-added models is the use of these models can determine if there is a value-added effect at the classroom, school, or district level. However, the value-added effects rely on random placement of teachers in schools and districts, and the random placement of students into those classrooms (Kuppermintz, 2003; Amrein-Beardsley, 2008). In reality, principals hand-pick teachers to teach certain grades, classes, or subjects. Additionally, students are rarely randomly assigned to classrooms (Bracey, 2006). Critics argue that this lack of randomization invalidates some of the value-added effects predicated by the models (Klein, Freedman, Shavelson, & Bolus, 2008).

There are also concerns about the mathematical model used by Sanders in his TVAAS and EVAAS models. Some researchers indicate that the formula does not have enough scope. Researchers suggest the model, while more reliable than most student data reporting systems, could be made more statistically robust by adding a multivariate, longitudinal mixed-model approach (McCaffrey, Lockwood, Koretz, Louis & Hamilton, 2004).

In spite of the concerns of these researchers and others, most agree that while VAMs are not perfect, they are still better than current assessment methods that look at one-shot testing scores to determine student, school, and district proficiency (Amrein-Beardsley, 2008, Kuppermintz, 2003). Since there is no perfect testing assessment or analysis, educators must use what they have to make academic decisions that have the greatest positive impact on student learning. Whether it is perfect or not, EVAAS is being used and is the VAM of choice for North Carolina. Using EVAAS is also mandated by state law and is part of North
Carolina’s RttT grant. That being the case, it is important to see how EVAAS can be used in educational decisions for students in North Carolina.

**Uses of EVAAS in North Carolina**

The main crux of this research is how EVAAS data is used to place students in math classes in middle school. EVAAS data is also used to populate Standards VI and VIII for teachers and principals, respectively, in the North Carolina Educator Evaluation System (NCEES). First I will look at EVAAS use for teacher effectiveness, and then look at EVAAS use for student reports.

**EVAAS and Teacher Effectiveness**

At least 12 states are using value-added models to measure teacher effectiveness. EVAAS is being used in most of these states. “The EVAAS value-added statistical model is a repeated measure, mixed model that uses all available test scores from the past five years to estimate each teacher’s contribution to growth in a student’s test scores” (Henry, G.T., Kershaw, D.C., Zulli, R.A., & Smith, A.A., 2012, p. 348). As indicated earlier, this EVAAS data is now being used in North Carolina to populate Standards VI and VIII in NCEES. Standards VI and VIII deal with student scores and the impact teachers and principals are making in their classrooms and schools. Standard VI: Teachers Contribute to the Academic Success of Students indicates, “The work of the teacher results in acceptable, measurable progress for students based upon established performance expectations using appropriate data to demonstrate growth” (“North Carolina Teacher”, p. 12). For principals, Standard VIII: Academic Achievement Leadership states, “The work of the school executive will result in
acceptable, measurable progress for students based upon established performance expectations using appropriate data to demonstrate growth” ("North Carolina School Executive," p. 17). For both of these standards, North Carolina will be using EVAAS data to make the determination of proficiency.

One of the reasons for using value-added models is expressed by Schochet and Chiang (2013). In a quantitative study of teacher effective rates and value-added models, they make the following claim:

Student learning gains, as measured by students’ scores on pretests and posttests, are increasingly being used to evaluate educator performance. Known as ‘value-added’ measures of performance, the average gains of students taught by a given teacher, instructional team, or school are often the most important outcomes for performance measurement systems that aim to identify instructional staff for special treatment, such as rewards and sanctions (p. 142).

The value-added model for North Carolina is EVAAS, and will soon be used to rate teachers and principals in their early summative evaluations through NCEES. EVAAS scores are also important for predicting student academic readiness, which will be explained in the next section.

**EVAAS and Students’ Success in Future Coursework**

Once the Department of Public Instruction certifies all testing data for EOG and EOC tests, SAS receives the data and begins using the EVAAS program to analyze the data at the state, district, school, teacher, and student level. This data then is accessible to all schools
systems in North Carolina. Each district has a contact appointed by the superintendent, and this administrator assigns users at the district and school level. These district and school level users can then access the EVAAS data by logging in to the website at https://ncdpi.sas.com/evaas/signin.jsf.

One of the most powerful aspects of EVAAS is the reporting function built into the website. EVAAS automatically generates premade and custom reports that provide information on the district, the school and students. Users, after logging in to the site, can review any of these reports depending on the level of access provided by the district administrator. These reports cover a variety of aspects, with a focus on whether the educational experience was value-added for the students.

The report that is essential to this research study is known as the School Academic Preparedness Report, and is used to project whether students are projected to be successful in a future EOG or EOC, scoring at least a Level III. These projections are based upon past test performance, and place students into low, medium and high potential categories for making a passing score on the projected EOG or EOC test. Students receive a percentage that equates to their likelihood of them passing the projected EOG or EOC assessment. A student with a 15% chance of being proficient is going to need intensive intervention to have any chance of receiving a proficient score on that particular assessment. Conversely, a student with a 95% chance of being proficient has a high probability of passing the test with no intervention and with little more effort than attending class and taking the test.
Therefore, a middle school principal can summon a School Academic Preparedness Report for her school to see how many students are likely or highly likely to receive a Level 3 or higher on a particular EOG or EOC. This would enable the principal to project which of her students may be good candidates to accelerate their math pathway. In North Carolina, students begin taking state-mandated EOG tests in third grade and continue to take EOG tests through the eighth grade. Students take a math and reading test each year, and fifth and eighth graders also take a science test. The test each student takes is determined by the grade he is in for that academic year, no matter whether he is a high or low performing student. One exception to this system of testing by grade level is in the middle school years, grades six through eight, where students can be placed in more rigorous math classes, such as Algebra I/Math I or Geometry before going to high school. The process, as explained in Chapter 1, involves identifying students who may be successful in these advanced math classes and accelerating their math pathway.

Since principals have a statistical tool to identify students who may be successful in accelerated courses, is there a compelling reason to place students in more accelerated classes, specifically Algebra I/Math I in middle school? The next section of this literature review will examine the reasons teachers and principals should be looking for opportunities to accelerate students in math.

**Math Achievement in the United States**

Parents send their children to school so that they can learn the skills they will need to be successful in the 21st century. While much focus in current education revolves around the
integration of technology into all curricular areas, there is also much interest in math
achievement in the United States. On November 1, 2011, Arne Duncan, United States
Secretary of Education, made the following grim statement after reviewing the results of the
NAEP testing from earlier in the year:

While student achievement is up since 2009 in both grades in mathematics and in 8th
grade reading, it’s clear that achievement is not accelerating fast enough for our
nation’s children to compete in the knowledge economy of the 21st Century. After
significant NAEP gains in the 1990s, particularly in mathematics, the 2011 results
continue a pattern of modest progress. Enhancing education for all is the key to our
nation’s economic prosperity. It is time for America to renew the promise of
providing all children a world-class education. (quoted in Holland, 2011, np).

Mr. Duncan’s comments clearly indicate a need to improve math education for students in
the United States.

**Is Math Important?**

The Soviet launch of Sputnik on October 4, 1957 propelled the United States into a
national drive to accelerate math and science learning in the United States. The launch of a
satellite the size of a beach ball created a sense of urgency in American education and did
result in great strides in math and science education. Over a billion dollars was earmarked
for science and math education in the United States as a result of the fear that the United
States was falling behind the rest of the world in technology (Abramson, 2007). Many
advances occurred as a result of the influx of funds and the national attention, but Abramson
(2007) points out that this initiative lost momentum as other issues began crowding the
nation, especially the civil rights movement.

A Nation at Risk, (1983), once again raised the specter of a nation falling behind
other countries in the educational arms race. The report looked at many aspects of education
in the United States with a particular interest in teenage youth and high schools. One finding
in the report indicated that only 31 percent of high school students graduate with an
intermediate algebra course, even though it was offered in virtually every high school in the
United States at the time of the report. The report also indicated performance on the College
Board’s Scholastic Aptitude Tests (SAT) show a nearly 40 point drop in math from 1963 to
1980. In the report, Paul Copperman reveals that for the first time in the nation’s history, the
current generation will not exceed the previous generation in literacy, employment and
education.

If the United States is to be globally competitive in the 21st century, it is essential that
current elementary, middle and high school students are being challenged in school and are
receiving an education that will prepare them for the current global economy (Friedman,
2006; Gasser, 2011; House & Telese, 2008; “Math Now,” 2006; Militello & Heffernan,
2009; Militello, Rallis, & Goldring, 2009; Slavin, Lake, & Groff, 2009). In 2006, Secretary
of Education Margaret Spellings stated the following in a No Child Left Behind Summary:

To compete in the global economy, you must know math. Therefore it is more
important than ever that our students receive solid math instruction in the early grades
to prepare them to take and pass Algebra and other challenging courses in middle school and high school (“Math Now,” 2006, np).


While reading, science, writing, and creative thinking are all important skills, math proficiency is certainly a quantifiable skill that is universal throughout the world. International testing specifically focuses on math as a comparison point between nations. Hanushek, Peterson and Woessmann (2011) provide the following as an explanation for the focus on math:

We give special attention to math performance because math appears to be the subject in which accomplishment in secondary school is particularly significant for both an individual’s and a country’s economic well-being. Existing research, though not conclusive, indicates that math skills better predict future earnings and other economic outcomes than other skills learned in high school (p.12).

If the researchers are correct, there is a great deal riding on whether American students are receiving a quality education in math. It then stands to reason that if strong math skills lead to future success, then students who leave high school with a sub-standard knowledge of mathematical concepts are costing themselves and our nation the ability to be successful in the future.
Remedial Math in the United States

More American high school students are attending community and four year colleges than ever. While that appears to be a promising statistic, the ability level of these students is a concern for college administrators (Gilroy, 2006). Also, with an unemployment rate near 10%, employers state that it is becoming harder to find workers who have the mathematical and reasoning ability to begin work without remedial training (Hanushek, Peterson, & Woessmann, 2011). An unprepared workforce costs employers, either in the need to train employees, or in having to expand their search to find suitable employees. Many authors warn of the global economy and that American jobs that are being filled overseas because the workforce is cheaper and better prepared for the workplace (Friedman, 2006; Gasser, 2011). A Nation at Risk (1983) revealed the military spends millions on remediating soldiers because of the lack of overall skills, including math, of high school graduates. In the same line of reasoning, unprepared college students are costing our educational institutions billions of dollars in already limited resources if they are required to provide remedial math courses (Gilroy, 2006; Horn, Campbell, & Brock, 2009; Saxon & Boylan, 2001).

A Nation at Risk (1983) further noted that in the five-year period between 1975 and 1980, there was a 72 percent increase in remedial math classes at public colleges. More and more attention is focusing on the cost of providing remedial math courses to recent high school graduates (Bahr, 2008; Saxon & Boylan, 2001). Critics put the cost of math remediation in college in the billions of dollars (Bahr, 2008; Gonzalez, 2011; Saxon & Boylan, 2001). There is also some backlash from taxpayers, asking why they should have to
pay twice for students to take the same courses in college because they did not master them in high school (Bahr, 2008). Callaghan (2004) reported 57 percent of the students enrolled in community colleges in the state of Washington in 2003 had to take remedial courses, and the majority of these were math.

The problem is severe enough that some institutions are looking for ways to expedite the remediation process in order to save money and accelerate students’ chance of degree completion (Knowlton, 2011; Gonzalez, 2011). With a depressed economy, a high unemployment rate, and more emphasis on college education than ever before, there are students applying to college who may not have been legitimate college students just a few years ago. These additional students are putting a strain on colleges, which is now being compounded by the increase of students who need to take remedial math courses. Knowlton (2011) says, “Many educators, policy makers, and the public advocate a need to reduce the number of students placed in remedial math and to increase degree completion rates” (p. 1). While colleges and community colleges are taking steps to address the issue, lawmakers are also asking why students are not graduating from high school with the math skill necessary to begin an associate or four year degree program. The answer may lie in current math placement practices and a need to accelerate and elevate the math courses students take to fulfill graduation requirements.

**Who takes what Math?**

As noted earlier, in North Carolina, as in most other states, students move lockstep through math curriculum until middle school for some students, and high school for others,
where optional courses begin to appear. At the middle school level, some students are given more rigorous math courses, allowing them to take more advanced math courses in high school, better preparing these students for rigorous math in college, and possible careers where math is an integral part of the degree and skill work post-graduation. So, who decides who takes these math courses, and do all students have the same opportunities and access to these accelerated math courses?

Currently there is not a national math placement test to use at any grade level. North Carolina, while a national testing leader, does not have a test to formally place students in specific math courses. In spite of the lack of formalized testing procedures, some students are tracked into more advanced math classes at the middle school level. Lori Roy’s (2007) dissertation focused on the need for an Algebra readiness assessment, noting Algebra is the “backbone of mathematics curriculum” (p. 1). Placement into Algebra also has far-reaching ramifications for future job success, and completion of rigorous math courses in high school contributed more to college degree completion than did standardized test scores, tracking, class rank, race and socioeconomic factors (Adelman, 1999). Other research focuses on how current placement practices limit the course to only a high performing select few, excluding many students who may be able to be successful if given the opportunity (Confrey & Makar, 2005; Useem, 1992).

Without a placement test, other information must be considered when placing students in math courses. In some schools, this may be the job of a guidance counselor, a curriculum coordinator, a department head, a math committee, or an administrator.
Sometimes the determining factor may be whether a parent requests their child be placed in a more rigorous math course (Spade, Columba & Vanfossen, 1997). Without a formal process, many students who may be ready for the challenge of more rigorous math classes may not be given the opportunity to participate in these classes, costing them in the near future. Some researchers think a readiness examination for placement into Algebra should be created with normed cut scores (Roy, 2007). Jerald (2009) proposes the use of VAMs for advanced course selection. While North Carolina does not have a statewide placement test, it does have EVAAS to help place students in appropriately challenging math courses, as early as middle school. It is this reason that more research must be given to the use of EVAAS data for placement of students into middle school Algebra. Since there is research that the level of math a student takes is important for their future success, and there is a program, EVAAS, that can predict a student’s success in Algebra in middle school, is there a reason to restrict the number of students taking Algebra in middle school? There are researchers and advocates, such as the Algebra for All coalition, who see no reason to restrict the number of students in Algebra in middle school, and others who think it is a mistake to place younger students in more rigorous courses.

**Accelerating Math – Proponents and Opponents**

Proponents of accelerating students in math coursework offer many of the reasons mentioned earlier; it opens pathways to higher mathematics courses, raises earning potential as adults, creates a more competitive adult workforce just to name a few. One of the biggest proponents of providing more robust math to students are the authors of The Algebra Project,
an initiative to provide greater access to higher math courses for all students, not just those labeled gifted, or who have a higher socio-economic status (Silva, Moses, Rivers & Johnson, 1990). One of the components of The Algebra Project stresses the importance of math literacy, indicating “math literacy … is becoming increasingly important not only to gaining access to college and mathematics or science related careers but also to participating fully in the economic life of American society” (p. 387). Flexer (1984) indicated Algebra was a course that was only available to the most superior students, thus denying a large population of public school students the opportunity to take Algebra and have the chance to take more accelerated math courses in their high school tracks. Spielhagen (2006) also indicates that it is imperative that students of color be given the chance to take more robust math courses to help close the achievement gap.

Researchers also suggest that accelerating students’ math offerings can improve learning throughout the school by “offering more demanding classes and channeling students into higher level courses” (Spade, et al., 1997, p. 124). Others see courses such as Algebra to be gatekeeper courses and view math acceleration as a civil right for poor children, especially children of color (Morgatto, 2008; McKibben, 2008; Spielhagen, 2006; Useem, 1992; Wang & Goldschmidt, 2003). Stephany (2011) found a strong link between algebra in middle school and science achievement in high school. Boysworth (2010) indicated the Accelerated Mathematics Program from her research study “provided … a method of providing advanced content in mathematics to a group of students ready to progress more rapidly through the middle school curriculum and prepare those students to excel in Algebra I at the eighth grade
level” (pp. 86-87). However, as is the case in many educational issues, there are those who do not see Algebra for all students as valid or necessary. The next section will look at some of the opposing views regarding accelerating students into higher math, especially Algebra courses in middle school.

**Opponents**

With the reasons mentioned above, one may wonder what arguments could exist for not accelerating students in math coursework. While the merits of having students in accelerated math courses are hard to ignore, there are reasons to proceed with caution on an “Algebra for All” crusade. If students do not have a solid background in mathematics, accelerating these students into a higher math course could increase the gap between what the students know and what is required to be successful in Algebra (McKibben, 2008; Loveless, 2008; Morgatto, 2008, Stephany, 2011). Critics contend that if the goal of students taking mathematics courses is for students to learn math, accelerating students into courses where they do not have the prerequisite skills defeats that goal, creating a chasm between what students know and what the higher math class requires. (Loveless, 2008). Loveless (2008) uses data from the 2007 NAEP math test to show that states with a lower percentage of students in eighth-grade Algebra tend to have higher scores on the NAEP test, and the District of Columbia, which has one of the highest number of students in eighth-grade Algebra, scored the lowest on the NAEP test. The NAEP scores also indicate that students in advanced math courses performed lower than in previous years, indicating the quality of students in advanced math classes in middle school has declined (Loveless, 2008). In a
position paper on who should take algebra, and when, The National Council of Teachers of Mathematics (2008) stated the following:

Only when students exhibit demonstrable success with prerequisite skills – not at a prescribed grade level – should they (students) focus explicitly and extensively on algebra, whether in a course titled Algebra I or within an integrated mathematics curriculum. Exposing students to such coursework before they are ready often leads to frustration, failure and negative attitudes towards mathematics and learning (np).

If these students are not prepared to take these classes, they will neither be successful nor gain the mathematical skills they need to be successful in later math courses, some choosing to drop the course or having to repeat it the following year (Flexer, 1984; Chazan, 1996).

Another concern is that as the number of students being placed in Algebra has increased, the quality of the Algebra instruction has been diluted to accommodate the needs of these new students. Loveless (2008) found in some of these districts who are placing large numbers of students in Algebra that these “courses purported to be covering algebra have been revealed to be fraudulent—covering a watered down form of basic math. The entire class of students may be misplaced and receiving counterfeit algebra to make up for it” (p. 11). The lack of a national content expectation for algebra, whether taught at middle school or high school, opens to door for a wide spectrum for what passes as algebra (Cavanagh, 2008).

In summary, there are many legitimate reasons to consider math acceleration in the
middle school years. There are also concerns whether an “Algebra for All” approach is good for students and provides a solid math curriculum. The fact remains that offering middle school students the opportunity to take Algebra I is an option for middle school administrators and teachers. There is also a program, EVAAS, that provides data that helps identify students who may be successful in Algebra I. The final piece that must be examined is how administrators, and to some degree, teachers use the data to place students in Algebra I/Math I in middle school. That will be the focus of the next part of the literature review.

Data Use in Schools

The role of the modern public school principal is varied and difficult to define or quantify. There are fire drills, bus routes, building inspections, tutors, field trips, athletic events, volunteers, faculty meetings, and many other events and groups that can easily distract principals from their main task – student achievement. The principal is expected to manage all of these distractions while providing instructional leadership for the teachers and students, a dramatic change in the role from past years (Militello, 2004a; Militello, Rallis, & Goldring, 2009). Principals are used to making decisions on the fly, often relying on gut instinct, hunches, and intuition (Earl & Katz, 2006; Gulcan, 2011; Hamid, 2008; Jerald, 2009). However, more and more principals are expected to use data to make educational decisions to lead their schools to ever-increasing proficiency standards required by the No Child Left Behind Act (Earl & Katz, 2006; Kelly & Hess, 2005; Panetteiri, 2006, Shen, et al, 2010). Principals are now expected to lead the charge in data analysis, because it is the
principal who “sets the tone for all activities in the school” (Sanzo, Sherman & Clayton, 2010, p. 32).

Unquestionably, NCLB changed the way schools viewed data, and the role of the principal included a more focused use of data in schools. Kelly & Hess (2005) indicated this new focus meant a “fundamental shift in practice” in the use of data to influence school decisions” (p. 438). Preuss (2007) defines the current age we are in as the sixth major educational wave or shift, citing the signing of NCLB as the greatest single factor for creating this shift. This shift meant that administrators could no longer look at the overall performance of their schools, but had to dig into the data to see if there were indicators of what was happening beneath the surface (Bernhardt, 2004; Militello, et al., 2009; Newton, Tunison, & Viczko, 2010).

During the course of this literature review, there were thousands of references for using data in schools, with books, articles, and dissertations focusing on the importance of using data and the rise of data use in schools. However, there are few references for how principals use data to make decisions, especially in curricular areas (Barney, 2006). Shen, et al., (2010) indicated their “literature search revealed that the literature on various streams of data is well developed, while the literature on the types of decisions based on data is limited and still emerging” (pp. 438 – 439). Ingram, Louis, & Schroeder (2004) conclude that even though there are policies mandating the use of data, there is “little strong empirical research on how these policies affect practice” (p. 1259). These findings support the idea of “data, data everywhere” with little analysis and use by administrators and teachers. Earl and Katz
(2006) indicate school leaders are “awash with data” that “offer a wealth of potential data about schools” (p. 2). Militello (2004b) adds, “While educators are in the knowledge transmission business, they continue to be classified as a data impoverished, intuition-based profession” (p. 5). The data that educational leaders find themselves “awash” in often finds them “floundering in the depths, as waves of data threaten to drown them” (Bettesworth, Alonzo, & Duesbery, 2009, p. 286).

**Lack of Empirical Literature on VAMs**

Finding extant empirical literature has been arduous. An ERIC search of “EVAAS” resulted in four hits. One of those was an empirical study and appears in the literature review. The other matches were conceptual and opinion/editorial pieces about EVAAS. Knowing that TVAAS was the original educational model that EVAAS is based upon, another ERIC search with “TVAAS” as the search criteria returned 14 hits. Some of these matches were empirical and are included in the literature review. Broadening the search on ERIC for the keywords “value added models” and “principals,” resulted in 29 hits, many of which were conceptual pieces about the politics surrounding the use of VAMs for teacher and principal evaluation. After changing the search to “value added models” and “Algebra,” there was only one hit, which looked at teacher effectiveness. When searching with “value added models” as the only search criteria, there were 497 results, many of which related to business, pure sciences, or social science research.

**Lack of Use and Training**

Deike’s dissertation, *The Principal as an Instructional Leader Within the Context of*
Effective Data Use, (2009), used a mixed-methods approach to look at how principals used data. She found that there was no set way to insure principals and other school leaders used data effectively to impact student learning. She indicated that there needed to be structures in place to support the use of data, but even if these structures were in place, this did not guarantee principals used the data for instructional decision making. She also found a lack of coherence for a vision of data use to improve instruction within and among schools. This lack of coherence may result from a lack of expectations from the district level or a lack of clarity for expectations regarding how to use data, which data to use, and processes for data to be integrated into school-level decision making (p. 121).

So, in spite of an abundance of usable data, principals struggled with which data to use, and how best to use it. Militello, Rallis, and Goldring, (2009) described the principal as being isolated, and this isolation does not provide an environment conducive to using data effectively for instructional decision-making.

In order to use data, principals must have both the knowledge of the data and the ability to interpret the data if it is to be used for instructional purposes (Ingram, Louis, & Schroeder, 2004; Thorn, 2002). McCaffrey & Hamilton (2007) indicate that the newness of VAMs prevents them from being used effectively. Few principals know how to use VAMs because of a lack of training (Rivkin, 2007). North Carolina once had a program, the Principal’s Executive Program (PEP), where principals could bring their school’s data and learn how to interpret their data, learn how to create tables and charts for presentations, and ask questions about how to be better use their schools’ data for better DDDM. Unfortunately, funding for
PEP ended in 2009, leaving administrators across the state few opportunities to better understand how to use their data to become stronger instructional leaders. Just before PEP closed, they introduced a series of workshops to train principals to use EVAAS and other statistical tools to become better instructional leaders. Other than occasional one-day workshops presented through the North Carolina Association of School Administrators, there has been no other state-wide efforts to train administrators to use EVAAS data.

For teachers, there are even less opportunities for training in the proper use of data. The North Carolina General Assembly removed five days designated for professional development, narrowing the opportunity for teachers to learn how to interpret data, or work with EVAAS. However, teachers are expected to use data to make decisions for their classrooms. If they are not trained to use data well, “the constant press to use ‘data’ may result in the use of any data that is readily available. Such misfit leads to inappropriate uses and, at worst, it can lead to poor pedagogy and student confusion” (Militello & Heffernan, 2009, np). This lack of training causes problems for teachers and administrators.

Principals are more apt to trust their gut instinct rather than data. Administrators “mistrust data, …fear data, and many do not have the skills to use data wisely and effectively” (Earl & Katz, 2006, p. 3). Principals who trust data are more apt use it and have better value-added results than schools where the principals do not trust data (“New Approaches,” 2011). If principals are not data literate, they cannot use the data that surrounds them (Bernhardt, 2004; Newton, Tunison, & Viczko, 2010). Principals will not trust data, use data, or become data literate without proper training and support (Coburn &
The lack of training is a barrier to principals using data to make instructional decisions (Bernhardt, 2004; Creighton, 2007; Earl & Katz, 2006). This lack of training begins in administrator training programs. Creighton (2007) indicates the “fault lies with universities and their failure to adequately prepare teachers and administrators to deal effectively with data” (p. 155). Principals need the training and then the time to improve their data use. Administrators must shift from being data collectors and to being “active players in the data-rich environment that surrounds them” (Earl & Katz, 2007, p.6).

This lack of training and opportunities to work with data can also result in administrators using data to reach incorrect conclusions, focusing too closely on data points, rather than the entire data picture. Confrey and Makar (2005) provide a clear example in their five-year study of a high poverty urban school in Austin, Texas. Administrators received training on effective data use to help improve the instructional delivery for disadvantaged students, resulting in a 25% increased passing rate on the state exit test. However, after the researchers left the system, the numbers of African American students taking the test dropped below accountability requirements. Researchers placed the blame on the way administrators used the data to try and fix students, rather than looking at implementing strategies that had proven to help all students. The administrative team took a snapshot look at a dip in the data, which led to a different approach at the school, making “a number of questionable decisions” (p. 205). The researchers argued had the school continued its current practices, scores would have continued to rise and the number of African American students taking the test would have also continued to rise.
The adage of “a little knowledge is a dangerous thing” seems to be the case in the above study. Other research points to the ways administrators use data, often using data for looking backward instead of forward, using test data to make decisions about retention instead of acceleration (Harris, 2011; Jones, Jones & Hargrove, 2003). Fusarelli (2008) stated, “Little research exists as to the extent which educators use research in decision making” (p. 179). A lack of deep understanding of the data can also lead to “interventions with little educational merit” (Confrey & Makar, 2005, p. 200). Chatterji (2002) found that in spite of the vast amount of educational research and data available, “reform efforts in individual schools and larger organizations were largely unfocused and nonsystemic” (p. 377).

In the face of the seeming ineptitude of administrators using data for student improvement is evidence that using data will improve student learning. There are instances of educators using data to make good decisions for students. Researchers found that a school district in central Ohio used data from VAMs to increase the number of students taking advanced math classes (Jerald, 2009). Not only did student participation increase, but the overall performance of the district increased as well. School officials felt that they had opened new avenues for students by raising the bar in math. They based their decisions on data by questioning the way they tracked students into specific course trajectories.

Another article highlighted the actions of a superintendent in Tennessee who used data from VAMs to increase student performance and secure a RttT grant of $367,000 for her district of 2,100 students (Derringer, 2010). She found that she had to change the culture of
how teachers looked at data. Teachers were skeptical of the data at first, but “after teachers were trained in how to get data themselves, they became empowered by it and began using data to experiment in the classroom and test the results” (p. 40). Her district is now one of the top performing districts in Tennessee.

In Wake County, administrators at Wake Forest-Rolesville Middle School used EVAAS data to increase the number of students taking Algebra I in eighth grade from 70 to 170. These additional 100 students had an 80% – 100% chance of passing Algebra I in eighth grade, as predicted by EVAAS. The results were validated when 100% of the students enrolled in Algebra I in 2010 – 2011 passed the Algebra I EOC with a Level 3 or 4 (Young, 2011). 100 additional students received the opportunity to take an advanced level math class and were successful. The administrators and teachers at Wake Forest-Rolesville Middle School have taken their success story and shared it at various conferences across the state and nation.

As the literature above suggests, there is more data for administrators to use than they know how to use, and the last three examples provided are, unfortunately, the exceptions rather than the norm. Wayman (2005) says using data to “inform and improve educational practice has been the exception rather than the rule” (p. 296). This lack of professional knowledge, and the inability to use the information all around them, ties into the theoretical framework used for this study, the theory of information.

**Theoretical Framework**

This chapter began with an investigation of EVAAS and now concludes with a model
that helps frame administrators’ and teachers’ perceptions of the use of EVAAS for placing students in advanced math courses in middle school. The information provided in the study thus far indicates that there is an abundance of data for principals and teachers to use, yet there seems to be few examples of good use of data in America’s schools. If the data is there, why is it not being used to make education better for students? To answer this question, one may need to look at the ways schools and institutions use information. There are two information theories that I will combine to form a theoretical framework to look at how schools are using EVAAS data to place students in math classes in middle school.

The first study is Feldman and March’s (1998) work in the area of information, and how it is used and ignored in organizations, including education. They suggest “organizations systematically gather more information than they use, yet continue to ask for more” (p. 409). That scenario seems to fit the current data arena in North Carolina as administrators have access to various data sources and continue to collect even more data from other sources, even if that data does little more than verify the data that was collected previously.

Feldman and March (1988) looked at three case studies and the way the organizations dealt with information they had. They made the following six conclusions:

1. Much of the information that is gathered and communicated by individuals and organizations has little decision relevance.

2. Much of the information that is used to justify a decision is collected and interpreted after the decision has been made, or substantially made.
3. Much of the information gathered in response to requests for information is not considered in the making of decisions for which it was requested.

4. Regardless of the information available at the time a decision is first considered, more information is requested.

5. Complaints that an organization does not have enough information to make a decision occur while available information is ignored.

6. The relevance of the information provided in the decision-making process to the decision being made is less conspicuous than is the insistence on information. In short, most organizations and individuals often collect more information than they use or can reasonably use. (p. 414).

Looking at their six conclusions, there are obvious matches to what is happening in educational environments with their use of data. Especially concerning are issues raised in their first three points. All of these can be connected in some way to the manner principals and teachers use data to make decisions about which students take which math courses. However, this theory is not complete enough to stand alone, so I also looked at a second information theory explained below.

In a paper on shared decision-making, Carol Weiss (1995) identified four “I’s” of school reform: Interests, Ideology, Information, and Institution. A visual representation of Weiss’ theory is provided below in Figure 2.1. Weiss indicated the intersection of these four “I’s” influences decisions at the school level. All of the 4 “I’s” impact decision making in schools, and may be useful in looking at how middle schools use EVAAS data. Information
and Interests are important when looking at whether schools adopt policies, such as using data to make educational decisions. “Interests are defined primarily in terms of self-interest”

(Figure 2.1
Interaction of Ideology, Interests, Information, and Institution

Weiss, 1995, p.574). About Information Weiss stated, “Information helps people figure out where the problems are and which potential solutions hold promise for coping with them effectively” (p. 576). Interests and Information intersect because “participants in decision-making have a stake in the outcome” (p. 577). She also noted that organizations often choose to ignore information, choosing to use their intuition, or gut feeling. She further notes “information is rarely brought to bear in discrete chunks” and “research and analysis often play a tiny part in the informational mélange” (p. 576). Fusarelli (2008) adds, “school
leaders are more likely to cite general research traditions or concepts such as brain research or emotional intelligence rather than specific studies” (p.179). It appears that in spite of the abundance of information available, it is seldom acted upon.

Because of the important role of information in schools, which Weiss calls Institutions, and the emergence of NCLB and RttT after the development of these models, a combined model may bear more relevance as a theoretical framework. Using Weiss’ visual representation from Figure 2.1, one can add the six information elements from Feldman and March’s study and derive a new theoretical framework visually represented in Figure 2.2. This is the framework that will be used to guide this study.

Information that is not used or acted upon is merely collected. In order for this collected information to be used to make decisions about effective educational practices, there must be a culture of “accumulating, synthesizing, and sense making of information” in order for the information to be turned into useful knowledge (Petrides & Guiney, 2002, p. 1713). Otherwise, it is as Feldman and March (1998) suggest in their second and third points above. Without a new focus on training to use the data, “educators will be unable to generate assessment knowledge from raw student data” (Militello, 2004b, p. 50). Weiss (1995) suggests people may choose to ignore or make decisions in spite of information because of their personal values. Petrides and Guiney (2002) suggest asking questions, such as “Is information used for decision making ignored?” (p. 1714). The research suggests that schools, especially teachers and administrators, must make the shift from merely collecting the information to sharing the information and using it to make good educational decisions.
Information that is acted on can result in change for schools and students.

Figure 2.2
New Theoretical Framework for Information Use in Education

One factor mentioned in many studies is the administrators’ and teachers’ mistrust of data (Earl & Katz, 2006; Fusarelli, 2008; Hemsley-Brown, 2009; Petrides & Nodine, 2003). This mistrust of data may actually exist as a result of ignorance about the information others have and how it may impact future decisions (March, 1988). Principals and teachers often operate in silos, with little time to work together and share the information and knowledge they have. One study found that when the schools acted as learning communities there was a stronger correlation between using data for student improvement by teachers and
administrators (Halverson, Pritchett, Grigg, & Thomas, 2005). March (1988) suggests this ignorance leads to ambiguity and makes it difficult for organizations to process the information they have into meaningful data. The combined theories of information discussed will guide the analysis of the data obtained from the participating school districts. This new framework may help explain if there is a reason for middle school principals to use the data EVAAS provides to place students in Algebra I/Math I in eighth grade.

**Research Questions**

The purpose of this study was to look at teachers’ and administrators’ perceptions of using EVAAS as a placement tool for Algebra I/Math I in middle schools. An exploratory case study was used to interview nine teachers and administrators in two school districts in central North Carolina. The primary research question for this study was: In the midst of a mandate to use EVAAS in placing students in academic classes, what are the perceptions of middle school teachers and administrators regarding the use of EVAAS? Three primary questions guided this study:

1. How much knowledge do teachers and administrators possess about EVAAS and its use in middle schools?
2. What are the perceptions of teachers and administrators about the use of EVAAS data to place students in math in middle school?
3. How are middle schools using EVAAS data?

**Summary**

The research synthesis in this chapter highlighted several data streams: value-added models
(VAMs), the importance of math in our schools, and the use of data by teachers and administrators in schools. The theoretical framework of information theories establishes a lens to direct research into the use of EVAAS data by middle school administrators. As EVAAS has now entered the educational realm through legislation, this study is timely, and of great relevance to school and district administrators. The research questions have been designed to examine teachers’ and administrators’ perceptions of using EVAAS as a placement tool for Algebra I/Math I in middle schools. The following chapter will outline the methodology and research design of this study chosen to provide some answers to these questions. The steps of the data collection process, participant selection, as well as participant demographics will be included in this chapter.
CHAPTER 3

METHODS

The purpose of this study was to look at teachers’ and administrators’ perceptions of using EVAAS as a placement tool for Algebra I/Math I in middle schools. An exploratory case study was used to interview nine teachers and administrators in two school districts in central North Carolina. The primary research question for this study was: In the midst of a mandate to use EVAAS in placing students in academic classes, what are the perceptions of middle school teachers and administrators regarding the use of EVAAS? Three primary questions guided this study:

1. How much knowledge do teachers and administrators possess about EVAAS and its use in middle schools?
2. What are the perceptions of teachers and administrators about the use of EVAAS data to place students in math in middle school?
3. How are middle schools using EVAAS data?

Research Design: Exploratory Case Study

This study will be an exploratory case study. One of the first decisions for the research design is whether to use a qualitative or quantitative approach for the data collection. Qualitative research assumes “that everyone has a story to tell” (Bogden & Biklen, 2007, p. xiii). Qualitative methods are sometimes referred to as soft data. The data is rich in description and detail, with a heavy emphasis on process, but is not easily quantifiable by numbers (Bogden & Biklen, 2007; Klenke, 2008; Silverman & Marvasti, 2008). This
does not mean that qualitative research is easier, in fact, it may be “much more difficult to do well than quantitative research because the data collected are usually subjective and the main measurement tool for collecting data is the investigator himself” (Borg & Gall, 1989, p. 380). Qualitative research is useful in the social sciences and is frequently used in educational designs.

Qualitative research is important when the study looks to answer how and why questions (Yin, 2003). Conger (1998) indicates that qualitative research allows the collection of rich data about people and places that would not be accessible through a quantitative approach. Qualitative research requires the researcher to look at the processes of an organization in order to gain a deeper and more thorough understanding of the actions of the organization (Merriam, 1998), in this case the use of EVAAS for math placement in middle schools in North Carolina. Qualitative research is useful in bounded systems (Merriam, 1998; Yin, 2003), and in this case study I am looking at two middle schools in two different districts in central North Carolina. Even though the policy, EVAAS, is state-mandated, the use and implementation falls to the local level, specifically the school.

Case studies are helpful when an investigator wants to learn more about a topic and hopes that by studying a person, group, or individual, that he can learn something that can then be applied to other cases (Borg & Gall, 1989; Bogdan & Biklen, 2007). Case studies are useful when the researcher will be the primary instrument for data collection (Merriam, 1998), and the study is of an exploratory nature to find out what is occurring (Yin, 2003). In a case study the researcher gains access to the field and then goes into the field to collect
data. It is important that the researcher be as unobtrusive as possible so that he does not influence the subjects in the study (Borg & Gall, 1989; Bogdan & Biklen, 2007). Qualitative research allows research methods that “emphasize collecting descriptive data in natural settings, use inductive thinking, and emphasizes understanding the subjects point of view” (Bogdan & Biklen, 2007, p.274). Although Bogdan and Biklen (2007), reference a multicase study when interviewing multiple participants, it is also acceptable to refer to a study using more than one participant as an exploratory case study. In using the exploratory case study I was able to use the data from the interviews, participation rates and proficiency, and documentation to find commonalities and possible replications of the same strategies (Creswell, 2007).

**Data Sources**

While quantitative data relies on numbers to explain certain phenomena, qualitative data are a reflection of words that are then used to tell the story of what is happening (Huberman & Miles, 2002). Data collected in qualitative research have sometimes “been termed soft, that is, rich in description of people, places, and conversations, and not easily handled by statistical procedures” (Bogdan & Biklen, 2007, p. 2). Since the purpose of this study is to determine the perceptions of teachers and administrators in their use of EVAAS for math placement in the middle school setting, interviews will be the primary source of data collection. Interviews allow researchers to “gather descriptive data in the subjects’ own words so that the researcher can develop insights on how subjects interpret some piece of the world” (Bogdan & Biklen, 2007, p. 103). Creswell (2007) suggests collecting several types
of qualitative data, such as observations, interviews, and documentation. Since EVAAS is a program that is used to rank district, school, teacher, and student performance it is not possible to observe EVAAS in action. However, some participation and proficiency data was collected from both sites, and documentation was also collected to support findings drawn from the analysis of the interviews. These documents are included in the Appendices.

**Site Selection and Sample**

In this exploratory case study, two sites were chosen from all of the schools that responded to the survey. After receiving district permission I called each of the central office and school administrators to set up interviews. I used the interview protocols approved by North Carolina State University’s Institutional Review Board (IRB) for all interviews, removing some of the questions from the original protocol when interviewing the district administrators, as some of the questions were not relevant to their positions. After analyzing the data I returned to all of the sites to ask follow-up questions once the 2012-2013 End-of-Course test results were released from the North Carolina Department of Public Instruction. Next I will describe the survey instrument used to find schools that were willing volunteer to participate in the study as well as the two districts and middle schools used in the exploratory case study.

**Survey Tool and Site Case Descriptions**

A survey consisting of 12 questions about the use of EVAAS was emailed through Qualtrics to 61 middle school principals in six central North Carolina public school systems. The overall response rate was negatively impacted by one of the districts not allowing any of
their principals to participate in the email survey. However, a total of nine principals responded to the questionnaire and two of those nine volunteered to participate in the case study by providing their contact information through the survey. Over the course of the next two weeks I saw several middle school principals at various meetings, and some of them offered to participate if I needed. I decided to ask the two schools who volunteered to participate through the survey, which is convenience sampling. Convenience sampling is a type of purposeful selection that occurs when the researcher chooses participants “that will best help the researcher understand the problem and the research question” (Creswell, p. 178). I purposely selected these two sites because they were relatively close to me, and both principals volunteered to participate through the Qualtrics survey. As a researcher, I knew that I would need access to the sites, and felt that volunteers would provide more access. I then contacted those two schools and briefly described what the study would entail. They both agreed to participate in the study and I then contacted a senior official in each district to receive district permission to conduct the research study. I assigned fictitious names to each of the districts and set up interviews for all the participants in the study.

Arbor County Schools and Audubon County Schools are rural school districts located in the central section of North Carolina. Arbor County Schools enroll just under 8,500 students each year, and Audubon County Schools have an average daily membership just over 6,500. Both districts operate as the only Local Education Authority for their county. Willow Middle School from Arbor County, and Hawk Middle School from Audubon County were two of the schools that responded to the survey and agreed to participate in the
interview process about EVAAS use in their schools. Dr. Oak, the superintendent of Arbor County Schools, and Dr. Puffin, a senior administrator from Audubon County gave permission for me to talk to their administration and teachers. In all, I interviewed nine different persons, five from Arbor County and four from Audubon County. Tables 3.1 and 3.2 at the end of this section will provide a brief descriptor of the two schools as well as the participants.

**Willow Middle School, Arbor County**

Willow Middle School is an older school located in a small town in the center of Arbor County. The school name has remained the same, but the configuration of the school has undergone many machinations over the years. Its current designation as a middle school serving grades six through eight has been for the last six years. Approximately 450 students attend Willow Middle School. Willow Middle School is a Title I school with a Free/Reduced lunch population of 64%.

Ms. Elm is the principal at Willow Middle School in Arbor County and she has been there for six years, five of those as a principal. She also served as an assistant principal at another middle school and was a high school principal for a year as well. She taught sixth grade social studies and math for five years before beginning her administrative career. She grew up in the community and has worked all of her years as an educator in Arbor County. Mrs. Elm suggested I talk to three of her math teachers, Ms. Birch, Ms. Ashe, and Ms. Maple.
Ms. Birch has been teaching middle school for 17 years, all of which have been in Arbor County. She has always taught math at the middle school level. She has taught Algebra I/Math I for the last three years, but will be teaching other math courses for the 2013-2014 school year. She is an energetic person who speaks in staccato bursts, often laughing at her own phrasing.

Ms. Ashe is a veteran teacher in her 26th year of teaching. She has taught at Willow Middle school for the last six years and has taught Algebra I/Math I for most of those years. She now serves as a math resource for the school and helps math teachers and struggling students with math. She serves as a mentor for Ms. Maple.

Ms. Maple is in her second year of teaching, both of which have been at Willow Middle. She is a Teach for America teacher who taught Math I last year and will be teaching it again this year. Ms. Maple was somewhat reserved in the beginning of the interview, but became more ebullient as the interview progressed. Because of her short teaching career, she has only taught classes where EVAAS was used to place students in math courses.

I interviewed Ms. Elm and Ms. Birch separately, and then interviewed Ms. Ashe and Ms. Maple together at their request. All of the interviews for Willow Middle occurred at Willow Middle. I interviewed Ms. Elm in her office and the interview with Ms. Ashe and Ms. Maple occurred in the school media center. I was able to interview Ms. Birch in her classroom. Follow-up interviews after test scores came back were done in person and over the phone. These interviews were much shorter, and I had already established rapport with the participants, so a face-to-face interview was not necessary.
The district administrator I interviewed for Arbor County was the superintendent, Dr. Oak. Dr. Oak has been a superintendent for 10 years, the last seven in Arbor County. Dr. Oak has worked in public education as a teacher, coach, assistant principal, principal, central office administrator, assistant superintendent and superintendent for 29 years, all of them in North Carolina. He engineered the change of Willow Middle from an intermediate school to its current middle school configuration in his second year as superintendent and hired Ms. Elm as principal of Willow Middle four years ago. I interviewed Dr. Oak in his office at the Board of Education building for Arbor County Schools for both the initial and the follow-up interviews.

**Hawk Middle School, Audubon County**

Hawk Middle School is also an older school located in the county seat of Audubon County. The school has served as a middle school for most of its existence and has about 800 students enrolled. An interesting dynamic at Hawk Middle School is the tremendous teacher turnover at the school over the last two years, and the opening of a new magnet middle school in Audubon County that has pulled a lot of students away from Hawk Middle. This school year, Hawk Middle has 22 Beginning Teachers. Beginning Teachers are teachers with less than four years of experience teaching in North Carolina who have met the licensure requirements established by North Carolina Department of Public Instruction. Beginning Teachers must meet licensure, observation, and proficiency requirements to receive Career Status after four years. Currently, the teacher with the most teaching
experience at Hawk Middle has been at the school for only five years. There are career status teachers at Hawk Middle, but none of them have been there longer than five years.

Dr. Heron has been the principal at Hawk Middle since the 2011 – 2012 school year and is in his 19th year as a public school educator/administrator. Dr. Heron has been in Audubon County for seven years, and has been an assistant principal and elementary school principal in Audubon County prior to his assignment at Hawk Middle. Dr. Heron also worked as an assistant principal in Arbor County prior to transferring to Audubon County. Prior to becoming an administrator he taught Social Studies and PE for five years. During the interview Dr. Heron suggested I should talk to his assistant principal, Ms. Bobwhite, as she was the one who convinced him that he should be using EVAAS for scheduling students in classes.

Ms. Bobwhite has been the assistant principal at Hawk Middle for the last two years; however, she also served as the assistant principal at Hawk Middle School for five years from 1998 – 2003. Other than the seven years she has been at Hawk Middle School as an assistant principal, she also served as an assistant principal at a high school in Audubon County. All 12 of her years in Audubon County have been as a middle or high school assistant principal. Ms. Bobwhite has her Ed.S. and is pursuing her Ed.D. at North Carolina State University.

Mr. Jay teaches Math I at Hawk Middle School. This is his fourth year at Hawk Middle School teaching, and his third consecutive year teaching Algebra I/Math I. Due to
the opening of the new STEM middle school and the large staff turnover, he is the only teacher at Hawk Middle who has taught Math I prior to this year.

Ms. Wrenn is the testing coordinator for Audubon County Schools and has been in public education for 29 years. She plans to retire at the end of this school year and spend more time with her granddaughter. She has worked several jobs in Audubon County, including teacher, curriculum coach, and her current position as testing coordinator.

I interviewed Dr. Heron, Ms. Bobwhite, and Mr. Jay at Hawk Middle School in a vacant office initially. Follow-up interviews with Dr. Heron and Mr. Jay occurred in the same office after tests results for Math I were back. Initial and follow-up interviews occurred on the same day, but were conducted separately. The interview with Ms. Wrenn occurred a few weeks after the interviews at Hawk Middle. This interview took place at Ms. Wrenn’s office at the Audubon County Central Office Complex.

Data Collection

Qualitative research involves the collection of data that are words rather than numbers. Qualitative researchers must do fieldwork, entering the place where the people they are going to study work in order to learn about the phenomena they are studying (Bogdan & Biklen, 2007). Since the guiding research question for this study was to look at teachers’ and administrators’ perceptions of EVAAS, interviews were the primary collection tool. The researcher used the interview protocols (see appendix D) during the interviews. To create the interview protocols I read other qualitative dissertations that focused on the use of a mandated program, as in the case of EVAAS, or were about participants’ perceptions. I
Table 3.1
Demographics of Schools in Study

<table>
<thead>
<tr>
<th>School</th>
<th>Grades</th>
<th># of Students</th>
<th># of Students in Enrolled</th>
<th># of Students in Math I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willow Middle</td>
<td>6 – 8</td>
<td>431</td>
<td></td>
<td>93</td>
</tr>
<tr>
<td>Hawk Middle</td>
<td>6 – 8</td>
<td>772</td>
<td></td>
<td>73</td>
</tr>
</tbody>
</table>

also relied on my experiences as an EVAAS trainer for the Principal’s Executive Program to help frame some of the questions. After developing several questions for the study I sent them to my chair for review and critique. After emails and one face-to-face meeting I developed the protocol used for the interviews.

I intentionally asked open-ended questions, but tried to not make them too ambiguous for the participants. The questions were used to gauge the participants’ knowledge of EVAAS, and allowed them to reflect positively and negatively on several aspects of EVAAS. An interview “usually permits much greater depth than the other methods of collecting research data” (Borg & Gall, 1989, p. 446). A skillful interviewer can illicit responses that the participants may not have revealed in a questionnaire or other research method (Borg & Gall, 1989). I established rapport with each of the participants by allowing them to talk about their personal educational backgrounds. Small talk provided an opportunity for the researcher to establish a safe environment where the participants were comfortable to respond freely to the questions. All interviews were recorded electronically and transcribed.
Table 3.2
Participants in Study

<table>
<thead>
<tr>
<th>District</th>
<th>Staff Member</th>
<th>Position</th>
<th># Years in Education</th>
<th># Years in Current Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arbor County</td>
<td>Dr. Oak</td>
<td>Superintendent</td>
<td>29</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Ms. Elm</td>
<td>Principal</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Ms. Birch</td>
<td>Math Teacher</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Ms. Ashe</td>
<td>Math Coach</td>
<td>26</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ms. Maple</td>
<td>Math Teacher</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Audubon</td>
<td>Ms. Wrenn</td>
<td>Testing Coordinator</td>
<td>29</td>
<td>5</td>
</tr>
<tr>
<td>County</td>
<td>Dr. Heron</td>
<td>Principal</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Ms. Bobwhite</td>
<td>Assistant</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Mr. Jay</td>
<td>Math Teacher</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

verbatim by the researcher. These printed transcripts would later serve as the basis for the data analysis.

There was not an opportunity for observation analysis as EVAAS is a program that can be used to make decisions in the schools. However, I did look up five years of data on
each of the schools to track both participation and proficiency rates in Algebra I/Math I. Statistical analysis was not performed on the data for statistical significance; however, I do make some observations about this data in Chapter 4 and also talked to the individuals in the study about their participation and proficiency rates.

I also asked principals and teachers if they had documentation to support their claims of EVAAS use. I was able to view many reports in both schools that showed that the administrators and teachers were using EVAAS data to place students in math courses as well as for other educational decisions. These documents could not be copied or shared electronically as they contained sensitive information about the students at the middle schools. Administrators at both sites, however, shared letters with me (Appendices I and J) that they used to inform parents that their children were being placed in advanced math courses due to achievement data (EVAAS).

**Data Analysis**

After each interview the researcher immediately transcribed the data to be used for open coding. Open coding is useful for organizing and interpreting the data collected during the interviews and site visits, specifically, “Open coding is designed to express data in the form of concepts (Klenke, 2008, p. 93). Since all of the interviews were recorded electronically, I was able to listen and observe each participant’s body language to look for areas for possible follow-up questions. I coded each interview immediately after transcription to get as fresh of an analysis as possible. In addition to trying to avoid being overwhelmed by pages of transcript, I also wanted to look for themes before interviewing the
next subject so that I could listen with a trained ear to see if subsequent respondents had similar or different experiences. Bogdan and Biklen (2007) suggest looking for words and phrases that stand out, and then use these as possible research finding or categories.

The first coding was done by hand and consisted of using different colors of markers to identify similar themes. This allowed the researcher to begin assigning meaning to some of the conversations captured in the interviews. Merriam (2007) indicates that this should allow the researcher to develop categories that will begin to add meaning to the research questions. The themes that emerged during the coding allowed the researcher to begin to develop categories that would mirror the analysis of the data collected (Huberman & Miles, 2002). The second coding involved combining all of the interviews into one Word document and then using the search function to find each time one of the participants used a phrase or word in their responses. This second coding did uncover some correlations that had been missed in the initial hand coding.

**Safeguards Against Researcher Bias**

“Research bias is the one factor that makes qualitative research much more dependent upon experience and judgment than quantitative research” (Shuttleworth, 2009, np). I had to be aware of this aspect of the study because of my knowledge of EVAAS use in North Carolina. I served as the EVAAS lead for my district and provided professional development for all administrators in our district. I also received training in EVAAS from June Rivers, wife of William Sanders, and one of the co-developers of EVAAS. I also provided professional development for principals in EVAAS when the Principal’s Executive Program
was still operational. Because of these experiences I have had with EVAAS, I needed to be aware of this as I developed this research design.

In addition, I am familiar with the principals and the middle schools randomly chosen for this study. In the past, I have provided EVAAS training at least once for both of the districts in the study. I strictly followed the interview protocol approved by my chair and in my IRB to help prevent any bias to enter into the study.

**Ethical Considerations**

Maintaining the confidentiality of all students, schools, and districts is of upmost importance. All data used has unique identifiers, and student data will not be shared. All IRB forms provided by North Carolina State University were completed and approved prior to starting any research. District approval from all participating districts was obtained prior to collecting data. All participants were given fictitious names and no statements were made that can link the research back to the participants. All data was stored in a secure data storage location.

**Limitations of the Study**

There are three possible limitations to this study. The first limitation is the size of the study. It is generally preferable to use as large of a sample size as possible; “however, a study that probes deeply into the characteristics of a small sample often provides more knowledge than a study that attacks the same problem by collecting only shallow information on a large sample” (Borg & Gall, 1989, pp. 236 – 237). Only two middle schools in two
central North Carolina districts make up the sample size for this study. It is somewhat problematic to generalize to larger populations when small samples are used. Secondly, while there was some documentation available to the researcher, it was not possible to observe EVAAS in action in order to triangulate the data. However, participation rates, special classes created using EVAAS data, and multiple levels of users corroborating EVAAS use were used to help increase data trustworthiness. Finally, EVAAS is a state-driven mandate, so participants may have been compelled to discuss the use of EVAAS in their schools and districts; however, the researcher tried to establish an environment where participants were encouraged to respond honestly.

**Summary**

This exploratory case study focused on perceptions of middle school principals and teachers, as well as district level administrators in their use of EVAAS to place students in Algebra I/Math I. In order to understand participants’ thoughts about EVAAS, an interview protocol was used in two school districts at two middle schools in central North Carolina. A total of nine teachers and administrators participated in the study. All of the participants who began the study completed the study. Results will be used to provide guidance for other middle school principals as they use the data available to them to make instructional decisions for their students. It may also offer guidance on how to move forward with EVAAS data use throughout North Carolina.
CHAPTER 4

FINDINGS

This chapter briefly looks at the purpose of the study and the methodology and then presents the findings. The findings are organized into three sections, with each of the three sections addressing a research question. Within each of these sections are emergent themes revealed through coding and data analysis. The chapter concludes with a brief summary of the findings.

Review of Purpose and Methods

The purpose of this study was to look at teachers’ and administrators’ perceptions of using EVAAS as a placement tool for Algebra I/Math I in middle schools. An exploratory case study was used to interview nine teachers and administrators in two school districts in central North Carolina. The primary research question for this study was: In the midst of a mandate to use EVAAS in placing students in academic classes, what are the perceptions of middle school teachers and administrators regarding the use of EVAAS? Three primary questions guided this study:

4. How much knowledge do teachers and administrators possess about EVAAS and its use in middle schools?

5. What are the perceptions of teachers and administrators about the use of EVAAS data to place students in math in middle school?

6. How are middle schools using EVAAS data?
Participants

Participants were selected for this study using convenience sampling based upon the survey issued out to the 61 middle schools in the central part of North Carolina. Both of the schools chosen agreed to participate in the study. The researcher then contacted the district and received permission to conduct the research at the school and district level. Due to the proximity of the sample to the investigator, measures were used to protect the identity of all participants.

Finding 1: Participants’ Knowledge of EVAAS

One of the most important pieces of information a researcher can determine at the outset of an investigation is how much the participants in the study understand about the tools they are using on an everyday basis. I asked all nine subjects to do the following: Describe in your own words what EVAAS is. Based upon the answers provided, it appears that all of the respondents have a basic understanding of two aspects of EVAAS: how EVAAS can be used to predict students’ progress and how EVAAS can be used to help place students in math courses. However, this is just one of the functions of EVAAS, albeit an important one that is important to this study.

EVAAS as an Academic Tracking Tool

The teachers described aspects of EVAAS that affect their classroom, namely how it can be used to place students in classes. Ms. Birch described the tracking aspects of EVAAS and how it is “a good predictor of where they’re [students] going to be in terms of math.” Mr. Jay also mentioned the predictive nature of EVAAS, and that data could be used to place
students in classes where they were expected to have success. He stated, “It helps place students where they should be placed.” Another teacher, Ms. Maple indicated that she did not know much about EVAAS, but described it as “an academic tracker, in a sense…and it gives projections of where they’re going to be in the future I’m guessing.” Ms. Ashe added that it “is a database that predicts their…achievement probability.” All of the teachers’ responses are accurate, even though they are limited to just this one aspect of EVAAS.

School based administrators provided descriptions of EVAAS that were very similar to the descriptions the teachers provided. Dr. Heron indicated EVAAS is a way to track students and to gauge data. He added that it provided a way to “use data to help us place students, especially Math I and for other higher level courses.” Ms. Bobwhite described EVAAS as “a database that uses testing data with some kind of algorithm that can project on future tests for kids.” She also mentioned how EVAAS data provides information on each student’s testing history, including where the students tested in previous years. She also referred to a graph in EVAAS that shows how a student is performing in comparison with the district and the state. Ms. Elm provided a brief answer, stating, “EVAAS is a statistical model used to predict student success based on longitudinal data from past testing history.”

The two central office administrators also spoke of the longitudinal nature of EVAAS data and its use to place students in middle school classes. Dr. Oak said that EVAAS allowed educators to look “statistically at student test scores over time,” and to “look at where a child is and where they end up based on where people think they should wind up, and using those data to inform instruction.” Ms. Wrenn talked about several aspects of
EVAAS. She also mentioned the predictive nature of the data in regards to students. She also mentioned that EVAAS has a gain model aspect to it. Her final comment focused on the value-added nature of EVAAS. She indicated that EVAAS can be used for value-added for the “school, district, teacher…that kind of thing.”

**Major Components of EVAAS**

While there is no one standard definition of EVAAS, there are four components that the researcher believes are essential components of EVAAS for educators; EVAAS uses longitudinal data, is based upon all EOG and/or EOC scores in a student’s testing history, provides a predictor for student success in future tested subjects, and that predictive score is based upon the student receiving an average year of schooling. All four of these components were mentioned by at least one teacher or administrator in the study. All nine subjects talked about the predictive nature of EVAAS in the interview. Table 4.1 compares the responses of all the subjects in these four areas.

**Finding 2: Perceptions of EVAAS use in Middle Schools**

All of the teachers and administrators in the study were asked several questions to gauge their thoughts on the use of EVAAS in middle school in general, as well as to place students in math classes. All respondents both spoke favorably of EVAAS and had concerns about its use as well. The following section is separated into the following themes: EVAAS enables more students to take advanced math courses in middle school, EVAAS as the only placement tool, a lack of communication about how to use EVAAS, and EVAAS as a self-fulfilling prophecy.
Table 4.1
Components of EVAAS

<table>
<thead>
<tr>
<th>Participant</th>
<th>Longitudinal Data</th>
<th>Based on all EOG and EOC test Results</th>
<th>Predicts Students’ Future Success</th>
<th>Based on Average Year of Schooling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Oak</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ms. Willow</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ms. Birch</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ms. Maple</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ms. Ashe</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ms. Wrenn</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ms. Bobwhite</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dr. Heron</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mr. Jay</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

**EVAAS Use Increases Student Participation in Advanced Math**

Many of the respondents talked about how the process had changed for placing students in math since the introduction of EVAAS at their schools. Overall, the use of EVAAS as a tool to place students in Algebra I/Math I has resulted in more students taking these courses at the two schools in the study. The actual numbers of students in these courses are listed at the end of this section in Table 4.2. The table indicates that more students are
taking Math I than were taking Algebra five years ago. Students who took advanced math in the 2010-2011 school year or earlier took Algebra I. The curriculum and name change to Math I occurred in the 2011-2012 school year.

Dr. Heron spoke favorably in regards to using EVAAS scores to place students in math classes at his school. He described the opening of the new STEM school in his district and how that took students from his school. He indicated that they needed something at his school that would help him fill the void created by the students who left his school to attend the new school. He felt that the data allowed him to make difficult math placement decisions in the face of opposition from teachers and administrators. He felt that he needed to develop a core of students by compacting math at the lower grades so that he would have a new group of high fliers at eighth grade. He said he had to remind teachers that when he made the decision to place students with a 70% chance of passing Math I that “if we were going to have a 70% chance of it raining, most likely it’s going to rain. So, I think they’ll pass” (Dr. Heron).

Dr. Oak also spoke of EVAAS as a way to open doors to more students to take higher levels of math. Since he mandated the use of EVAAS for math placement, “we have large classes, which is a good thing. And, it’s much more racially diverse.” He indicated that using EVAAS data benefits the child because teachers can use EVAAS data to “identify clearly what the child should be able to do and along the way be able to intervene to make sure that child stays on whatever track” (Dr. Oak). Dr. Oak noted that classes in the district also had students who would not have been placed without the use of EVAAS data, stating,
“I think it’s the only objective tool I have to get at issues like racial diversity in classrooms, and stop using subjective criteria to place a child in a particular class.”

Ms. Elm, Ms. Birch, and Ms. Bobwhite all spoke of the increased number of students taking advanced math courses as a result of using EVAAS data. Ms. Elm has a fear that some of the students at her school may being pushed too quickly into these higher math classes, but has seen these students be successful, so she will continue to use it to place students in math courses at Willow Middle. Ms. Elm mentioned that in the past she only had one Algebra I/Math I class at her school, but this past year she had three very full Math I classes as well as a Math II class. Ms. Birch indicated that there are more students now, and that has forced her to work harder to teach these kids, because they are a little different from the students who were typically placed in Algebra I/Math I in previous years. Ms. Bobwhite echoed this thought, saying that teachers were having to work harder to get these students to proficiency because they came in with different skills than the students who were placed in these classes in the past. She also feels it has given a chance to some students who “got railroaded” because of a low teacher recommendation, even though “here is a really bright kid.” Mrs. Wrenn said that it had increased their participation and expanded the group of students who were placed in Algebra I/Math I from “a very small, elect group…your AG kids” because EVAAS looks at future success rather than teacher recommendation. The data appears to indicate an increase in participation after schools switched to using EVAAs to place students in Algebra I/Math I. However, it also appears that proficiency fell when participation increased. I took the information from the table below and put it in a
Table 4.2
Participation and Proficiency Rates in Algebra I/Math I

<table>
<thead>
<tr>
<th>Willow Middle</th>
<th>2008-2009</th>
<th>2009-2010</th>
<th>2010-2011</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in Alg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/ Math I</td>
<td>26</td>
<td>16</td>
<td>32</td>
<td>32</td>
<td>93</td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proficient in Alg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/ Math I</td>
<td>24</td>
<td>16</td>
<td>32</td>
<td>32</td>
<td>54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hawk Middle</th>
<th>2008-2009</th>
<th>2009-2010</th>
<th>2010-2011</th>
<th>2011-2012</th>
<th>2012-2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students in Alg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/ Math I</td>
<td>10</td>
<td>25</td>
<td>21</td>
<td>88</td>
<td>73*</td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proficient in Alg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/ Math I</td>
<td>10</td>
<td>25</td>
<td>21</td>
<td>72</td>
<td>41</td>
</tr>
</tbody>
</table>

* Dr. Heron indicated that the new middle school that recently opened in his district resulted in a loss of approximately one-third of his eighth grade class, resulting in a drop of the number of students in his Math I classes for the 2012-2013 school year.

graph format, presented below as Figure 4.1. I then visited all of the sites and asked the participants to respond to the results indicated on the graph that corresponded to their school.
Not surprisingly, all of the respondents knew that the proficiency rates had decreased on the 2012-2013 Math I test. All of the respondents indicated they expected a drop in scores.
because of the switch from Algebra I to Math I, as well as the switch from the North Carolina Standard Course of Study to the new Common Core State Standards. Superintendent Oak knew why the graph looked the way that it did and said that the dip in proficiency was expected, but felt that the lines would get closer together now that the switch had been made to Common Core. He said, “The goal was to increase the participation of kids, mostly children of color, and I suppose that when you break it down by race you see that. I expected participation to increase” (Dr. Oak). He thought that the biggest reason for the change in scores was the switch from Algebra I to Math I. He said the decision to teach and test a new curriculum in the same year caused some slippage but that the district was moving to increase proficiency on EOCs at the end of the year.

Both of the principals indicated that they expected the drop even prior to receiving their scores. Ms. Elm said,

We expected this to happen. We’re comparing apples to oranges. Our students, especially our 7th grade students who were placed in the Math I, have not been taught the Common Core 6th grade math. So they were going from the Standard Course of study in 6th grade to a ninth grade high school math class. And that was too big of a gap to bridge. Since it was based upon the Standard Course of Study and not Common Core, there were too many gaps to bridge, and not enough time.

Ms. Elm indicated that she felt that her teachers also understood why their scores dropped and that they were working with this year’s students to try to close some of the gaps caused by the curriculum switch.
Dr. Heron expected a drop but still thought their proficiency rates would have been closer to 90%. He knows that in addition to the change to Common Core, there was also a change in scoring that raised the bar for students receiving a passing score on the End-of-Course (EOC) test. However, he was still proud of his scores, noting they were higher than the North Carolina average and were higher than the other middle school in the district as well as both high schools. He said they were trying to reteach some skills so that the 100 students currently enrolled in Math I at his school would have a greater chance of passing the EOC test.

Ms. Bobwhite, assistant principal at Hawk Middle thought that the drop could be explained by the change from the Standard Course of Study (SCOS) to the new Common Core, and the elevated expectations associated with the Common Core. She felt her teachers were confident teaching the SCOS and were able to adjust their teaching to the needs of their students. However, that changed with Common Core, and she found that teachers were “shooting in the dark” as they looked for resources to help them with the new curriculum and the new test. She said that a lot of educational jargon, like critical thinking and rigor, was thrown around with Common Core, but no explanation as to what those terms meant and how they would be assessed. She added, “They (NCDPI) need to help the people who have to do the job know what the job is” (Ms. Bobwhite).

The teachers also indicated that they were not surprised at the drops in proficiency from the 2012-2013 testing. Ms. Ashe also added, “I felt like the standards that we used for predictability were not set high enough based upon switching to this new curriculum.”
also expressed concerns in her earlier interview about too many students being placed in Math I. Mr. Jay did not necessarily see the drop as a bad thing. He stated,

> From the standpoint of getting students exposed to the material, I think it’s not a bad thing if I don’t look at the fact that it is going to go on their high school record. If I don’t look at that, it can’t be hurtful for most of these kids because even if they have to take it again, I think they will be more successful. They’ll have an easier time passing the second time.

He also indicated that it was inevitable that the scores would drop because of the types of students who were now being placed in Math I. He indicated that in the past, “we were much more selective” in who was placed in Math I. He said that if the students were still handpicked like they were in the past the passing rates would still be near 100%.

As far as going forward, both districts indicated that they may change their policies for how to place students in the future. Ms. Elm described a district committee that Dr. Oak had formed to look at how all students in middle and high school are placed in math courses. The committee has been created and Ms. Elm is on the committee. The committee had not met at this point in this study. Dr. Heron said that he had not heard of any district directives but thought it was something they would have to monitor closely going forward. He indicated that a factor driving the decision would be that students who did not pass the EOC in middle school would not receive a high school math credit for Math I and would have to repeat the class in high school. He thinks his participation may drop from the 100 students currently enrolled in Math I. “It may drop back down to 40 or 50 children, because I don’t
want them to take a class and fail the EOC and then have to retake it in high school” (Dr. Heron). Ms. Bobwhite indicated she would feel better about using EVAAS going forward if there was more transparency from SAS on how the scores were going into the algorithm to create the prediction scores.

**EVAAS as the only Placement Tool**

One of the themes that emerged from the data was how teachers perceived using EVAAS data as the only tool for placing students in math classes in middle school. While all of the teachers indicated that they thought the data EVAAS provided was reliable, they also indicated that it cannot account for all of the factors that make up a student’s ability to be successful in an advanced math class such as Algebra I/Math I. Ms. Birch from Willow Middle stated, “We have conflicting ideas as a math group for EVAAS, and whether or not children should be pushed into Math I.” She made this statement after indicating she had general positive regard for EVAAS data and felt the data was reliable. She also stated that she misses the fact that teacher recommendation is no longer part of the math placement process in her school. She indicated that she relied heavily on Ms. Ashe to weed out the kids who did not have the work ethic. As far as EVAAS as the only data point, she stated, “I wouldn’t put a hundred percent stock in it. I think it can be a great tool. But, tools are nothing without people to use them.” She later stated she knew that teacher recommendation could not be the only factor because then administrators would only put kids in Math I who could pass the test.

Ms. Ashe, also from Willow Middle, indicated that she also wished that teachers
could have input on which students could be placed in Math I classes. She felt that the old system was a “little more well-rounded to get these kids in a class as opposed to just one thing” (EVAAS scores). She also added, “I just have a problem with one test saying that they know the material. That’s the only thing…I might be from old school, but I still go back to teacher recommendation.” She indicated this in spite of saying she thought EVAAS was an efficient tool for placing students at her school, and that she likes to have data on her students.

Mr. Jay, from Hawk Middle School, spoke more positively of EVAAS than any of the other teachers, indicating he trusted the data and thought it was a good tool to use to place students in math and that his school had a good passing rate due to their use of EVAAS data. However, he later stated, “I would like to see that the people using EVAAS to place students realizing EVAAS is just one tool to use.” He provided an example of a student placed in his class due to EVAAS data alone, and she did not do well. He felt that if someone had looked at the student’s record and talked to her former math teacher, she would have never been placed in Math I and been unsuccessful. He added, “You’re not looking at the whole picture of what the student’s going through.”

Building level administrators also shared their feelings on the use of EVAAS to place students in math courses at the middle school level. Ms. Elm at Willow Middle School shared her thoughts about when administrators were first required to use EVAAS to place students in Algebra I/Math I. She stated, “When we were first required to use EVAAS to put students in courses, such as Math I, which was traditionally Algebra I, I was hesitant,
especially at the 7th grade level.” She later added that she was less hesitant about the use of EVAAS, and more concerned about placing 7th grade students in a math class that she referred to as a “high school level course.” She also describes her teachers as skeptical of EVAAS, and that they would like to have teacher input in placing students into advanced math classes. However, she does describe EVAAS as “probably the best indicator that we currently have,” but then added, “it’s not the end all, be all.” She also indicated that her teachers liked the fact that students were grouped in her school because of their math courses, and that the teachers liked the students to be grouped that way. So, Ms. Elm had fewer reservations about the use of EVAAS for math placement than her teachers, but she did express concerns that some students were being pushed before they were mature enough for classes that have traditionally been taught at the high school level.

Dr. Heron, principal of Hawk Middle School said that he did have concerns that they only used EVAAS now as the only tool to place students in math courses at his school. He trusts EVAAS, but acknowledges that some of the students who struggle in Math I were placed in the advanced math course due to EVAAS scores exclusively. As these students struggle, teachers ask to have input or to have a higher cut score. He stated, “People tried to talk me out of it, the 70%, and I just held my ground.” He hopes the scores come back and will help change the culture of his school in regards to the type of students who are placed in advanced courses at his school. Ms. Bobwhite, the assistant principal at Hawk Middle School, felt that EVAAS was an excellent tool for placing students and that it was better than the way it was done in the past. She indicated that using only EVAAS scores may place
students in Algebra I/Math I who may struggle, but it also opens the doors to more students than when other processes were used.

District level administrators couched the use of EVAAS data for math placement in more positive terms. Ms. Wrenn thinks the way students are placed now is better than when teacher recommendations were used. She indicated that “when it was all teacher selection as far as which kids got into 8th grade Algebra I…that was a very select, small group. Tended to be your little AG kids, and that’s who got in there.” Since switching to using EVAAS data there are more students in her district taking Algebra I/Math I, “and, what we’re seeing is they’re being successful. You know, it takes out that, that human judgment by using those prior scores and that projection.”

Dr. Oak spoke the most favorably of all of the subjects in regards to using EVAAS for math placement. He stated the following:

before we did it [math placement] with teacher recommendations and other subjective criteria, and EVAAS was part of the only objective criteria that we presumably used. What wound up happening was a sort or cadre of kids being assigned Algebra I and a certain group of kids not being assigned that and it wasn’t objective. Now we have more children taking Math I, which used to be Algebra I, and Math II, which used to be geometry.

He added that he feels he has had to forcefully guide the use of EVAAS data in the district, indicating he received pushback as a result of his insistence that teacher recommendations were not longer going to be part of the placement process. He added:
There were a large number of people who didn’t understand it, a large number of people who objected to the fact that teacher recommendations weren’t going to be used anymore for obvious reasons. It’s not what we’ve always done, teacher knows best, teacher this and teacher that, and I’m not saying that they don’t know, professionally speaking, most of what they need to know. When it comes to naming or identifying children to be placed in classes, that has to be based on data.

He feels that he could have done a better job guiding the use of EVAAS data, but does think that the process is better, even if he has had to bring teachers and administrators “along kicking and screaming.”

I asked the schools when they switched to using EVAAS as their placement tool, and both districts indicated that the 2011-2012 school year was the first year that they used EVAAS to place students in Algebra I; however, Willow Middle School only placed students with a prediction score of 85% or greater while Hawk Middle School used 70% as the threshold. Both schools also indicated that they switched to EVAAS as the only placement tool in that same school year.

Both schools had a similar process before switching to using only EVAAS scores for math placement. Both schools used several data sources, including EOG scores, math grades, teacher recommendation, and parent requests. Both schools used a form that had all of this data and students had to meet a certain score in several areas to be considered. No one area was significant enough for a student to be placed in the higher class. Ms. Bobwhite said that some students “got railroaded” because teachers would not give students a good
recommendation because they had a bad attitude in class. Mr. Jay indicated that students formerly were “handpicked” and wanted to be in the classes. In addition, Willow Middle School gave all 7th grade students the Iowa Test of Algebra Readiness and used that score as part of the overall equation as well. Willow Middle shared several forms they used in the past to place students in Algebra I before switching to EVAAS scores (Appendices G and H).

Lack of Formal Communication and Professional Development at the School Level

A common thread running through both school districts is the lack of formal professional development and communication from the district level. Each of the participants was asked to describe the way the use of EVAAS was communicated in their schools, and what professional development they received to use EVAAS data in their classrooms.

Teachers received the least amount of training and formal communication about the use of EVAAS. Teachers indicated they had not had any formal training. Mr. Jay described his professional development this way:

About the only development we’ve had is practice, actually logging in and pulling data on the students so we can see where they are coming from… So, we’ve logged in, looked at the data, run some reports. That’s basically, pretty much a very basic level of instruction on how to use it.”

He also talked about the lack of organized meetings to talk about EVAAS data and how it could be used in the classroom. He added

Pretty much, all the meetings we’ve had on EVAAS are talking about how to use the
program to place students. Unfortunately, the teachers, we don’t have much say in
that process. That EVAAS is usually used to explain to us the decisions that are
made about where students are placed. So it’s more of just explaining, the
administration explaining to us why the kids are where they’re at (Mr. Jay).

He could not recall receiving any other training or communication regarding the use of
EVAAS.

Similar experiences were related at Willow Middle School by two of the teachers
there. Ms. Maple, stated,

Personally, I don’t think I’ve ever had a formal introduction of how to use EVAAS.
I, they told me how to sign in and what I could find on there, but nothing completely
formal, or how I can use it in, in my classroom. I guess.

She also indicated that she was handed some data on her students, but she did not actually log
in to EVAAS to find out her data on her students. In the course of the discussion, Ms. Ashe
pointed out that Ms. Maple did not have any personal data in EVAAS since it was her first
year, and that may be why she did not see the need to log in to look at EVAAS data. Ms.
Ashe also indicated that her principal would come to the grade level and talk to them about it,
“And that’s when we just kind of went in and she [her principal] showed us what it, what it
did… it wasn’t any formal training.”

Ms. Birch, the most experienced of the teachers in the study, had more experience
with EVAAS professional development than the other teachers, but even her professional
development appeared to be less formalized and more in the vein of “how to” workshops.

She said:

We’ve had periodic times when we’ve had [professional development], we don’t necessarily have giant staff development with it now. We have a lot of small group meetings. Mrs. Elm comes in and we sit down and she helps us go through our data, and analyze our data, and show us how to manipulate it, and look at it and see what’s really going on; how to pick apart the groups.

She also indicated that she understands EVAAS more from her own use than from the training she received. She has a natural curiosity about things and added, “I think I played with it a lot because I’m one of those self-motivated people, so as far as staff development goes, I pretty much go off on my own.”

Going off on her own may have led to some misunderstandings she had about EVAAS at first. Ms. Birch indicated that she misunderstood what the percentages associated with students meant when she first started seeing EVAAS data. She indicated that it was probably told to her the correct way but that she either forgot or misunderstood it. She also says that there have been consistent conversations about EVAAS over the years, especially if something new is added. She indicates that the professional development they have now is “on demand. You ask for it, you get it.” She described the training activities as interactive. She said Ms. Elm, her principal, would tell them to bring their computers to pull up their data and that she “printed out lists for us to look at and evaluate so we will know the value of why
we’re getting it in our hands… she’s made it concrete as she can; made it something that we can tangibly touch.”

While the degree of professional development varies from administrator to administrator, it does appear that school level administrators have received more formal professional development than teachers. Dr. Heron talked about a recent professional development he attended:

The district had a training last year for all the principals, and throughout my course of time in education I have gone to different trainings. Last year’s training was the best I’ve ever been to. Before, because I was an elementary principal, they would say before the training, elementary people, you really can’t use it that much, so for elementary people, it didn’t really apply to us as much (Dr. Heron).

When asked about the training provided the previous year, he indicated a consultant [Ron Tharpe] had provided a two-day workshop on early release days to all the administrators in Audubon County Schools. He said the reason that it was good was because, “I needed it! I was a middle school principal and it made more sense to me.”

He talked about the general lack of communication from the district level about using EVAAS. Rather than wait for direction from central office,

It’s just something that we did on our own. I would say very little comes from Central Office for use. You know, they talk about using EVAAS data, but there’s not been a real push. And, and to be honest with you, I’m just fortunate to have Ms. Bobwhite here, who, you know, has been in middle school and high school for years
and knows it like the back of her hand, says, “Heron, we gotta use this data” (Dr. Heron).

Ms. Bobwhite is his assistant principal, and has been using EVAAS since it first came out in North Carolina and could not remember the original training because it was so long ago. “Whenever EVAAS first came out and data was first available, we were able to use it because we were a county, back when they called them poverty counties” (Ms. Bobwhite). She continued to describe her use of EVAAS, but did not indicate that she had received any formal EVAAS training. As for communication, she indicated “we are brought a list when we schedule in the summer. Our Central Office runs a list, and it cuts them (the students) off at, well, at 70% this year…so, as far as meetings, we’ve been doing this a while. So, I don’t know. There were probably initial meetings” (Ms. Bobwhite).

Ms. Elm, the principal at Willow Middle School has attended the most professional development of all the administrators and spoke about several of her EVAAS trainings. After talking about a training at the Friday Center, an in-house workshop, and then a two-day workshop presented by Mr. Tharpe, she said, “I’ve had a significant amount of training in EVAAS.” She indicated the recent training focused more on “trend data through EVAAS, use as a predictability model, as well as looking at student and school reports” (Ms. Elm). She also indicated that she tried to communicate to her teachers the various things she learned in the workshops she attended. She indicated that she gets her teachers to “log-in to EVAAS, and I allow them the rights to look at school reports as well as student reports.” She indicated that her teachers “spend our first two or three weeks looking at the data and the
students in EVAAS.” She indicated that other than Mr. Tharpe’s workshop, most of the training and experience she had with EVAAS was driven by her own desire to learn more about it.

The respondents with the most EVAAS professional development and experience were the central office administrators. The superintendent of Arbor County Schools and the Testing Director for Audubon County Schools both spoke of several opportunities they had been provided to learn more about EVAAS. Dr. Oak provided the following summation of his professional development with EVAAS:

I was originally involved in the Bill Sanders training years ago when, when Sanders did it. There were a couple of trainings state-wide that I went to, and then I’ve seen him speak. And then throughout my career I’ve gone to training sessions, both at the principal level, the assistant superintendent level, the superintendent level. He then talked about his role as superintendent for communicating the use of EVAAS in his district. “As far as communicating it to others - I haven’t had to guide it, I’ve had to hammer it. I don’t know if guiding and hammering are the same things” (Dr. Oak). He indicated that the reason he has to be so forceful at first was because “there were a large number of people who didn’t understand it, a large number of people who objected to the fact, that teacher recommendations weren’t going to be used anymore for obvious reasons.” He further indicated that change is difficult for some people stating,

It’s not what we’ve always done, teacher knows best, teacher this and teacher that, and I’m not saying that they don’t know, professionally speaking, most of what they
need to know. When it comes to naming or identifying children to be placed in classes, that has to be based on data. So, I haven’t guided it very well. I’ve sort of told people this is what they’re going to do, and they’ve come along kicking and screaming, but it’s better.

Ms. Wrenn, from Audubon County, spoke of several workshops she had attended due to her role as Testing Director. She recently attended a training at NCPAPA where Rob Tharpe presented some EVAAS information. Based upon that workshop, she asked her superintendent to invite Mr. Tharpe to provide training for all the principals. This is the training Dr. Heron spoke of earlier. Ms. Wrenn described the training as follows:

He [Mr. Tharpe] came here for two different days during our early release last year so that our administrators could get a better understanding of what EVAAS is, how it’s going to impact the school accountability model, that kind of thing.

She thought the training was something her administrators needed and feels it was successful for most of her administrators. “Some of them, I think, kind of got a grasp of it. Some of them, I think, were still scratching their head” (Ms. Wrenn). She added, “We’ve got some people who have a better handle than others, but I don’t think I could say that we have a really good handle on EVAAS in our county.” She indicated that her role as testing coordinator involves her making sure everyone has an EVAAS account and setting up the professional development last spring provided by Mr. Tharpe. She said there had been no formal follow-up with principals after that training.
EVAAS as a Self-fulfilling Prophecy

A caution that appeared at the teacher, school administration and district leadership level was the fear of students, teachers or parents seeing the EVAAS predictor scores as a fixed point that could lead to each of those previously mentioned groups giving up if they had a low predictability score. Dr. Oak, superintendent for Arbor County indicated he only had one concern about using EVAAS to place students in advanced math classes in middle school. He stated,

There’s one [concern], the self-fulfilling prophecy, the Hawthorne effect. You know a teacher reads data, a data set, well that, that’s where the child’s going to end up. And not fully understanding or having received the training, that’s not a self-fulfilling prophecy. But, it can be dangerous if used incorrectly.

His concerns were also echoed by others. Ms. Bobwhite, assistant principal at Hawk Middle School felt that administrators need to be careful when sharing these EVAAS scores with teachers. After seeing predictability scores in the 35 – 40 % range, she has seen teachers and parents “despair and think the child’s not going to make it.” She understands that that score is just a prediction, but is afraid that teachers and parents see it as more than that. She said that if teachers could provide a little extra oomph, that kid will pass, and so I always encourage the teachers when they are looking at the data to, to recognize that that 38% is not a death sentence. That’s a kid that’s on a bubble of a three and a two, and you can really push those kids up. You can get some growth out of them. You can do some kind of extra, something extra
for them and so you can look at categories of kids like that if you have enough experience with EVAAS to know over the years this is what, what it’s looked like. She went on to say that she doesn’t have empirical data to prove this to the teachers and parents, but she’s seen it happen with more than one student during her tenure as a middle school assistant principal.

Dr. Heron didn’t think that he would share scores with parents and students because he doesn’t think they have enough knowledge of what EVAAS is to understand what the scores represent. He stated, “You have that self-fulfilling prophecy where a student sees that they’re predicted score is a failing score, they may believe it and give up. “ He also remembers that they formerly did not share the scores with teachers. “We wouldn’t even give it to teachers because we thought the teachers would think that they [the students] going to fail anyway” (Dr. Heron).

Ms. Elm, principal at Willow Middle School, shared the same concern about sharing predictive scores with parents and students.

I do not think EVAAS data should be shared with students in any way, and I feel like if teachers did share that data with students or parents and they haven’t had the training that we have and they do not understand how what that means, it could do a great deal of harm (Ms. Elm).

A teacher at her school, Ms. Birch felt that students might see their scores and think that they were going to pass just because they were predicted to do so. That concerned her that students may not care and not be willing to try as hard as they should. Another teacher, Ms.
Ashe indicated that she didn’t feel that teachers knew how to explain the scores to parents and students and that it would be too difficult for them to understand the scores.

**Finding 3: EVAAS Use in Middle Schools**

All of the respondents in this study indicated different ways the introduction of EVAAS data in to their schools has changed the way they work. Almost all of the changes are positive in nature, and are enabling teachers to look closer at data at their schools. This section is separated into two areas: EVAAS as a unifying theme, and EVAAS as a tool to help struggling students.

**EVAAS as a Unifying Theme**

One of the themes that was obvious throughout all of the interviews was how all of the subjects used the same language to describe the use of EVAAS in their workplaces. All of the respondents spoke of EVAAS as a tool that could be used for predicting students’ future success, as evidenced in Table 4.1 earlier in this chapter. Teachers and administrators talked about how they used the data in grade level meetings and PLCs (Professional Learning Communities) to help guide their discussions. Ms. Elm indicated everyone at her school uses EVAAS data and “we will continue to use it more as we continue to develop PLCs that use data.” Mr. Jay indicated that there is more talk about EVAAS data in meetings and how it can be used to help students.

The topic of growth also came up as teachers and administrators talked about the use of EVAAS data. Ms. Birch talked about how focused they were on EVAAS data as a school and how they would talk about how they could use EVAAS data to focus on certain groups
of kids, especially ones that they could get the most growth from.

That yellow group, that middle group, has always been a focal point for us because they are the make or break kids, the ones you can suddenly get something out of that you didn’t expect. Or if you don’t pay attention to those, those are the ones who’ll fall in the cracks (Ms. Birch).

Ms. Wrenn talked about growth at the teacher and school level, and that EVAAS provided a way for teachers to look for growth opportunities in their data. Ms. Bobwhite also noted that EVAAS was a great way to find students who had great growth potential. She said she and the teachers could mine the data and find

a kid that’s on a bubble of a three and a two, and you can really push those kids up.

You can get some growth out of them. You can do some kind of extra, something extra for them, and so you can look at categories of kids like that if you have enough experience with EVAAS.

Ms. Elm talked about teacher effectiveness and how she could look at the growth scores on her teachers and talk about whether they were getting growth out of the students they had, no matter what level they were. Ms. Ashe added that she knew that North Carolina looked at the growth model for determining school profiles and EVAAS data was a good place to look for students who had potential for growth in math.

**EVAAS for Struggling Students**

Another theme that evolved was how teachers and administrators are using EVAAS data to not only place students in advanced courses, but to also help identify struggling
students, and then deliver content specific to their needs. They are using EVAAS data to help develop Personal Education Plans (PEPs) and to create special classes for at-risk students. Teachers and administrators talked about how the use of EVAAS had given them data to help these students.

Ms. Birch spoke about the “kids who are red,” referencing how EVAAS uses colors to indicate various levels of proficiency for students. Green students are at or above grade level, yellow students are slightly below grade level, and red students are significantly behind their peers. Ms. Birch mentioned using the data to avoid pigeonholing students. Instead of giving up on the students because the data indicated they were behind, she says “we get that data from day one” and they use it to develop plans for those students, even using some of the EVAAS data in PEPs for students. Ms. Ashe and Ms. Maple also talked about the students who were on the yellow list and the red list. Ms. Ashe indicated that she and her principal had used EVAAS data to not only place students in the advanced math classes, but to also create remedial math classes to help those students who were significantly behind in math. Ms. Ashe liked grouping the kids this way. This is what she said about one of her classes created by EVAAS scores:

It was just like I could really keep a good eye on them as I was teaching. And I was very pleased with my success rate that year. I think there was like three or four on that list that didn’t pass. Everybody else was proficient. So I really like that part of it, to give me a chance to zone in on those kids. And we’re going to look at those lists more this year in our, in our professional, our math PLC (Ms. Ashe).
Ms. Maple agreed with Ms. Ashe and also indicated that it allowed her to know more about her students and then be able to focus her interventions.

Administrators also talked about using EVAAS to help students who had struggled in previous years. Dr. Oak indicated that after looking at the predictive scores from EVAAS, “if they’re projected at say 40%, how do we make that 40% happen for the child and inform instruction?” He thinks that is an area that teachers and administrators are improving overall. Ms. Elm said that it was a great tool to help teachers create PEPs for students performing below grade level. She indicated it was another piece of data teachers could use to help at-risk students. She used EVAAS data to pull her students who receive additional reading training through Read180, a remedial reading program she has at her school.

Ms. Bobwhite talked about the use of EVAAS to place students at her school in a reading remedial program. She described the process used by Dr. Heron as follows:

He [Dr. Heron] ran an EVAAS report on at-risk in reading…And he took the lowest children because one of our, one part of our literacy plan is that we have to provide additional time for the lowest 20%. So he went in and pulled that group from each grade level. And…instead of having dance or another exploratory [these are what they call the electives the students take at the middle school level], we have a literacy person, and she pulls 6 and 7 seven kids and really works hard with those ones that are honestly, that need to be taught how to read again. (Ms. Bobwhite).

These last two incidents were the only times in any of the interviews that any of the subjects talked about the use of EVAAS for anything other than math. Both schools used EVAAS
data to determine which students should receive reading intervention.

**EVAAS and Standard VI and Standard VIII**

All teachers, assistant principals, and principals in North Carolina are now evaluated using the North Carolina Educator Evaluation System (NCEES) which consists of six standards for teachers, and eight standards for administrators. Standard VI: Teachers Contribute to the Academic Success of Students will be populated using EVAAS data. For principals and assistant principals, Standard VIII: Academic Achievement Leadership will also be populated through EVAAS data. Prior to NCEES, teacher evaluations consisted of observations performed by administrators as few as once a year except for license renewal years. Teachers were only required to have a summative evaluation in their license renewal year. Otherwise, a letter indicating that the teacher was performing at a minimum of “At Standard” was all that was needed for a teacher to continue to teach each year. NCEES still uses teacher observations by administrators as the basis for evaluation; however, there are more areas for administrators to observe, and all teachers must be observed at least twice a year, and all teachers must have a summative every year based upon classroom observations and artifacts. In addition, after three years of testing data, SAS will use EVAAS scores to provide a measure of teacher effectiveness for Standard VI for all teachers. Principals’ Standard VIII will be populated with a combination of all of the scores for the school provided by SAS through EVAAS. This is a drastic change for teachers and administrators in North Carolina.

All of the teachers and administrators in the study indicated that they need a better
understanding of EVAAS, especially how it is used to determine their rating in Standards VI and VIII. Ms. Elm said that principals and teachers need more training in EVAAS, and that someone in the district should receive training and then come and provide training for principals and teachers. Mr. Jay indicated he would like to know more about EVAAS:

I would probably feel more comfortable finding more about EVAAS and how the numbers come about, where they pull their information from, how it’s used to determine placement. I would like more. I just have a rudimentary understanding of it. I would feel more comfortable knowing more. I don’t think we really know how those percentiles are calculated and where the data comes from. We know they look at test grades from previous years, but I don’t know how that number is calculated.

Ms. Ashe shared a similar sentiment and stated that she needed “major training” on how it is going to be used to populate Standard VI. She stated that she doesn’t use it often enough to become as familiar with it as she should.

While middle schools are not the only ones concerned with Standards VI and VIII, it was obvious to the researcher that it was an item of concern in the two middle schools in the study when I returned for follow-up visits. I made a note when I was transcribing that a probable reason for this new concern was that student scores and Standard VI were not available during my first site visits. However, each teacher now has a login to EVAAS, no longer needing an administrator to grant EVAAS access. These two factors have likely combined to create this desire for more intense EVAAS professional development.

Observations of excellent teacher behavior in the classroom by a trained administrator could
be somewhat diminished by a negative rating in Standard VI, and an innovative principal who has brought positive changes to her school could also be impacted negatively by a low Standard VIII rating.

Summary

The key findings for this exploratory case study were developed through analysis of the interviews with the nine subjects in this study. The following three questions provided the guidance for analysis of the data in this study:

1. How much knowledge do teachers and administrators possess about EVAAS and its use in middle schools?
2. What are the perceptions of teachers and administrators about the use of EVAAS data to place students in math in middle school?
3. How are middle schools using EVAAS data?

The results were then organized into three sections, including purpose of the study, key findings based upon the research question and guiding questions, and a chapter summary. The findings indicated that teachers, building level administrators, and central services administrators all see EVAAS as a tool that can help them place students in math classes in middle school. Some of the subjects trusted the data more than others, and some of the teachers would still like to use teacher recommendation as a factor in placing students in math classes. Additionally, all three groups also had some misgivings about the use of EVAAS data, but not to the point that it should be abandoned.
Finally, there is evidence that EVAAS has changed the way middle schools operate. The next chapter will review the key findings through the literature review and the theoretical framework, describe theoretical and practical implications, and propose directions for future research examining the use of and perceptions regarding the use of EVAAS in middle school math placement in North Carolina.
CHAPTER 5
DISCUSSION

This chapter briefly reviews the purpose of this study and restates the findings from the research surrounding teachers’ and administrators’ perceptions of the use of EVAAS for placing students into higher level math classes, specifically Algebra I/Math I, in middle school. This chapter will also address the findings through the lenses of the literature and the framework used to shape the direction of this study. This chapter concludes with a look at the significance of this study on future policy, research and practice.

Review of the Purpose of the Study

The emergence of EVAAS as a placement tool for students, and an evaluation tool for administrators and teachers is causing school leaders to look closer at this statistical tool. The purpose of this study was to look at teachers’ and administrators’ perceptions of using EVAAS as a placement tool for Algebra I/Math I in middle schools. An exploratory case study was used to interview nine teachers and administrators in two school districts in central North Carolina. The research was guided by the research questions posited in previous chapters. The themes that merged from these research questions leads to discussion of implications for future policy, research and practice, which will be discussed later in this chapter.

To understand these participants’ use of and perceptions of EVAAS, I primarily used interviews of the participants. In addition, I used participation rates and proficiency rates in Algebra I/Math I of the two middle schools in the study. I also asked principals to show me
their EVAAS lists they used for placing students in Math I classes. They were able to produce the lists, but were not able to share them with me because they contained the students’ names and unique identification numbers (UIDs). The findings of this study will enable educators to better understand the way EVAAS has begun to impact middle school math placement and will provide insight into the positive aspects of EVAAS and to also learn from possible negative effects as well.

**Summary Finding 1: Participants’ Knowledge of EVAAS**

The first question I asked each participant was to define EVAAS in their own words. All participants had some working knowledge of EVAAS, and all nine were able describe the way EVAAS can be used to place students in math classes using their predictive score on past standardized tests. This is important since there is legislation that mandates the use of EVAAS data for scheduling students in classes. Even without a universally recognized definition of EVAAS, there are four main components: EVAAS uses longitudinal data, is based upon all EOG and/or EOC scores in a student’s testing history, provides a predictor for student success in future tested subjects, and that predictive score is based upon the student receiving an average year of schooling. The district level administrators each identified three of the four components, failing to mention that EVAAS scores are based upon a student receiving an average year of schooling. Only one of the teachers talked about the longitudinal nature of EVAAS, but all of the teachers know that EVAAS was used to place students in courses based upon predictive scores. One of the school administrators was the
only participant who talked about the importance of students having a qualified teacher to
teach the prerequisite courses and having an average year of school.

**Summary Finding 2: Perceptions of EVAAS Use in Middle Schools**

Several of the questions in the protocol directed the participants to share their
thoughts and perceptions about using EVAAS in their schools and districts. Four themes
emerged in the data analysis stage: EVAAS use increases student participation in advanced
math, EVAAS as the only placement tool, lack of formal communication and professional
development at the school level, and EVAAS as a self-fulfilling prophecy.

Almost all of the participants spoke about how using EVAAS had increased the
participation in Algebra I/Math I at their schools, and except for one participant, all saw the
increase as positive. Both districts have experienced a greater than 70% increase in Algebra
I/Math I participation since the 2008-2009 school year. Additionally, participants noted that
using EVAAS data opened the classes to a greater diversity of students, creating classes that
“are much more racially diverse” (Dr. Oak).

All participants indicated that EVAAS is now the only tool used to place students in
math classes at the middle school level. Central services participants indicated it was a much
better system than used in the past and opened the doors or higher math to more students.
One participant indicated it was the “only objective tool I have” (Dr. Oak). Principals also
liked using EVAAS rather than previous methods but expressed some reservations about
including all of the students in Algebra I/Math I EVAAS identified as being ready for the
course. Teachers had the most reservations, and all expressed a desire to have some type of
teacher component, even though they all thought EVAAS was a good tool to use. Ms. Birch indicated that the teacher recommendation was the piece that was “missing a lot of the time.”

Central office administrators received more professional development than principals, assistant principals, and teachers. Both of the central services administrators attended professional development at conferences and brought a trainer to their districts to provide additional training for school-based administrators. Even then, Ms. Wrenn indicated that she still doesn’t have as much knowledge of EVAAS as she would like to have. One school administrator took the initiative to find training on her own so that she would have more knowledge about EVAAS and how to use it in her role as principal. Another administrator indicated that he didn’t pay much attention to the training as an elementary administrator but appreciated the training he received after moving to his middle school. He said the training was a lot better because “it made more sense to me” (Dr. Heron). Teachers, however, spoke of very little training or communication about EVAAS from their principals or the district. Teachers described professional development as logging in to EVAAS or looking at lists of students’ names and scores. None of the teachers indicated any formal training in EVAAS. Both central services administrators indicated that they had not sufficiently promoted the use of EVAAS in their districts.

Several of the participants expressed reservations about sharing EVAAS scores with students and parents. The main concern from administrators and teachers was that students would see their predicted EVAAS score and assume that was how they would perform in class, a self-fulfilling prophecy. Some of the subjects felt students would give up if they saw
they were predicted to not do well in a class (Dr. Heron, Ms. Elm, Ms. Birch). Other subjects thought that the teachers may see low scores for students and assume those students were not going to pass, so that were not willing to make the extra effort (Dr. Oak, Ms. Bobwhite). One teacher even thought that students with high prediction scores may assume that they were going to pass and not be willing to put in the effort necessary to do well in the course. None of the respondents indicated that the scores should be shared with parents because they did not think parents had the background to understand what that prediction score truly meant.

**Summary Finding 3: EVAAS Use in Middle Schools**

All of the respondents were able to talk about ways EVAAS had changed the way they worked. Especially at the school level, teachers and administrators used much of the same language when describing EVAAS and how it was being used in their buildings. All of the subjects in this study knew that EVAAS used previous testing scores to predict student success in the future. They thought that the data was reliable and was a helpful tool for placing students. Many of the school-based participants also talked about growth and how they could use EVAAS scores to identify students who had the greatest potential for growth. Ms. Bobwhite said she would help her teachers look at the data and find “a kid that’s on a bubble of a three and a two” and work with that teacher to help bring that student up to proficiency.

Even thought this study focused on placing students in challenging math courses, all but one of the teachers and all three school-based administrators talked about using EVAAS
to help them with their struggling students. The administrators talked about running reports that would identify the students who were least likely to be successful in any level of math. They identified these students as needing interventions to be successful. Ms. Elm mentioned using EVAAS scores to help with students’ PEPs and a reading intervention program, Read180. The other middle school also used EVAAS scores to place students into an intensive reading program. On my second visit to Hawk Middle School, Dr. Heron introduced me to his reading interventionist that Ms. Bobwhite spoke about the first time I visited the school. Since I did not have district permission to interview her I only met her and talked to her briefly about the students she was servicing. The teachers thought that the EVAAS scores gave them a heads-up on which kids were going to struggle coming into their classroom. As mentioned earlier, they knew these students also had the greatest potential for growth.

An interesting finding occurred during my second visit to the sites. The teachers mentioned that they would like to have more training in EVAAS now that the scores are going to be a part of Standard VI in the North Carolina Educator Evaluation System (NCEES). The new level of access to EVAAS for teachers, coupled with the population of Standard VI has created a desire for more professional development. They want to better understand what goes into the NCEES ratings. The principals also would like to have more than “a rudimentary” understanding of how EVAAS will be used to populate Standard VIII for them (Dr. Heron). The next part of this chapter will look at these findings and their relation to the literature review in Chapter 2.
Findings Through the Lens of the Literature

EVAAS is a highly reliable statistical model that takes all of a student’s longitudinal data and factors in the effects of the school, district, and an average year of schooling to make predictions about how well that individual student will do on criterion-based assessments in the future (Ballou, Sanders, & Wright, 2004; Schaeffer, 2004; Wright, 2004). Each of the participants explained in their own words what they thought EVAAS was and how it could be used in their schools or districts. Everyone in the study had some working knowledge of EVAAS and talked about it in terms that impacted them most directly – where to place students in math classes. Only one of the participants indicated that the results from EVAAS were based upon students receiving an average year of schooling. This is an important aspect of the EVAAS model as it is the one area where a student’s score can be impacted the most. Additional work with students with lower prediction scores can result in those students passing EOC tests. Due to the lower test scores from 2012-2013, Dr. Heron indicated he was going to have to do something to help the 100 students at his school who were currently enrolled in Math I. Without relating this is an important part of the EVAAS model, the decisions he and his math team make could be the biggest factor in whether those students are successful or not.

Weiss (1995) talks about the importance of interest, specifically self-interest when it comes to decision-making, stating teachers “want to feel a sense of accomplishment” (p.574). The teachers in this study certainly wanted to have students in their classes who could be successful. They all thought that EVAAS was a reliable tool and could be useful in placing
students in math courses, but they also wanted to continue to have some input into the
decision. District leaders indicated that they would not return to previous practices of using
teacher recommendations for math placement as their self-interest lies in providing more
access to higher courses to more students, “especially children of color” (Dr. Oak).
Principals were somewhere in the middle as they did not want to return to teacher input, but
wondered if using an EVAAS prediction score 70% as the cut-off for Algebra I was the most
prudent policy going forward. One of the districts even indicated they were forming a team
to address this before it was time to place students in math classes for the 2014-2015 school
year.

The Algebra Project is a group whose initiative is to provide greater access to higher
math courses for all students, not just those labeled gifted, or who have a higher socio-
economic status (Silva, Moses, Rivers & Johnson, 1990). One of the components of The
Algebra Project stresses the importance of math literacy, indicating “math literacy … is
becoming increasingly important not only to gaining access to college and mathematics or
science related careers but also to participating fully in the economic life of American
society” (p. 387). Many of the respondents mentioned using EVAAS opened the doors to
higher math for more students. Several of the teachers and administrators noted that it
especially provided opportunity to students who may have been denied that same opportunity
when other procedures were in place. They mentioned that Algebra I/Math I was no longer
an elite group of AG students like it had been prior to the use of EVAAS data. This opening
up of the curriculum is what groups like The Algebra Project want to see happen in more places for more students.

A study in Ohio indicated that schools used value-added models to increase both participation and performance in advanced math classes (Jerald, 2009). Even though this study did not perform any statistical models to the participation rates at the two schools in the study, it does appear that the participation results at both school increased after the schools switched to using EVAAS as the only placement tool. Proficiency rates hovered near 100% when there was only one Algebra I class at each school. When participation rates more than tripled, there was a drop in overall proficiency; however, almost twice as many students were passing the Algebra I/Math I EOC than were taking it just a few years prior. So, it appears that the use of EVAAS, a value-added model similar to Ohio, increased the participation rates in advanced math courses at the two middle schools in the study.

Feldman and March (1988) stated, “Regardless of the information available at the time a decision is first considered, more information is requested.” EVAAS was made available to the schools in this study well before the 2011-2012 school year; however, it was just another piece of data when it came to placing students in Algebra I classes. Both of the schools used models that looked at other data sources, including past EOG scores. Ironically, it is these past EOG scores that provide the statistical backbone for EVAAS. Teachers also wanted to add input to protect their self-interests as posited by Weiss (1995).

Weiss (1995) also talked about the importance of information in organizational decision-making. Weiss goes on to say that the intersection of interest and information may
cause a school to abandon a strategy or program if the results indicate that they may be seen as ineffective. While the teachers and principals at these two schools were slow to use EVAAS for math placement at first, they began to rally behind its use when they started seeing the good results – higher participation and proficiency rates. All of the participants spoke positively that the Math I classes were more diverse and were providing opportunities to students who had been marginalized in the past.

Confrey & Makar (2005) conducted a five-year study in Texas where teachers were trained to use data to help their disadvantaged students increase their passing rates on exit exams by 25%. However, after one year of lowered scores, the program was abandoned. The two districts in this study have seen participation rates soar, but both schools had their worst proficiency rates in Algebra I/Math I in 2012-2013. Both principals indicated that there were probably going to be changes in how students were placed in Math I. Neither principal knew for certain what those changes would be, but said that it may involve using a higher cut score from EVAAS or creating a “pre-Math I” class for students in 7th grade to prepare them for Math I in 8th grade. Neither school seemed to be ready to abandon the use of EVAAS but did see a need to proceed with caution. Dr. Heron indicated he would not have 100 students in Math I this school year had he known only 56% had passed from the previous school year.

Administrators “mistrust data, … fear data, and many do not have the skills to use data wisely and effectively (Earl & Katz, 2006, p.3). Colburn & Talbert (2006) indicate that this is a result of lack of training on how to effectively use data. This was indicative of all
but one of the participants’ respondents. No matter whether they had been able to participate in several EVAAS trainings, or had just been taught to login to the system, they all wanted more professional development in EVAAS. Teachers wanted to know how to use it in their classrooms and principals felt that there was more they could use EVAAS for than just placing students in math classes. Without proper training data users at the school level can sometimes interpret and use data in decision-making that does little to help students, and in some cases may even lead to poor decisions for students (Confrey & Makar, 2005; Fusarelli, 2008). Both principals at the schools expressed concern for the students who went on to high school this year without a passing EOC score as well as for the students currently enrolled in Math I at their schools this year. This inability to use the data effectively can lead to ambiguity and may result in the data not being used meaningfully (March, 1988).

The finding of EVAAS scores serving as a self-fulfilling prophecy was a surprise to the investigator in this study. Many of the respondents feared sharing the EVAAS predictions with students and parents for fear they would see the lows scores as a harbinger of failure ahead. Feldman and March (1988) indicated, “Much of the information that is used to justify a decision is collected and interpreted after the decision has been made, or substantially made” (p.414). It is easy to see how students could receive a low EVAAS predictability score and feel that they had no chance to pass, so why bother. Administrators were even fearful of sharing the scores with the teachers for the fear that teachers would come back to them at the end and complain about having students in their class who had no
chance of passing. They could even justify their classes’ scores on EOG and EOC tests by pointing to the EVAAS data.

NCLB has changed the way schools operate and has created a shift in the way schools view and analyze data (Earl & Katz, 2006; Kelly & Hess, 2005; Panetteiri, 2006; Preuss, 2007; Shen, et al, 2010). After interviewing the nine participants in this study, I am confident that teachers talk more about test data now than ever before. Teachers understood how EVAAS was used to place students and how EVAAS could provide insights into the students in their classrooms. The teachers used EVAAS data for student Personal Education Plans and to group students in their classrooms. Petrides & Guiney (2002) indicated schools must shift from an accumulation of data to making sense of the data around them. Teachers are moving in this direction but did ask for more professional development on how to use EVAAS to help the students in their classrooms. One of the principals mentioned the use of EVAAS data in PLCs, which was validated as a positive strategy for schools a study of learning communities and data use (Halverson, Pritchett, Grigg, & Thomas, 2005). This theme could be seen as teachers and administrators talked about how they could use the EVAAS data to identify struggling students who needed help, whether it be in reading or in math. Both schools had recently used EVAAS data to help students who were struggling in reading.

“How people define their interests depends on how they perceive their situation” (Weiss, 1995). Teachers and administrators see themselves in somewhat of a precarious situation as Standards VI and VIII will be populating in NCEES based upon EVAAS data.
Both groups wanted more professional development, echoed earlier in this chapter, so that they have a better understanding of how they will be rated as teachers and administrators. While having more students take Math I is an important vision, it is one that may result in lower scores for teachers and schools, which could impact ratings in these two standards. As noted earlier, this professional development is not as easy to find as one would hope, especially at the classroom level. All of the Professional development opportunities I receive, whether through traditional mail or email, are designed for administrators and do not provide training on the process used to populate Standards VI and VIII of the NCEEES instruments.

After finishing Chapter 4, I once again looked for studies linking EVAAS and math placement through various educational search engines, including the Theses and Dissertations finder. Other than the few empirical studies mentioned in this paper, the majority of the research continues to be in-house research through Dr. Sanders’ work and the work of SAS. This is certainly an area for future research, which will be discussed later in this chapter. The previous section looked at the match between the literature and the findings in the study. The next section will now look at Feldman and March’s (1988) framework of data use and how it correlates to the study.

**Findings Through the Lens of the Framework**

The framework for this study was a combination of the work by Feldman and March (1988) and Weiss (1995). I took the six conclusions from Feldman and March’s study about information use and combined it with the 4 “I’s” from Weiss’ work to create the following
theoretical framework listed in Figure 5.1. Under the Information circle in the Venn diagram proposed by Weiss are the six conclusions reached through Feldman and March’s study, in abbreviated form. This framework was chosen for this study in 2011 and was based upon evidences I was seeing as I provided professional development through PEP and across the state in RESA workshops on data use. Now, in the 2013-2014 school year, there is less of a fit to this theoretical framework than there was three years ago. However, there are some points of similarity that can still be found.

The first conclusion indicates that schools collect data that has little effect on decision-making. While EVAAS has been available to these two districts for six years, both principals indicated they only switched to using EVAAS to place students in EVAAS two years ago. Instead, some of the data they used were EOG data, teacher references, grades, pre-made Algebra tests, and parent requests. While EVAAS data was available, it was not used to place students in Algebra I prior to the 2011-2012 school year. Neither principal indicated they added any students to an Algebra I class based upon EVAAS data if they were not already in the class due to the other data they had collected. The delay from program implementation in 2007, to program use in 2011, indicates school officials reluctance to use data that had great decision-bearing relevance.

At best, they would look at the EVAAS data as support that the decisions they were making matched the data they were using to place students in math classes. This closely matches the second conclusion from the theoretical framework. The administrators used the data to confirm they were placing the right students in the classes. Mr. Jay indicated that this
is when they were handpicking the students who would be placed in Algebra I. Participation numbers were also between 65 – 75% lower than when EVAAS was used to place students in Algebra I/Math I. It seems that the schools are making great strides in using this validated data to make educational decisions for their students. Ms. Bobwhite talked about going back and looking at EVAAS after they received EOC scores to determine if it was accurate prior to starting to use it more in the 2010 – 2011 school year.

The fourth conclusion from the framework indicates that organizations want more information, even after the decision is made. This appears in the findings as teachers indicate
they trust EVAAS data but would like to have the ability to provide input into the decision of who to place in which math classes. They spoke of the opportunities afforded some students now that they had switched to EVAAS, but they also thought EVAAS could not account for all the different factors that went into the decision to place students in Algebra I/Math I. While they thought that using EVAAS data was a good idea, it would be beneficial if other information could at least be considered, such as teacher recommendations. Principals did not see themselves returning to a process that involved teacher input, but Ms. Elm still had reservations about moving students too quickly into math classes that have been traditionally been classified as high school math classes. None of the participants could state how they would change it, or what they wanted specifically, but that they would like to see something other than the EVAAS score serve as the only placement tool. Though not as good of a fit, some of these same findings can also be applied to conclusion five that organizations ignore data they have and ask for more data. It is not so much that the teachers are ignoring the data, but they are having a hard time adjusting to EVAAS being the only placement tool. They complain that EVAAS cannot account for all the factors that need to be considered in making math placement decisions, yet they all acknowledged that EVAAS data is accurate and a good way to place students in Algebra I/Math I.

While the theoretical framework did not have the predictive powers that I thought it would have when I first proposed this study and discovered Feldman and March’s framework and Weiss’ 4 “I’s,” some of the conclusions still have some relevance. One factor to consider is that it has now been 25 years since Feldman and March’s study was completed.
that resulted in the six conclusions in the Information section of Weiss’ framework. With more professional development on data use, the entrance of value-added models (VAMs) into the education arena, and state and federal mandates to use data, we may truly be seeing the results of this sixth shift toward data use brought on by NCLB (Preuss, 2007). The framework looked like a good fit as I was being trained in EVAAS in 2008, and then teaching principals to use EVAAS data in 2009. I would receive calls from Title I districts asking me to teach their principals how to use data, especially EVAAS data in their School Improvement Plans and other Title I Plans.

While there may not have been as strong of a match with Information, there was a stronger match with Interests from Weiss’ work. Weiss (1995) described Interests “primarily in terms of self-interest,” noting that self-interest is always present in organizations and may even be in conflict with the organization’s interest” (p. 574). This can be seen in the findings as the different levels of policy actors discussed their perceptions of EVAAS use in placing students in math classes. Central services administrators saw the benefits of a more diverse group of students taking higher level course work. Principals were glad to see teacher recommendation removed from the process but still had some concerns about placing students in classes before they had all the foundational knowledge they needed. Teachers, the ones charged with teaching these classes, had the most concerns. They were concerned about how many of the students were ready, whether their previous teacher thought they had the right attitude about math, and how EVAAS scores were determined to pick which kids
should take Algebra I/Math I. They all had different interests, and they all perceived EVAAS with different levels of appropriate fit as a result.

Since the theoretical framework I proposed did not have the predictive power I had imagined, I thought about ways to create a framework going forward on future research on EVAAS or other federal, state or local mandated programs that are currently in place or will come schools’ way in the near future. I liked the way Interest fit the study, and I also noticed how much professional development was mentioned in the notes and findings. I also see information as important, but more in terms of knowledge as opposed to information. The new theoretical framework I propose for future study would be helpful for looking at the fidelity of program implementation. The model, visually represented in Figure 5.2, looks at the intersection of Interests, Training, and Knowledge. If all three components are present, then fidelity of program implementation is likely to exist. Because administrators had all three factors present, EVAAS was being used in their districts. The finding indicated to me that the greater the Training and Knowledge of the policy actors, the higher the confidence in the program, which leads to program fidelity.

While my original proposed theoretical framework did not have the fit I wanted, it was able to guide my research questions and help me frame my study. The emerging themes lead me to believe a different framework would be useful for future studies. That new framework is described above and visually represented in Figure 5.2. The next section of the paper will look at this study and its significance for policy, research, and practice.
In 2010 the North Carolina legislature mandated the use of EVAAS in decision-making in schools. However, professional development in the use of EVAAS did not accompany the mandate to use EVAAS. When there is a gap between policy and professional development, there is always a concern that the mandated program, in this case EVAAS, will be used properly to benefit students, parents, and teachers. Eight of the nine participants in the study wanted more professional development, and none of the participants
spoke of a roll-out of any type in regards to EVAAS. When we look across the state and see
the tremendous amount of professional development available to educators for the transition
to the Common Core, one wonders why there was not a similar abundance of professional
development accompanying the use of EVAAS. As an elementary principal, I have access to
a trainer who can come to my school and train all of my K – 3 teachers in mClass, another
state-mandated program. However, there is no such person at the North Carolina Department
of Public Instruction who comes to schools to train teachers in EVAAS. Most of the
professional development mentioned in this study was sought out by the individuals in the
study.

Some districts have contracted individuals who can train their administrators in
EVAAS use; however, there was not a teacher professional development component in either
of the districts in this study. To help in this area, districts could either contract out
professional development for teachers, or send teachers or administrators to receive the
training to then return and deliver the professional development in their districts. As EVAAS
scores continue to be used for Standard VI, teachers are going to be asking for more
clarification of how their ratings are derived.

**Significance for Research**

This study is a small study that only looked at two schools in two central North
Carolina districts. However, I learned that teachers and administrators are using EVAAS to
schedule students in math classes in middle school, and to help some students who need
remedial reading. However, EVAAS provides data for students beginning in 4th grade and
continuing through high school, even to SAT scores. When I began my research there were no studies in North Carolina on EVAAS use. There are occasional newspaper articles and some small references as part of larger studies on VAMs, but there are not dissertations or research studies on EVAAS use.

Future research could take the findings from this study and use it in other schools in North Carolina. The findings could also be used to create a questionnaire that could then be sent to teachers and/or administrators to see how EVAAS is being used across the state and to see what educators need to be able to implement EVAAS to the extent it was intended. It would be interesting to see if elementary schools are using the data for placement, remediation, or retention decisions. Are high schools using the data to help students plan for post-high school training, schooling, or careers? Are principals at any level using the teacher effectiveness scores to strategically place their most effective teachers with the students who need the most help to reach proficiency levels?

While I did find answers to my research questions through this study, I also have more questions that could lead to future research. Quantitative analysis could be done on participation and proficiency rates in different courses in the state, especially Math I and Math II. Different statistical tests could be used to see if EVAAS legislation is causing a rise in the number of students taking higher math classes at middle and high school.

**Significance for Practice**

When principals and teachers use more data to make decisions about students, students benefit. In both districts in the study, central office administrators pushed the use of
EVAAS in their districts. Principals then translated that policy into action as they assigned more and more students to more difficult math classes. The changes have not been without some problems, whether it be teachers who still want to have input in the decision of who gets assigned to which math class, or principals who question whether the push into higher math is too much, too fast for some students.

The dialogue is encouraging as the two districts in this study communicated similar messages from the district level to the classroom level. However, there is some mismatch between what is communicated at the district level, and what is felt at the classroom level. District leaders praise EVAAS and cite the positive effects it holds for their districts. Teachers are more tentative as they see increased numbers of students in their classrooms, some who are not prepared for the more rigorous curriculum. Some of this may be solved with more and more intense professional development for teachers, and in some cases administrators. EVAAS is a product that is changing the way students are being placed in classrooms, and teachers need to have faith in the product that is behind this change. Teachers are going to receive performance ratings associated with EVAAS scores, and they know very little about the product. They expressed an interest in wanting to know more about the algorithms used to create the reports and ratings that are now a part of their educational world.

Another interesting facet of Standards VI and VIII are the fact that some teachers, and even some schools will have their Standard VI rating based solely on students who are not in their classrooms or schools. Kindergarten – 3rd grade teachers in a traditional K-5
elementary school will have their Standard VI populated by students in 4\textsuperscript{th} and 5\textsuperscript{th} grade. Additionally, while K-5 is the traditional elementary grade span, there are schools in North Carolina who only serve students in 2\textsuperscript{nd} grade or lower. These teachers’ Standard VI rating will be based upon the EOG scores from the school where their primary students take EOGs. This is not limited to elementary teachers. High school teachers who teach electives and non-EOC courses will receive a Standard VI rating based upon the scores of the students in the three EOC courses taught at their school. All North Carolina educators need to know how Standard VI will be populated with EVAAS data.

As much as I know about EVAAS, and learned from this study, I realize that I am not sure that I could explain with complete accuracy to a teacher why they have a certain rating based upon the scores of the students in their classrooms. One of my teachers asked me last year if it wouldn’t be better to have “lower” students in her room so that she could get more growth out of them and have a higher rating in Standard VI. This is an important question to consider, especially in light of recent remarks from North Carolina’s Governor McCrory about teacher performance being linked to teacher pay. It is only logical to think that Standard VI may not only affect a teacher’s summative rating, but also their paycheck.

One of the most amazing things to me is that a program as large as EVAAS, which is linked in specific language in legislation, has flown under the radar as much as it has. While I was able to have conversations with teachers and administrators about EVAAS, it was also obvious that no one felt that they had realized the full potential of EVAAS in their schools. I would also venture that the reasons the conversations were as rich as they were in the two
schools in the study is because of Algebra I/Math I being offered at middle school. I do not think other grade spans, such as elementary or high school, would be able to speak as richly about EVAAS. Elementary principals think the data is too little, too late for any real use, and high schools only have three EOCs that students now take. EVAAS probably has its greatest dome of influence in the middle school span.

More professional development for principals, assistant principals, and teachers, especially Train the Trainer formats as mentioned earlier, could lead to ever better educational decisions being made for all students, not just the ones who are being considered for accelerated classes. Over 50% of the students who took the 3rd grade reading EOG in 2013 did not receive a passing score. Could more systematic professional development in data use lead to earlier interventions for struggling students, thus increasing proficiency rates in high-stakes year-end testing?

A Possible Future Framework

After transcribing and coding all of the data I noticed something that I did not have enough data to verify as a finding, but intrigued my interest for possible future interest. Overall, if I took all of the comments about EVAAS from all of the participants and placed them on a continuum with the two ends being Negative and Positive, the vast majority of the negative comments were from the teachers, and the vast majority of the positive comments were from the administrators, especially the district administrators. I then envisioned a framework that would look at how different actors in policy implementation felt about the implementation in relation to their circle of influence over the implementation. Teachers
have the least amount of influence over the use of EVAAS and they said the most negative things about EVAAS. The opposite is true with administrators. A visual representation of this framework is represented in Graph 5.3 below. As policy actors’ influence rises, their feelings about the policy also rise. Again, I do not have enough evidence to support this as a finding, but I do think it could be a model one could use to look at other state mandates, such as mClass and Read to Achieve.

Figure 5.3
Policy Implementation Framework
Summary and Conclusion

This qualitative study looked at teachers’ and administrators’ perceptions regarding the use of EVAAS in middle schools for placement of students into Algebra I/Math I. Data for this exploratory case study were derived primarily from interviews from nine administrators and teachers in two school districts in central North Carolina. I looked at the findings through the lenses of the literature and the framework used in this study. Results indicate that middle school teachers and administrators are using EVAAS to place students in math in middle school, and are looking at ways to use EVAAS other than just math placement. Central office administrators are guiding the use of EVAAS in their districts, and there is a desire for more professional development for several reasons. These findings suggest that EVAAS is having an influence in middle schools in North Carolina, but that with more professional development and guidance, it could have a larger impact than it currently does.
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APPENDIX A

Qualtrics Email Questionnaire

Email for Questionnaire – This will be sent in the body of the email for the anonymous survey through Qualtrics

As a doctoral student in Leadership, Policy, and Adult & Higher Education at North Carolina State University (NCSU), I am requesting your participation in a study entitled *An Investigation into EVAAS use and Algebra I Placement in Middle Schools*. You have been selected from a list of 6-8 public school principals from North Carolina within a 30 mile radius of my school district. For this study, I am asking you to complete a brief online survey. After you submit the survey, you will be asked if you would like to participate in a voluntary follow-up interview regarding the use of EVAAS in your school for math placement.

The survey is available at the following link: *(Insert Link Here)*

**Purpose.** The purpose of this study is to determine if middle school administrators are using EVAAS data to place students in Algebra I in middle school. This information could be of great value to districts as more emphasis is placed on rigor for 21st century learners.

**Survey.** The survey used in this study will ask you to select a response that best reflects your perspective or current situation as it relates to using EVAAS to place students in math at your school. There are no right or wrong answers. The entire survey will take **approximately 10 - 15 minutes**. You will have access to the online survey for 30 days.

Link: *(Insert Link Here)*

**Confidentiality and Risk.** No personal or sensitive information will be asked. Data will only be reported in a aggregate format. No one will be able to identify you or your information, and at no time will your reported responses be linked with any identifying information. There are no foreseeable personal or professional risks associated with completing this survey because it is anonymous. If you choose to participate in the interview, any information you provide will not be linked to you or your school in published reports.

**Participation and Consent.** Your participation in this study is voluntary and you can exit the survey at any time. By completing this survey, you are giving your consent to
participate in this study.

**Benefits.** There are no direct benefits to you for participating in this study.

**What if you have questions?**
If you have additional questions or concerns regarding this study, please contact Ronald “Gus” Gillespie (Principal Investigator) or Dr. Matthew Militello (Dissertation Chair) as indicated below.
Thank you for taking time to complete this survey. The information you provide will significantly enhance our understanding of how principals use EVAAS in making math placement in middle school in North Carolina.

Sincerely,
Ronald E. “Gus” Gillespie, Jr., Ed.S., LPAHE, Doctoral Candidate, NCSU, regilles@ncsu.edu, 919-690-1748.
Matthew Militello, PhD, Dissertation Chair, NCSU, matt_militello@ncsu.edu, 919-513-0154.
Survey Link: *(Insert Link Here)*

**NOTE:** The Institutional Review Board (IRB) of the North Carolina State University has approved this study. If you have questions or concerns regarding your treatment or rights as a participant in this study, you may Deb Paxton 919-515 4514.
APPENDIX B

Email Survey Questions

Survey Questions

1. How long have you been the principal at your current school?
   (a) 0 – 2 years   (b) 3 – 5 years   (c) 6 – 8 years   (d) more than 8 years

2. How many years have you been an administrator?
   (a) 0 – 2 years   (b) 3 – 5 years   (c) 6 – 8 years   (d) more than 8 years

3. How many training hours have you received in the use of EVAAS?
   (a) less than 5 hours   (b) 5 – 10 hours   (c) more than 10 hours

4. Do you use EVAAS at your school to place students in math courses such as Algebra I or Math I?
   (a) Yes   (b) No

5. If you answered “No” to question 4, please continue to question 6. If you answered “Yes” to question 4, which of the following statements best describes your use of EVAAS for placing students in math courses at your school.
   (a) It is the most important indicator we use at our school
   (b) It is an important indicator, but not the most important one
   (c) It is one of the least important indicators we use
   (d) We only use it because it is a district mandate

6. What other information do you use in placing students in math at your school? Check all that apply.
   (a) Student grades   (b) Teacher recommendation   (c) Locally administered placement tests   (d) Parent requests   (e) Other

7. What percentage of the students at your school are in Algebra I or Math I?
   (a) less than 10%   (b) 10 – 15%   (c) 16 – 20%   (d) 21 – 25%   (e) greater than 25%

8. Has the percentage reported in question 7 changed since the implementation of EVAAS?
   (a) It is higher now than before
   (b) It is lower now than before
   (c) It is about the same now as before
   (d) I do not know
9. If students are selected to be placed in Algebra I or Math I, how are parents informed of the decision?
(a) a letter is sent home with the student requesting parent permission
(b) a letter is sent home informing parents of the recommendation, no permission required
(c) parents are invited to a meeting to learn about their child’s placement into Algebra I or Math I
(d) no specific information is given

10. In your opinion, is EVAAS an effective tool for math placement at middle school? Why or why not?

11. Is there anything else you would like to share about regarding your experiences with EVAAS?

12. If you would like to take part in an optional interview about the use of EVAAS in your school for placing students in Algebra I or Math I, please click this email address regilles@ncsu.edu and send your full name and e-mail address.

Thank you for your participation in this survey.
APPENDIX C

Participant Informed Consent

Interview Consent Form Regarding the use of EVAAS for Math Placement in Middle School
North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Title of Study: An Investigation into EVAAS use and Algebra I Placement in Middle Schools in North Carolina  
Researcher: Ronald Eugene Gillespie, Jr., under the guidance of Dr. Matt Militello

Middle schools in your district are being asked to take part in a research study. Your participation in this study is voluntary. You have the right to be a part of this study, to choose not to participate or to stop participating at any time without penalty. The purpose of research this study is to gain a better understanding of principals’ use of EVAAS data to place students in Algebra I in eighth grade. You are not guaranteed any personal benefits from being in this study. Research studies may pose risks to those that participate. In this consent form you will find specific details about the research in which you are being asked to participate. If you do not understand something in this form it is your right to ask the researcher for clarification or more information. If you wish, a copy of this consent form will be provided to you. If at any time you have questions about your participation, do not hesitate to contact the researcher named above.

Purpose of the Study:  
The purpose of this study is to determine how middle school administrators are using EVAAS data to place students in Algebra I in middle school. This information could be of great value to districts as more emphasis is placed on rigor for 21st century learners.

What will happen if you take part in the study?  
If you agree to participate in this study you will be asked to be a part of an audio recorded interview. During this interview you will be asked questions about your use of EVAAS.

Risks

There minimal risks from participating in this study.

What if you are an employee?  
Participation in this study is not a requirement of your employment, and your participation or lack thereof, will not affect your job.

Benefits

Aside from adding to the body of knowledge about EVAAS use in data decisions for math placement in middle schools, there are no known benefits for participating in this study.

Confidentiality

The information in the study records will be kept confidential to the full extent allowed by law. Data will be stored securely in on a computer and in a file cabinet of which the researcher only has access. No reference will be made in oral or written reports which could link you to the study. School names will be coded for confidentiality.
Compensation
You will not receive anything for participating.

What if you have questions about this study?
If you have questions at any time about the study or the procedures, you may contact the researcher, Ronald Eugene Gillespie, Jr., at 9551 Summer Breeze Lane, Bullock, North Carolina 27507; 919-690-5429; regilles@ncsu.edu.

What if you have questions about your rights as a research participant?
If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Box 7514, NCSU Campus (919/515-4514).

Consent To Participate
“I have read and understand the above information. I have received a copy of this form. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty or loss of benefits to which I am otherwise entitled.”

Subject's signature_______________________________________ Date _________________
Investigator's signature__________________________________ Date _________________
APPENDIX D

Principal/Teacher Interview Protocol

Principal/Teacher Interview Protocol:

1. Describe in your own words what EVAAS is. (Possible Follow Up: How is EVAAS used at your school?)

2. Describe the impact (if any) EVAAS has had at your school.

3. What professional development have you received to help prepare you for the use of EVAAS? How would you describe the training activities?

4. In your own words describe the efficacy of EVAAS as a placement tool for students at your school.

5. Are there aspects of using EVAAS data that concern you? Could you describe them?

6. What are some of the benefits of a tool such as EVAAS? How are you using EVAAS at your school?

7. What formal of informal communication, such as principal meetings or department meetings, has occurred to support your use of EVAAS in placing students in math courses at your school?
8. Other than you, who else in your building has access to EVAAS, and how do they use it?

9. Can you describe how EVAAS has changed the way you place students in math courses at your school?

10. Overall, do you think the implementation of EVAAS has been successful? Why or why not?

11. Is there anything else you would like to share with me regarding your experience with EVAAS?
APPENDIX E

Central Office Interview Protocol

Central Office Interview Protocol:

1. Describe in your own words what EVAAS is. (Possible Follow Up: How is EVAAS used at your school?)

2. Describe the impact (if any) EVAAS has had in your school district.

3. What professional development have you received to help prepare you for the use of EVAAS?

4. In your own words describe the efficacy of EVAAS as a placement tool for students in your district.

5. Are there aspects of using EVAAS data that concern you? Could you describe them?

6. What are some of the benefits of a tool such as EVAAS?

7. How have you had to guide the implementation of EVAAS in your district?

8. Can you describe how EVAAS has changed the way you place students in math courses at your school?

9. Overall, do you think the implementation of EVAAS has been successful? Why or why not?

10. Is there anything else you would like to share with me regarding your experience with EVAAS?
APPENDIX F

Teacher Directions for Algebra Placement

Placement for Algebra I

It is now time for us to begin testing potential students for Algebra I. Please follow the steps and deadlines below as you move through this process:

Criteria for placement in Algebra I for current 6th Graders:
1) Orleans Hannah Test - If students have a stanine of 7, 8, or 9 then students take Iowa Algebra
2) Iowa Algebra - Stanine 7, 8, or 9
3) Teacher Recommendation
4) 6th Grade Math EOG Score - Must score a level IV and score at least 85th percentile
5) Class Average of 90 or higher

Criteria for placement in Algebra I for current 7th graders:
1) Iowa Algebra - Stanine of 7, 8, or 9
2) Teacher Recommendation
3) 7th Grade EOG Score - Must score a level IV and score at least 85th percentile
4) Class Average of 90 or higher

What should take place in the next few weeks?
- Letter explaining the process for testing potential student should be sent home prior to the placement test
- The attached table should be completed and given to Julie Finch once EOG math data can be plugged in, by May 23
- A letter will be sent home explaining the Algebra I option to students that qualify
## APPENDIX G

**Algebra Placement Sheet Blank**

<table>
<thead>
<tr>
<th>Student Name</th>
<th>6th Grade - New Orleans Iliad</th>
<th>Yearly Math Avg</th>
<th>EOC Scale Score/Level</th>
<th>Iowa Avg</th>
<th>Teacher Rec</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>
# APPENDIX H

## Algebra Placement Sheet with Data

<table>
<thead>
<tr>
<th>Name</th>
<th>New Orleans Score</th>
<th>Iowa Math</th>
<th>Score</th>
<th>Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>92</td>
<td>4.87</td>
<td>6</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>97</td>
<td>3.91</td>
<td>6</td>
<td>4-97</td>
</tr>
<tr>
<td>3</td>
<td>98</td>
<td>3.72</td>
<td>6</td>
<td>Alg 1</td>
</tr>
<tr>
<td>4</td>
<td>99</td>
<td>4.74</td>
<td>6</td>
<td>Alg 1</td>
</tr>
<tr>
<td>5</td>
<td>96</td>
<td>4.87</td>
<td>6</td>
<td>Alg 1</td>
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<td>6</td>
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<tr>
<td>9</td>
<td>98</td>
<td>3.72</td>
<td>7</td>
<td>Alg 1</td>
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<tr>
<td>10</td>
<td>95</td>
<td>4.95</td>
<td>8</td>
<td>Alg 1</td>
</tr>
</tbody>
</table>

Note: The table includes student names, New Orleans scores, Iowa Math scores, and placement information.
APPENDIX I

Parent Letters from Willow Middle School

Dear Parents,

We would like to take this opportunity to explain our process for identifying 6th grade students who may have the potential to take Algebra I as seventh graders. Algebra I is a high school math course, but we believe in moving students forward who have proven themselves academically. It is extremely important that all students have a firm grasp of basic math and pre-algebra skills prior to high school. With the new state requirements, all students now entering high school will be required to have four math credits. We have a process for identifying potential algebra students in middle school. If students do not meet the criteria, they will continue taking the grade level appropriate math so that when they get to high school they will have the skills necessary to pass Algebra I.

Your sixth grader has met some of the requirements stated below for being a potential 7th grade Algebra student. The New Orleans Hannah will be administered this week to your child and if he/she scores a stanine of 7, 8, or 9 on this test, he/she will be given the Iowa Algebra test. Students who meet the following criteria may be placed in Algebra I as seventh graders: (1) have a stanine of 7, 8, or 9 on the New Orleans Hannah and the Iowa Algebra, (2) have teacher recommendation, and (3) must score a level IV and be in the 85% or higher on the 6th grade End-of-Grade test, (4) final math average of 90 or higher. Students who do not meet 3 of the four above criteria will not be placed in Algebra I as seventh graders.

Students who meet the middle school Algebra I requirement will be placed in an accelerated sequence of math courses that continues through high school. Successful completion of this sequence will allow the student the opportunity to take advanced placement courses. Students who take advanced placement courses and do well on the required AP exams may earn college credit while enrolled in high school. This advanced study will be reflected on a student’s high school transcript and is considered essential for admission to competitive public and private universities.

The sequence for students taking Algebra I in 8th grade is:
- 7th grade: Algebra I
- 8th grade: Geometry
- 9th grade: Algebra II or Honors Algebra II
- 10th grade: AP Calculus AB
- 11th grade: AP Statistics

Once in Algebra I, students will not be allowed to drop the course after the 20th school day. The seventh grade Algebra I teacher will monitor the progress of all students and confer with the principal on the 19th day about students’ progress. At this time some students may return to seventh grade math and parents will be notified. If your child is eligible to take Algebra I as a seventh grader, you will be notified of this opportunity in which you can accept or decline. If you do not hear from us, your child will be taking grade appropriate seventh grade math class.

Sincerely,
Dear Parents,

We would like to take this opportunity to explain our process for identifying students who may have the potential to take Algebra I the upcoming school year. Algebra I is a high school math course but we believe in moving students forward who have proven themselves academically. It is extremely important that all students have a firm grasp of basic math and pre-algebra skills prior to high school. With the new state requirements, all students now entering high school will be required to have four math credits.

We have a process for identifying potential algebra students in middle school. If students do not meet the criteria, they will continue taking the grade level appropriate math so that when they get to high school they will have the skills needed to pass Algebra I.

Teachers will be giving potential students identified by EVAAS, the Iowa Algebra Test this week. EVAAS is a data driven software system developed by the North Carolina Department of Public Instruction that provides a precise measure of student progress and predicts potential success on end-of-grade tests. Students who meet the following criteria will be placed in Algebra I next year: (1) have a stanine of 7, 8, or 9 on the Iowa Algebra, (2) have teacher recommendation, (3) must score a level IV and score at least in the 85th percentile on their current math EOG, (4) must have a classroom average of 90 or better. Students who do not meet at least three of the four criteria will not be considered potential algebra students.

We will be in touch with you regarding your child's math placement for next year. Please feel free to contact [redacted] with any questions you may have regarding math placement.

Sincerely,

[Redacted]
Assistant Principal
CONGRATULATIONS! Your child is one of 112 current seventh graders who qualify for Algebra 1 next year as an eighth grader. Research clearly shows that the gateway to college as well as medical and engineering professions is taking Algebra 1 in middle school. My goal is to create five Algebra 1 classes next year to accommodate our students. We must raise our academic standards. Students who take Algebra 1 in eighth grade are also required to take the eighth grade EOG in Math. Your child’s past academic performance dating back to third grade suggests they can be successful in passing both the Algebra I test as well as the eighth grade EOG in Math if they work hard and apply what they have learned. If you have concerns about your child’s ability to pass Algebra 1, we will monitor their performance the first month of school. If changes are needed, we will gladly revise their schedule. If you have any questions regarding your child’s selection for Algebra 1 next year, please feel free to contact me here at school. This is a great opportunity for all of our students who have been selected. I personally will do everything in my power to ensure their success.

Educationally yours,

Principal