USING INNOVATIVE TECHNICAL SOLUTIONS AS AN INTERVENTION FOR AT RISK STUDENTS: A META–COGNITIVE STATISTICAL ANALYSIS TO DETERMINE THE IMPACT OF NINTH GRADE FRESHMAN ACADEMIES, CENTERS, AND CENTER MODELS UPON MINORITY STUDENT RETENTION AND ACHIEVEMENT

By

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ABSTRACT

This paper provides an active discourse on the use of innovative solutions to conduct an in–depth investigation on the success and viability of 9th Grade Freshman Academies, Centers, and Center Models to aid in the retention of at risk students. These types of academic programs provide an active solution for the retention and projected completion of High School by minority students. The research methodology used in this study is Meta–Cognitive Analysis. This novel approach to data analysis is a mixed methods research design that involves the holistic combination and in–depth comparison of qualitative and quantitative data.

Keywords: At–Risk, Drop–Out, 9th Grade Freshman Academies, Centers, Center Models, Meta–Cognitive Analysis, and North Carolina Department of Public Instruction (NCDPI).

INTRODUCTION

One of the most challenging dilemmas facing educators to day is the elimination or reduction of dropout rates in North Carolina. The dropout rates in the North Carolina public schools have been a major concern of educators, parents and other stakeholders in preparing young people for future success in this ever-changing global society. High school is an absolute necessity for young people to have every opportunity to realize their dreams of competing in the job markets or acquiring a college education. Moreover, "some employers have expressed disappointment because many high school graduates lack the skills necessary to be successful or even compete for the best jobs in today's society" (Gough-Perkins, 2005). Recent statistics suggest that educators must find new and innovative strategies to help ninth graders graduate in four years. Scholars and other stakeholders argue for educational change, mandating a call for more rigorous and relevant educational experiences for student learners in the classrooms of our public high schools. Educators across the state of North Carolina have been creative and have employed innovative strategies in order to address the academic challenges faced by some minority ninth grade students. Educators recognize the enormity of the challenge and must make sound decisions when it comes to school reform; as one writer suggests, "We must summon the political will to demand changes if we are to be competitive in the global community" (Quint, 2008).

In the U.S. more than 1.2 million drop out of school every year, roughly 7,000 each school day. Forty two percent of freshman in community colleges and twenty percent of freshman in public four year institutions require remedial courses in reading, writing, or math to handle college level work" (Wise, 2008). In a survey, employers expressed disappointment because many high school graduates lack the necessary skills to compete for jobs in the U.S. In 2005, sixty percent of U.S. manufacturing companies surveyed said that high school graduates were poorly prepared for entry-level jobs. Our nation faces a choice: do nothing to fix a broken high school system and watch our competiveness further decline in this current global economy or devise strategies designed to help prepare

young people to compete after high school (Wise, 2008). Educators must do a better job in preparing young people for college or life after high school. One of the strategies that must be considered is to look at redesigning high schools so that students can acquire the necessary skills to compete in four year institutions or in the job markets. In order to see real school reform scholars suggest that schools must redesign because we are in a constant battle due to the gravitational pull of school as usual (Donegan, 2008). School systems across this nation have been trying to operate school at a twentieth century pace without upgrading best practices. Most ninth grade courses retain the shape of former decades of outdated strategies and methods that is ineffective in today's classrooms (Quint, 2008). The right design features and polices can promote exceptional high schools on a broad scale" (Darling & Friedlaender, 2004).

Whatever direction school reform leads, there must be a mission to prepare students so they can apply what they have learned to issues and problems they will face in the future. The aim should be to ensure that young people are prepared to face life with all its situations and possess the necessary skills to solve problems and find solutions to the challenges they will face in this ever changing complex global community. This study explored some recent strategies such as ninth grade centers, ninth grade academies or ninth grade models designed to help ninth graders succeed academically and to stay on track for graduation within four years of entering the ninth grade. According to statistical data taken from North Carolina Department of Public Instruction, "graduation rates of all those students who entered the ninth grade in the 2004-05 school years, seventy point three percent left high school four years later with a diploma in the 2007-08 school years" (NCDPI, 2011). The previous year was even worse with a graduation rate of 71.8 percent leaving school in five years from the 2003-04 cohorts. These startling statistics did not include those students with disabilities. According to a report released to the State Board of Education by the North Carolina Department of Public Instruction dated February 9, 2009, "African Americans and Hispanics graduation rates combined at 59.5 percent is was considered one of the major challenges educators, parents, and other stakeholders must find ways to help increase these rates" (NCDPI, 2011).

This research investigation focused on the graduation rates of At–Risk African American and Hispanic students who ethnically comprise the two largest student subgroups of students in North Carolina. American Indian and multi-racial students will also be included in the research data. Moreover, the statistical data compiled by the North Carolina Department of Public Instruction gives a vivid account of the state dropout rates for the 2007-2008 academic school years. The data begins with the state average dropout rate for all students in North Carolina at 4.97%. The report also show minority students dropout rates exceeding the state average starting with American Indian student's dropout rate at 6.99%, Hispanic students left school at a rate of 6.92, and African American students dropped out at a rate of 5.95% respectably. For the first time, dropout rates for multiracial students moved slightly above the state average at 5.06%. NC state wide results of the 4-year cohort graduation rate report 2004-05 entering 9th graders graduating in 2007-08 or earlier are reported in Table 1.

Subgroup information is based on data collected when a student is last seen in the cohort. North Carolina collects a four-year graduation rate each year that indicates the percentages of first-time ninth graders who graduated from high school four years later. This complete dropout report and local school district numbers can also be found included in a table in chapter three. Local School Districts have had to be creative with finding strategies to high school students on track for graduation. There are some strategies considered smaller learning communities such as Early College and Middle College models, as well as

Subgroup	Denominator	Numerator	Percent
All Students	108852	76561	70.3
Male	55113	36458	66.2
Female	53737	40101	74.6
American Indian	1709	920	53.8
Asian	2125	1722	81.0
African American	32390	20303	62.7
Hispanic	6367	3593	56.4
Multi - Racial	2037	1394	68.4
White	64219	48627	75.7
Economically Disadvantaged	34616	20480	59.2
Limited English Proficient	2976	1486	49.9
Students with Disabilities	9307	5264	56.6

Table 1. 9th Grade Grouping Graduation in 2007-08

online recovery programs housed within high schools such as Nova Net and NC Virtual Public School. There are alternative learning programs for students suspended for behavior issues, and other smaller learning communities that help students acquire the necessary credits needed to stay on track to graduate in four years. Some high schools have created what is called Ninth Grade Models designed to help ninth graders make a better transition to high school. Models like ninth grade academies, also called ninth grade centers, will vary from school to school, but the aim is to help all ninth graders graduate within four years of entering the ninth grade. Educators have made great strides in recent years in an effort to close what is known as "the achievement gap." Ninth grade models are one such strategy designed to help close the gap and help ninth graders stay on track for graduation in four years. This project will explore related models that are currently in use in some high schools in the state of North Carolina.

Ninth Grade Academies, Centers, and Center Models

One of many strategies educators have employed in an effort to improve student achievement at the high school level are an academically technical intervention model called ninth grade models; these smaller learning communities are sometimes called freshman academies, ninth grade academies and other transitional strategies that had innovative intervention and technological solutions designed to help ensure that first year freshman (ninth graders) have every opportunity to be academically successful in all areas (and earn their diploma four years later). "The Talent Development High School program, supported by John Hopkins University describes a ninth grade academy as: "It is 'a separate transitional program providing for students in their first year of high school that places them with small interdisciplinary teams of 4 or 5 teachers who share the same 150 to 180 students and a block schedule with common planning time. This unit has its own part of the building with its own clearly labeled entrance, including the computer labs needed for ninth grade courses. A separate management team (the Academy Principal and Academy Instructional Leader) is in charge of the Ninth Grade Success Academy" (Partland, 2012). The author further points out that these academies' major responsibility was to "find solutions to individual student attendance, discipline, and learning problems which rest with the teacher teams, where each team leader uses regular data to set goals and monitor trends in student behavior" (Partland, 2012).

These intervention strategies lay a foundation for the last three years of the high school career. James Partland further identified several high schools with this ninth grade model of ensuring that students are giving every opportunity of making a successful transition during their first year of high school. Patterson High School in Baltimore Maryland was identified as a school that made great strides in increasing 9th grade student's chances of promotion to the 10th grade. The article goes on to explain how five Philadelphia inner-cities high schools that were involved in a transitional model of helping first year students in the ninth grade succeed and stay on track to graduate in four years with a diploma. Partland, points out some encouraging data about the success of these innovative strategies called ninth grade academies, ninth grade centers or similar models with the following

- Schools implementing the model for two or more years have seen their 9th grade attendance improve by fifteen percentage points, while the number of students with 90% or more attendance has doubled.
- The number of students to reach the 11th grade in the first two schools to implement Talent Development has nearly doubled.
- Across all five schools, course pass rates are up while suspensions, fires, and arrest are down.
- A substantial number of students have begun to close achievement gaps in both reading and math. Nearly a third of the 9th graders, for example, have gained at least two years in math.

These statistics are encouraging when it comes to analyzing data available about whether or not these innovative strategies do indeed make a positive impact upon student achievement beginning with ninth grade students. The source gives another reference about ninth grade models at Salem High School in Salem, Virginia, this school has implemented what is known as "Freshman Transition Teams", designed to help incoming freshman to

experience a successful transition from middle to high school. The website given for additional information is located at http://www.salem.k12.va.us/shs/. The article list some detail strategies that educators are implementing in order to ensure that students are successful during their first year transition to high school. Educators at Salem high school implemented several critical success strategies that contributed to the academic success of students in Salem Virginia that are listed below.

- A team of teachers representing the core curriculum in areas such as English, Math, Science and World History, in which they were to meet daily during a common planning period to standardized expectations, develop possible cross curriculum assignments, and when necessary conference with students and/or parents.
- Each student has the same four classes with the same four teachers, but not necessarily in the same order, ensuring that the student's peer interactions are varied from class to class.
- The team has established a common system of class rules, procedures, and expectations.
- The team works to identify common problems and to discuss solutions, such problems include, but not limited to classroom discipline and meeting the special needs of individual students.
- General meetings of teachers of ninth grade students have been designed to help share ideas and strategies that could benefit a freshman.

The Salem high school in Salem, Virginia, used specific strategies in order to help their ninth graders have a smooth transition to high school. The article also gives a website whereby one can explore effective transition strategies designed to help Low-achieving Middle Grades Students succeed in high school. Many students find the transition from middle school to high school challenging because they lack the academic skills needed in order to compete at the high school level. Ninth grade academies, centers or similar models are designed for those students struggling to cope with the demands of high school. These strategies also can be viewed as a safety net in an effort of ensuring that there are support systems in place to help these students who are for the first time entering secondary education. This article identifies fifteen examples of transitional programs that work in raising academic achievement and keeping students in school. There are other strategies listed by the article such as "summer school for incoming freshman, multi year programs in the middle grades to accelerate achievement; double doses of English and mathematics in grade nine; programs that provide extra help and extra time; academics and small learning communities of students within a school; a special school to prepare ninth graders for high school; and assignments of the best teachers to plan and lead the transition initiative".

The article gives specific strategies for effective transition from various schools across the country; for an example, at Poly Tech High School in Woodside, Delaware, requires all incoming ninth graders who have scored well below state standards on the eighth grade assessment to attend a special summer program that emphasizes mathematics and reading. Tri County Regional Vocational Technical School in Franklin, Massachusetts, organized a summer academy to help incoming freshman raise their academic skills and adjust to the expectations of high school. Freshmen at South Grand Prairie High School in Texas take a special 12 week course to get off to a good start in the first semester of high school. Taught by the school's best teachers, this course is reducing the number of freshmen who are retained. In Rockcastle County High School and Rockcastle County Middle School in Kentucky work together on a year long support program for eight graders considered to be at risk of failure or dropping out. The support class for at risk students at Lemon Bay High School in Englewood, Florida, is showing results in terms of retention and achievement. The freshman academy at Henry County High School in Kentucky focuses on English, mathematics and science. There are other special schools designed to prepare students for high school and beyond, they use separate buildings for spaces allowed, where ninth graders can focus on their academic studies in the first year of high school. This strategic plan of utilizing the freshman academy can certainly help ninth grade student's transition to high school thereby building a good academic foundation for success. Researchers have identified the transition into high school as a crucial time in

a student's life (Kelly, 2010).

In the 2008 article "Easing the Transition to High School, the authors Cook, Fowler and Harris states, "That ninth grade is a major transition year where twenty five percent of students in the ninth grade are held for another year" (Cook, Fowler, and Harris, 2008). The aim is to improve student performance and decrease retention rates that have emerged over the last four decades. One such strategy that is utilized by many schools in North Carolina is the implementation of Ninth Grade Academies, "these academies provide incoming ninth students with additional resources and personalized support to overcome transitional obstacles'" (Cook, Fowler, and Harris, 2008). Cook, Fowler and Harris contend that, "designed catalog data on all existing Ninth Grade Academies in North Carolina and then analyze the comprehensive catalog to determine their impact on student retention, non-promotion, and student proficiency". The article also points out that over the last "thirty years the national average for ninth grade non-promotion has more than tripled from four percent to thirteen percent. This retention creates what is termed a "Ninth Grade Bulge" and "tenth grade dip" as fewer students are promoted to the next grade. The state wide data in North Carolina indicate the non-promotion rate for students in 2004-2005 was fourteen percent, a significant leap from eight point four percent thirty years ago". The rising numbers of non-promotions both nationally and locally has become a critical focus point among all educators. Statistics indicate "the importance of creating Ninth Grade Academies, centers or similar models, as schools with operational transition programs reflect a dropout rate of only eight percent on average compared to schools without transition programs at an average of twenty four percent, three times higher (Cook, Fowler and Harris, 2008).

According to the literature on ninth grade academies a more simple definition is given as "A Ninth Grade Academy is defined as a year long, uniquely designed school program that provides ninth graders with the resources and support they need. According to Cook, Fowler and Harris, secondary educators can be creative in the use of various ninth grade models designed to support ninth grade students in their academic goals". Fowler and Harris identified three leading models of smaller learning communities, particularly ninth grade academies or similar models and they are "High Schools That Work (HSTW), secondly, Career Academies and The Talent Development model. The first model "High Schools That Work is developed from the Southern Regional Education Board initiative that is dedicated to obtaining 85% of career bound high school students to complete a rigorous course of study and to meet or exceed the High School That Work performance goals in mathematics, reading and science" (www.sreb.org). The model was developed for the entire school population; several schools are using HSTW as a framework for implementing Ninth Grade Academies (Cook, Fowler and Harris, 2008).

Career Academies are defined as "schools within schools that connect students with peers, teachers, and community partners in a controlled environment which fosters academic success and improved mental and emotional health. The career academy concept encompasses three key elements which include: small learning communities; a college preparatory curriculum with a career focus and collaborations with employers, community members and higher education facilities" (Dedmond, 2008). Career Academies are designed to engage students in a rigorous academic curriculum that will make their high school experience and future career aspiration relevant thereby motivating the student to stay in school and graduate with the necessary skills and disposition for success.

The third strategy is called "The Talent Development model that is designed to transform school facilitation and structure by providing a revised plan for management, organization, and curriculum and to provide professional development for faculty. The model is a solution for schools that have problems with student's attendances, discipline, achievement scores and dropout rates (Balfanz, R. Legters, N., & Jordan, W. 2004). Talent Development models of design is certainly one of the emerging strategies schools systems are using in creating smaller learning communities. These transitional strategies are designed help ninth grade students be successful academically and remain on track

for graduation four years later. The contention for implementing Ninth Grade or Freshman Academies, centers, or other similar models indicates great flexibility for academic success. There are "four themes that emerge as critical ingredients for sustaining smaller learning communities and they are "Authentic Learning Communities, Personalization, Rigorous and Relevant Instruction, and Professional Learning and Collaboration". Cook, Fowler, and Harris contentions were that these ingredients are imperative in sustaining smaller learning communities because "Authentic Learning experiences are necessary for students to be able to connect their learning in school to the outside world beyond the classroom. The scholars provide ideal examples such as internships, community outreach, college and business partnerships and research projects that require students to be knowledgeable of and investigate societal challenges". Personalization is needed for students to receive the kind of one on one attention many may need, also this concept involves smaller class sizes, more classroom based staff and student teacher interaction and communication with parents. This incorporated with rigorous and relevant instruction is a strategy that enables students to overcome the barriers often associated with race, poverty, language or initially low academic skill. Authentic learning experiences, personalization and relevant instruction work interdependently with one another, promoting a greater chance to engage students academically. Professional learning and collaboration provides for teachers an opportunity for them to collaborate and gain insights from one another, especially when it comes to curriculum and instructional design. This strategy builds morale among teachers and helps transcend the learning environment, which will ultimately benefit the students (Cook, Fowler, and Harris, 2008).

Methodology

This study examined the impact of ninth grade models on the success of At–Risk minority students in North Carolina. A specific researcher designed instrument was created and delivered to the sample. The data was recorded qualitatively and quantitatively. The data was then analyzed using a novel mixed methods approach called: Meta–Cognitive analysis. The Meta–Cognitive data analysis method was pioneered by educational scientists Marsh and Snell (Snell & Marsh, 2003). Interviews were conducted with key school personnel such as principals, assistant principals, and other stakeholders in an effort to answer guided research questions concerning the impact of ninth grade centers, freshman academies, and similar models upon At–Risk minority student's academic success.

Assumptions

- The literature researched is assumed to be accurate and true data taken from reports of the North Carolina Department of Public Instruction web site, including data retrieved from local Education Associations and specific schools included in the study.
- The data will accurately reflect the graduation rates, retention rates, dropout rates, passing rates with reference to end of course assessments at the secondary level in North Carolina high schools of minority ninth grade students.

Limitations

Participants of this study came from the minority high schools that had active ninth grade academies or similar models in central North Carolina. The study was limited to a comparison of the academic traits and characteristics of ninth grade minority students, specifically identified by ethnicity as: African American, Hispanic, Native American and Multi–Racial. Data on the historic academic events regarding minority students was extracted from the North Carolina Department of Public Instruction yearly reports.

Value

Present statistical data has shown that ninth and ten grade students are dropping out of high school at alarming rates. In North Carolina, these students are deemed "At–Risk" amongst minority populations and have dropout rates that are above average. This research provides data on ninth grade centers and models as interventions that are immediate solutions that educators can implement. The study shows that these solutions are having a positive impact upon ninth grade minority students in terms of retention and academic success.

Sample

The sample in this study consisted of North Carolina public schools that had implemented 9th Grade Academies, Centers, and Center Models. Data was also acquired from The North Carolina Department of Public Instruction (NCDPI) reports recorded during the 2004–2005 to 2007–2008 academic years. In addition, administrators from the same institutions were interviewed.

Hypothesis

H0: There are significant differences in the perception of the success of Ninth Grade Academy Models in terms of graduation rates, dropout rates, high stakes testing, retention, and attendance by high school administrators.

H1: There are no significant differences in the perception of the success of Ninth Grade Academy Models in terms of graduation rates, dropout rates, high stakes testing, retention, and attendance by high school administrators.

H0: $\chi^2 = 0$

H1: $\chi^2 \neq 0$

Instrument

The investigators used interviews derived from a novel researcher–designed "Disposition Assessment Instrument" (Figure 1). The instrument was given to schools that had 9th Grade Academies, Centers, and Center Models. The instrument and interview questions derived from the instrument obtained data from high school personnel:

The Osler-Waden 9th Grade Academies, Centers, and Center Models Assessment Instrument ©

A. Has the 9th Grade Academy, Center, or Center Model been:

	Yes	No	Missing
1. Successful?	☐	☐	☐
2. Made a Difference?	☐	☐	☐
3. Aided in Retention?	☐	☐	☐

How as the Academy/Center been successful, made a difference, or aided in retention, if at all?

B. Did the 9th Grade Academy, Center, or Center Model Result in the following:

	Yes	No	Missing
4. Positive Impact?	☐	☐	☐
5. Active Participation?	☐	☐	☐
6. Decline in Dropout Rate?	☐	☐	☐

How as the Academy/Center been positive, aided in participation, or decreased the dropout rate, if at all?

C. How did the 9th Grade Academy, Center, or Center Model have an impact on the following:

	Yes	No	Missing
7. Positively Effect Standardized Testing?	☐	☐	☐
8. Increase Graduation Rate?	☐	☐	☐
9. Increase Attendance?	☐	☐	☐

How as the Academy/Center positively affected testing, graduation rates, and attendance, if at all?

How long has the model/program (freshman/Ninth Grade Academy been operation in your school?

How long has the interviewee (yourself) been (working) there and what is the level of his or her involvement in the program such as Assistant Principal, Principal, teacher or other staff member?

What is the role of those interviewed during the interviews, and their knowledge of the program, whether their knowledge was medium knowledge low level of knowledge etc.

Figure 1. The Osler - Warden 9th Garde Academics, Centers, and Center Motels Assessment Instrument

Principals and Assistant Principals. The instrument was also obtained from administrator's answers to research questions relating to the impact of Ninth Grade Centers, Academies or similar models on minority ninth grade student academic achievement. The purpose of this instrument was to provide data from 9th Grade Academies, Centers, and Center Models for non–parametric quantitative data analysis. Data that was not responded to was reported as "Missing" (a separate Categorical Variable designed to report all research results). The instrument was qualitative in nature analyzed quantitatively to accurately statistically analyze the level of significance of participants responses to the research questions.

Results

The research methods used in this study to analyze the data were a combination of qualitative (as assessment–based interviews were used) and quantitative (featuring the comprehensive Meta–Cognitive Analysis of the researcher–designed instrument via the Chi Square Goodness of Fit non-parametric statistical test). The study examined schools in North Carolina which had operational ninth grade academies, ninth grade centers, or similar models to determine their impact on the academic success of ninth grade students. In addition to examining the various models of ninth grade academies, ninth grade centers, and similar models, qualitative methods of acquiring data were used such as conducting interviews with educators at the secondary level who worked with 9th grade academies, centers, and center models. This data provided valuable insight into the effectiveness of these innovative intervention methodologies in use by the public schools in North Carolina. Qualitative data outcomes were recorded as follows during the 2011 academic year in which the study took place:

Has the 9th Grade Academy, Center, or Center Model been:

Outcomes:	Yes	No	Missing
Successful:	94.7%	5.3%	0%

Almost all (94.7%) of respondents rates the programs as successful. This program was into its 3rd year of existence beginning with school year 2008-2009 through 2010-2011.

The Table responses indicated that the highest number (5) was in the items that stated: Yearlong transition course for 9th graders in reading & math for at risk students and At-risk students showed growth in Math and English as a result of yearlong classes resulting in higher test scores from previous (middle school) year. The lowest responses (2) were in the item that stated: Freshman students take core classes together in same location with select group of teachers and the same lunch resulted in reduces discipline issues.

Has the 9th Grade Academy, Center, or Center Model been in successful?

Outcomes:	Yes	No	Missing
Difference:	89.5%	5.3%	5.3%

Almost all (89.5%) of respondents rates the programs as made a Difference. This program used a PBS model representing Positive Behavior Support for all freshmen. The Table responses indicated that the highest number (5) was in the item that stated: Student focus on core subjects has increased efficiency on EOC tests. The lowest responses (3) were in the item that stated: Program focus was to transition ninth grade students by cutting down on tardiness and more collaboration among core teachers.

Has the 9th Grade Academy, Center, or Center Model aided in:

Outcomes:	Yes	No	Missing
Retention	63.2%	10.5%	26.3%

More than half (63.2%) of respondents rate their retention program a success. This program (Freshman Academy) was in its 4th year of existence from school year 2007-2008 through 2010-2011. The Table responses indicated that the highest number (5) were in the item that stated: Five years earlier 2006-2007 school year school EOC proficiency 53% and the spring 2011 school proficiency on EOC test scores 78%. The lowest responses (3) were in the item that stated: Program used the Americas Choice Model.

Did the 9th Grade Academy, Center, or Center Model Result in the following:

Outcomes:	Yes	No	Missing
Positive Impact:	100.0%	0.0%	0.0%

All of respondents rate the program as making a Positive Impact. The Table responses indicated that the highest number (5) was in the item that stated: Academy has positively contributed to student retention. The lowest responses (3) were in the item that stated: Program implemented an adviser/advisee program with mentors coming into school on weekly basis.

Did the 9th Grade Academy, Center, or Center Model Result in the following:

Outcomes:	Yes	No	Missing
Active Participation:	100.0%	0.0%	0.0%

All of the respondents rate the program as (100%) active participation. Program has been in existence for four years 2007-2008 through 2010-2011. The Table responses indicated that the highest number (5) was in the item that stated: Program has caused an increase in attendance and contributed to the reduction of dropout rate. The lowest responses (4) were in the item that stated: Dropout rate has declined the last four years.

Did the 9th Grade Academy, Center, or Center Model Result in the following:

Outcomes:	Yes	No	Missing
Decline in Drop Out Rate:	68.4%	3.0%	15.8%

The majority of the respondent's rate program as contributing to the decline of Dropout Rate. This school's program is into its first year called Freshman Experience. The Table responses indicated that the highest number (5) was in the item that stated: Retention has improved resulting from program (failure rate). The lowest responses (3) were in the item that stated: Program has reduced disciplinary issues.

How did the 9th Grade Academy, Center, or Center Model have an impact on the following:

Outcomes:	Yes	No	Missing
Positively Effect Standardize Testing:	84.2%	2.0%	5.3%

The vast majority of respondents (84%) rate their programs positively Effecting Standardize Testing. The Table responses indicated that the highest number (5) was in the item that stated: Increased collaboration among staff and improvement in course work among students. The lowest

responses (3) were in the item that stated: Test scores has improved resulting from ninth grade focus on student achievement.

How did the 9th Grade Academy, Center, or Center Model have an impact on the following:

Outcomes:	Yes	No	Missing
Increase Graduation Rate:	57.9%	15.8%	26.3%

More than half of respondents rate their program as increasing the graduation rate. The Table responses indicated that the highest number (5) was in the item that stated: Retention rate decreased by 40% since the implementation of the Academy which has contributed to dropout reduction. The lowest responses (2) were in the items that stated: Communication by staff with parents and parental involvement contributes to the overall success of the student achievement and Student orientation before the beginning of school contributes to transition of ninth grade students to the school environment.

How did the 9th Grade Academy, Center, or Center Model have an impact on the following:

Outcomes:	Yes	No	Missing
Increase Attendance:	73.7%	10.5%	15.8%

The majority of correspondents rate their programs as increasing the Attendance rate for a Freshman Academy operating 7 to 8 years. In Table 2, responses indicated that the highest number (5) was in the item that stated: Graduation rate for school (89%) higher than district rate (85%) resulting from separate building for freshman academy program. The lowest responses (3) were in the item that stated: Program considered successful because of graduation rate and mid-year promotion to tenth grade.

Meta–Cognitive Analysis

Item	Yes	No	Missing
Successful	94.7%	5.3%	0.0%
Difference	89.5%	5.3%	5.3%
Retention	63.2%	10.5%	26.3%
Positive Impact	100.0%	0.0%	0.0%
Active Participation	100.0%	0.0%	0.0%
Decline in Drop Out Rate	68.4%	3.0%	15.8%
Positively Effect Standardize Testing	84.2%	2.0%	5.3%
Increase Graduation Rate	57.9%	15.8%	26.3%
Increase Attendance	73.7%	10.5%	15.8%

Table 2. Summary of Qualitative Results

Chi-Square Goodness of Fit Statistical Analysis: The Chi–Square Goodness of Fit statistical analysis procedure was used to analyze data in the study. An alpha-level of 0.10 was considered in light of the research context that was evidence-based in the prescribed schools that had restricted and controlled learning environments that allowed for very few chance factors to affect the outcomes of the research investigation. This was coupled with the extrapolation of data from administrators that again allowed for minimal chance factors to affect research outcomes. It was therefore concluded that the 0.10 estimate was reasonable for this particular study. In addition, due to the exploratory context and nature of the research investigation (in an area where little previous research has been done regarding 9th Grade Academies, Centers, and Center Models) a less stringent level of significance of 0.10 best fit the research study. The study yielded the following final results using the Chi–Square Goodness of Fit statistical analysis procedure in tabular format: Rejection of Null Hypothesis, thereby resulting in an acceptance of the Alternative Hypothesis thus indicating that that 9th Grade Academies, Centers, and Center Models do have an effect on the academic success, make a positive difference, and aid in the retention of students. For d.f. = 4, the critical χ^2 value for $p > 0.10$ is 7.779. The calculated Chi Square value is 8.180, thus we can reject the null hypothesis (H_o) by virtue of the hypothesis test which yields the following: critical χ^2 value of $7.779 < 71.57$ the calculated χ^2 value.

Data Analyzed Using Meta–Cognitive Analysis Using Chi–Square Goodness of Fit in a Three by Three χ2 Table Determining the Research Questions from the 9th Grade Academies, Centers, and Center Models Assessment Instrument

The Chi–Square Goodness of Fit data analysis analytical mathematical formula for the 3 × 3 Analysis for the

$nf = 17$

$a = 0.10$

		ACADEMIES, CENTERS, AND CENTER MODELS OUTCOMES		
		n_1	n_2	n_3
USE	Yes	48	43	38
	No	2	4	5
	Missing	1	4	8

d.f. = (r – 1)(c – 1) = (3 – 1)(3 – 1) = 4

Rationale for Academies, Centers, And Center Models Outcomes based upon 3 different criterion is:

$$\chi^2 = \sum \frac{(f_o - f_e)^2}{f_e}$$

Where, the analytical formula is computationally written and calculated as:

$$\chi^2 = \sum \left(\frac{(OBS - EXP)^2}{EXP} \right)$$ = The Calculated χ^2 for Table One = 8.180

For d.f. = 4, the critical χ^2 value for $p > 0.10$ is 7.779. The calculated Chi Square value is 8.180, thus we can reject the null hypothesis (Ho) by virtue of the hypothesis test which yields the following: critical χ^2 value of 7.779 < 71.57 the calculated χ^2 value.

Table 1 displays the observed and expected frequency outcomes of the data analyzed using Meta–Cognitive Analysis. The table used the Chi–Square Goodness of Fit in a Three by Three χ^2 table format to determine the outcomes research questions from the research designed 9th Grade Academies, Centers, and Center Models Assessment Instrument. The Table separates the data into three distinct categorical areas: Success, Made a Difference, and Aided in Retention. These three areas are in alignment with the research question in the study. The responses to the items on the assessment were dichotomous with an added area for any and all missing data. Thus, respondents (i.e. research participants) were afforded the opportunity to respond in either an affirmative or negative capacity. The vast majority of responses were overwhelming yes or positive as indicated in the Chi–Square Table first row on responses. As a result the research participants for the most part agreed that 9th Grade Academies, Centers, and Center Models were effective in their respective schools. This outcome is supported by the final results of the Chi–Square analysis which yielded the following: critical χ^2 value of 7.779 < 71.57 the calculated χ^2 value. The research Null Hypothesis can thus be rejected and it can be stated that 9th Grade Academies, Centers, and Center Models do have an effect on the academic success, make a positive difference, and aid in the retention of students. What follows is a summary of what the research yielded resulting from the initial survey data analysis using the research assessment instrument.

The data yielded the following results: 9th grade academies or similar models have indeed made a positive impact upon ninth grade student achievement in North Carolina. Large percentages of respondents overwhelmingly agreed that ninth grade academy models have contributed to reducing retention rates, attendance rates, made a difference on student academic outcomes in the schools identified in the study. Ninth grade models also contributed to the decline in the dropout rates of At–Risk ninth grade students in the schools identified in the study. A particularly significant statistic is illustrated by the majority of minority student's dropout rate in the schools that were in the study. This statistic as a whole was well above the NC state average for the academic year 2004-05. It was this data which initially prompted the researchers to seek out effective technical models to meet this highly critical component that is a prominent At–Risk need.

The summary percentage data collected from all seventeen schools that participated in the study shows that ten of the seventeen schools had positive or reduced dropout events over the three year period from 2007-08 to 2009-10 when they had implemented a ninth grade or freshman academy. There were five of the seventeen schools that recorded an increase in dropout events over the same period of time. Two of the seventeen schools identified in the study were reported as neutral as they had no change over the three year period in terms of an increase in dropout events or in the reduction of dropout events. The summary percentages were recorded in Table 3.

The percentages of the schools identified in the study which implemented a ninth grade or freshman academy was ten out of the seventeen that showed a positive impact in terms of student achievement and a reduction of dropout events, while five out of seventeen schools showed a negative impact or increase in dropout events reported during the same period of time. Two out of seventeen

Outcomes:	Frequency	Percentage
Positive	10	59%
Neutral	2	11%
Negative	5	29%

Table 3.Summary Percentages

schools that participated in the study had neutral or no change in dropout events positive or negative over the same period or 2007-08 to 2009-10 school years. The table above displays the positive impact that ninth grade centers, freshman academies or similar models had a positive impact upon minority student achievement.

Summary

One of the most rewarding experiences during the research process was to interview school administrators who were very knowledgeable about their programs in their respective schools. These school leaders were responsive to the interviewee in sharing their perspective about their program's impact upon first time ninth grade students transitioning to high school. There were several insights gleaned from the interviews that is worth mentioning here, in order identify best practices which will aid educators in their quest to deliver quality educational services. The administrator's tenure at their respective schools ranged from one to ten years with the average tenure approximately three years in length based upon the interviews. From the interviews conducted during school visits administrators stated that freshman academies in which most of them were called targeted at-risk students by identifying EOG scores from middle school. Reading and math courses were the areas targeted in order to measure academic growth by using bench marks or End of Course tests scores. Some schools focused their efforts on establishing freshman focus classes aligned with English I classes in reading and Algebra I classes designed to ensure that all students are adequately prepared to succeed during the first year of high school.

Students considered "at-risk" showed academic growth in English I and Algebra I by implementing yearlong classes based on their previous EOG scores from middle school. Most students took their core classes together in an isolated wing of the building to create a school within a school or a smaller learning environment designed to promote personalization through curriculum, learning theory, teaching strategies and collaboration among teaches to deliver the kind of educational services for student achievement. Administrators had to strategically tweak the master schedule to ensure that all freshman students had lunch together; by doing so teacher referrals were reduced and discipline issues was kept at a minimum in order to ensure as smooth a transition for all ninth grade students. Administrators also state the programs in their schools have made a positive impact upon reducing tardiness and therefore increasing the likely hood that retention rates would definitely improve the chances of all ninth graders succeeding during the first year of their high school careers. With smaller learning communities, teachers are more likely to collaborate together and develop the kind of cohesiveness necessary to create the kind of environment conducive for learning. The majority of schools visited were operating on a block schedule, designed to maximize more time for instruction by doubling the length of class periods in a ninety day semester period.

Another area noted from the interviews was that most programs utilized good teachers, but the most experience teachers mostly taught the upper grades classes in their schools. There were some experienced teachers at the ninth grade level, however, a smaller percentage of seasoned teachers did not teach ninth graders or even cared to teach freshman classes. Perhaps this may have been the reason for a larger number of discipline issues that often arise during the ninth grade year. Most of the programs used an advisory system which mainly comprises the school counselor along with a small team of teachers from the specific grade level and an assistant principal. Another positive outcome from the establishment of freshman academies was the focus on communication among educators, staff and more importantly parental involvement in their child's educational experiences. Among the schools interviewed there were three different models identified from the administrators and they were "Talent Development Model" out of John Hopkins University. The other two models were America's Choice and Positive Behavior Support Model better known as "PBS." The PBS model was commonly used among those programs identified in the study. All programs have integrated professional development activities among its staff to ensure that student leaners will received the kind of educational services that will prepare them for academic success. The ultimate outcome of the study yielded the following: The vast majority of participants rated

their 9th Grade Centers, Academies or similar program as positive and definitely provided positive academic results especially in regards to increasing the school attendance rate among academy students that were in the program.

Conclusion

The Purpose of this study was to determine the impact of academic technical solutions called: Ninth Grade Academies, Freshman Academies, and similar models upon ninth grade minority student achievement. This study also examined the impact of Smaller Academic Learning Communities such as Ninth Grade Academies, Freshman Academies, and similar models on attendance rates, dropout rates, retention rates, and the success rate on end of course or high stakes tests, the graduation rates and overall success of minority ninth grade students as they begin their high school careers. As a result this research study it was determined that the research participants for the most part agreed that 9th Grade Academies, Centers, and Center Models were effective in their respective schools. This outcome is supported by the final results of the Chi–Square analysis which yielded the following: Critical $\chi 2$ Value of $7.779 < 71.57$ the Calculated $\chi 2$ Value. Thus, the research Null Hypothesis can thus be rejected and it can be stated that 9th Grade Academies, Centers, and Center Models do have an effect on the academic success, make a positive difference, and aid in the retention of students.

The research study revealed that ninth grade academies and center models did have a positive impact upon minority student achievement in the academic institutions in which they currently exist. The investigation participants (high school administrators) stated that ninth grade academies and center models were perceived to have an overall positive impact in their respective schools. The outcomes of the research states that ninth grade academies and center models had a positive impact in the following areas: attendance rates, dropout rates, retention, high stakes testing, and the graduation rates of minority students (defined as those students who entered high school for the first time and left school four years later with a high school diploma). For further study the researcher recommends that the following research procedures be implemented: (i) The number of schools be expanded that have these types of programs; (ii) Longitudinal study procedures be implemented that includes site visits; and (iii) Create a budget for expenses that would cover all expected and unexpected needs that could and can possibly occur during the research investigation.

Based on the analysis of data, the researchers recommend that future technical solutions that are 9th grade Academies, Centers and Center Models do the following for purposes of sustain ability, viability, validity, and relevance: (i) High schools implement smaller learning communities such as ninth grade academies, freshman academies or similar models to all students as a transition strategy from middle school to high school; (ii) Block Scheduling designed to maximize more time for instruction by doubling the length of class periods, students complete the equivalent of 180 days of course work every 90 days. This can be done without increased staffing, class size or even larger facilities; (iii) One of the objectives of smaller learning communities should be a career focus that is highlighted by internships; (iv) College preparatory standards based on curriculum should be instituted that have a specific focus on rigor and relevance; (v) Data driven decision–making based on data driven analysis needs to be conducted by both administrators and faculty; (vi) Bench marks need to be highlighted and executed; (vii) A research "A Posteriori" end of course testing needs to be conducted to acquire data for the improvement of the academy or model; (viii) An advisory system must be in place to aid students who need and require academic guidance; (ix) Technology needs to be integrated and infused into the curriculum; (x) Seasoned veteran teachers are needed especially aid students who are starting high school at the 9th Grade level; (xi) 9th Grade academies and center models need and require a separate space away from upper class men as they are adapting to the "new" high school environment; (xii) Remedial instruction in reading and mathematics need to be incorporated in to the curriculum to prepare the 9th grade students for the rigor of upper grades; (xiii) Greater collaboration with increased communication between and with faculty and administrators; (xiv) Personalization of learning through curriculum, learning theory, and teaching

strategies must take place to make learning relevant and applicable to 21st Century learning and employment; and (xv) Future studies could compare the events (dropout rate etc.) of traditional schools that do not use any type of ninth grade academy, centers, and/or center models with the events of schools that do have ninth grade academies, centers, and/or center models.

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