


2017

The Feasibility of Implementing Early College Instructional Strategies and Design Principles in Traditional High Schools as a Reform Model

Shelia Smith Wyont

Follow this and additional works at: https://digitalcommons.gardner-webb.edu/education_etd

 Part of the [Curriculum and Instruction Commons](#), [Educational Assessment, Evaluation, and Research Commons](#), [Higher Education Commons](#), and the [Secondary Education Commons](#)

Recommended Citation

Wyont, Shelia Smith, "The Feasibility of Implementing Early College Instructional Strategies and Design Principles in Traditional High Schools as a Reform Model" (2017). *Education Dissertations and Projects*. 227.
https://digitalcommons.gardner-webb.edu/education_etd/227

This Dissertation is brought to you for free and open access by the School of Education at Digital Commons @ Gardner-Webb University. It has been accepted for inclusion in Education Dissertations and Projects by an authorized administrator of Digital Commons @ Gardner-Webb University. For more information, please see [Copyright and Publishing Info](#).

The Feasibility of Implementing Early College Instructional Strategies and Design
Principles in Traditional High Schools as a Reform Model

By
Sheila Smith Wyont

A Dissertation Submitted to the
Gardner-Webb University School of Education
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Education

Gardner-Webb University
2017

Approval Page

This dissertation was submitted by Sheila Smith Wyont under the direction of the persons listed below. It was submitted to the Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

Bruce Boyles, Ed.D.
Committee Chair

Date

Stephen, Laws, Ed.D.
Committee Member

Date

Kim Mattox, Ed.D.
Committee Member

Date

Jeffrey Rogers, Ph.D.
Dean of the Gayle Bolt Price School
of Graduate Studies

Date

Acknowledgements

As long as I can remember, I have wanted to earn my doctorate degree. The opportunity came when Dr. Steve Laws, my high school assistant principal, visited me 3 years ago. He encouraged me to join the Gardner-Webb Educational Doctoral Program. Thank you, Dr. Laws, for your continued support throughout this process. Dr. Bruce Boyles, my dissertation chairman, your wisdom and insight have been valuable. Thank you for always challenging me to do more. Dr. Kim Mattox, thank you for encouraging and supporting me. Dr. David Shellman, thank you for helping me analyze my data. Your assistance helped me finish this process and realize that I could accomplish this task.

I could not have done this without the support of my entire family. Thank you, Betty and Reggie, my in-laws, for encouraging me over the past 3 years to earn this degree. Thank you, Aunt Anne for your continued support. Thank you, Chris, my brother, for telling me when I earned my master degree, “You’re only one step away from Dr. Wyont.” Thank you, Mama for always believing in me and praying for me. You and Daddy instilled in me a confidence that I could do anything.

Thank you, Logan and Paige, my children, for giving me the time to do this and understanding when I had to work. Never forget, you two will always be my proudest accomplishment.

Thank you, Bart, my husband and the love of my life. You have always been my biggest fan and cheerleader. Thank you for making me finish this even when I wanted to quit. Without your love, devotion, and encouragement, this would not have been possible.

Thanks be to my Lord and Savior who has blessed me beyond measure and given

me the strength to finish this degree.

Abstract

The Feasibility of the Implementing of Early College Instructional Strategies and Design Principles in Traditional High Schools as a Reform Model. Wyont, Sheila Smith, 2017: Dissertation, Gardner-Webb University, Student School Relationship/School Effectiveness/School Organization/School Turnaround/College Programs

Early college high schools were developed as a partnership between school districts and colleges to provide students an opportunity to earn a high school diploma concurrently with an associate's degree or transferrable college credit at little or no cost. In 2011, North Carolina New Schools implemented the Rural Innovative Initiative with the purpose of expanding college readiness and reducing dropouts by applying early college design principles and strategies into 18 existing traditional high schools in low-wealth districts. The purpose of this study was to examine the feasibility of implementation of early college principles and strategies into traditional high schools. The study included five traditional high schools that were a part of the Rural Innovative Initiative.

The researcher used a mixed-methods approach to conduct this study. Quantitative data were collected including graduation rates, student growth rates, and end-of-course proficiency means for each of the five traditional high schools. Teachers were surveyed to analyze their perspectives of the early college principles. Qualitative data were collected from principal interview responses to a set of predetermined interview questions.

The three research questions addressed changes in student achievement data, teacher perspectives of the early college design principles, and principal perspectives of implementation of early college strategies.

Data indicated that the five high schools experienced an increase in graduation rates following implementation of the early college model. Four of the five high schools also had an increase in student growth. The survey and interview data from teachers and principals indicated that the early college design principles were implemented. Findings suggest that early college strategies and design principles can be implemented in traditional high schools as a reform model.

Table of Contents

	Page
Chapter 1: Introduction	1
Statement of the Problem.....	1
The Research Problem	2
Professional Significance of the Problem	9
Overview of the Methodology.....	10
Definition of Terms	10
Research Questions	12
Chapter 2: Literature Review	13
High School Reform Strategies	13
College Readiness	20
History of the Early College Model	29
Early College Design Principles	32
Effectiveness of the Early College Model	35
Early College as a Reform Model	48
Summary	48
Chapter 3: Methodology	50
Methodology.....	51
Research Context	51
Participants	52
Instruments	54
Procedures and Data Collection	56
Data Analysis.....	57

Delimitations of the Study	59
Limitations of the Study	59
Summary	60
Chapter 4: Results	61
Introduction	61
Methodology.....	62
Analysis of Research Question 1	63
Analysis of Research Question 2	73
Analysis of Research Question 3	94
Summary.....	100
Chapter 5: Conclusions.....	102
Introduction	102
Interpretation of Findings	104
Limitations.....	116
Recommendations to Education Leaders.....	117
Recommendations for Future Research	119
Summary and Conclusion.....	120
References.....	121
Appendices	
A Early College Strategies Used in Traditional High Schools Survey	129
B Permission to use Survey	136
C Approval from District A	138
D Approval from District B	140
Tables	

1	Strategies Used by Selected College Readiness Interventions and Reforms	26
2	High Schools EOC Proficiency Rates 2013 and 2016 Paired Samples Statistics.....	64
3	Paired Samples t Test of the Five High Schools EOC Proficiency Scores	64
4	Paired Samples Statistics Growth 2014 and 2015	66
5	Paired Samples t Test of the Five High Schools Growth Rates 2014 and 2015	66
6	Paired Samples of the Five High Schools Growth Rates 2015 and 2016.....	66
7	Paired Samples t Test of the Five High Schools Growth Rates 2015 and 2016	67
8	Paired Samples Statistics of the Five High Schools Growth 2016 and 2014.....	67
9	Paired Samples t Test of the Five High Schools Growth 2016 and 2014	68
10	T test of Graduation Rates.....	69
11	Paired Samples t Test of the Five High Schools Graduation Rates 2012 and 2016.....	70
12	Powerful Teaching and Learning Scores by Teacher Years of Experience in the Five High Schools	74
13	Powerful Teaching and Learning Scores by Teacher Content Area in the Five High Schools.....	75
14	Powerful Teaching and Learning Mean Scores of the Five High Schools	76
15	Personalization Scores by Teacher Years of Experience in the Five High Schools.....	77
16	Personalization Scores by Teacher Content Area in the Five High Schools.....	78
17	Personalization Mean Scores of the Five High Schools	79
18	Redefined Professionalism Scores by Teacher Years of Experience in the Five High Schools	80
19	Redefined Professionalism Scores by Teacher Content Area in the Five	

	High Schools	81
20	Redefined Professionalism Mean Scores of the Five High Schools	82
21	Leadership and Purposeful Design Scores by Teacher Years of Experience in the Five High Schools.....	83
22	Leadership and Purposeful Design by Teacher Content Area in the Five High Schools	84
23	Leadership and Purposeful Design Mean Scores of the Five High Schools	85
24	ANOVA Test Differences among Design Principles	86
25	Multiple Comparisons Scheffe Post Hoc Test	88
26	Early College Design Principles by School.....	93
27	Interview Response Frequencies.....	95
Figures		
1	Impact on High School College Preparatory	40
2	EOC Proficiency for Each High School	65
3	Student Growth for Each High School	68
4	Graduation Rates for Each High School.....	71

Chapter 1: Introduction

Statement of the Problem

The Nation at Risk report turned 30 in 2013, and our nation is still reforming the education system. The report said, “The educational foundations of our society are presently being eroded by a rising tide of mediocrity” (U.S. National Commission on Excellence in Education, 1983, p. 5). President Ronald Reagan’s National Commission on Excellence in Education also noted in the report, “our Nation’s schools and colleges...are routinely called on to provide solutions to personal, social and political problems that the home and other institutions either will not or cannot resolve” (U.S. National Commission on Excellence in Education, 1983, p. 6). Three decades later, our nation’s schools and colleges continue to meet the personal, social, and political needs of students in addition to providing them a sound, basic education. As a result of this 1983 report, several education reforms were implemented including: effective schools, accelerated schools, schools within schools, and education goals. The Elementary and Secondary Education Act was reauthorized in 2001 as No Child Left Behind (NCLB) followed by an update in 2015 under the name Every Student Succeeds Act (Bohrnstedt, 2013; U.S. Department of Education, 2015a).

This federal law seeks to ensure that underserved students receive resources necessary to graduate college and career ready (Alliance for Excellent Education, 2015). Although the NCLB legislation received bipartisan support and initiated the national conversation for education reform, it missed the mark. NCLB focused on total scores and failed to recognize or reward student growth and progress (United States Government, 2015).

Although the U.S. national high school class of 2013 graduation rate reached an historic high of 81%, more than 1,200 high schools graduated two thirds or less of their students. These

schools enroll a disproportionate number of minority and economically disadvantaged students (Civic Enterprises, 2015). While American high schools are making progress, there is still much improvement needed. The U.S. graduation data for 2013 revealed that some school districts with large populations of low-income and minority students made substantial increases in the graduation rate, while others declined. This indicates that the student demographics and school locations are not a factor; instead, the reform and education leadership at the state, district, and school level directly impact the graduation improvement (Civic Enterprises, 2015).

The Research Problem

Traditional comprehensive high schools are not adequately preparing students for college and career. High schools have high dropout rates, low academic achievement, and too many graduates taking college remediation courses (Alliance for Excellent Education, 2015; Civic Enterprises, 2015).

Business leaders are concerned that our education system is not preparing students for future jobs and industry. In 2005, Bill Gates addressed the National Education Summit on High Schools:

America's high schools are obsolete. By obsolete I don't just mean that our high schools are broken, flawed, and under-funded - though a case could be made for every one of those points. By obsolete, I meant that our high schools – even when they're working exactly as designed – cannot teach our kids what they need to know today. (Gates Foundation, 2005, para. 11-13)

According to the American Institutes for Research in 2007, the large, efficient high schools that bring together a large group of diverse students and offer them a comprehensive list of courses are not achieving the goal of equity or success. Since 2000, the Bill and Melinda

Gates Foundation has actively promoted school reform because “American high schools are not designed nor equipped to meet the needs of today’s youth” (American Institutes for Research, 2007, p. 1).

The U.S. Chamber of Commerce, comprised of business leaders, is very concerned with the nation’s education system. It has developed an organization, The Center for Education and Workforce, designed to strengthen America’s competitiveness by connecting education and workforce reform to the advancement of the nation’s economy (Hackbarth, 2015).

In his 2015 State of the American Business Address, U.S. Chamber President and CEO Thomas Donohue (2015) warned,

We must ramp up efforts to reform public schools--to toughen the standards and measure them against prior years so that we know when students are falling behind. We also need to remove bad teachers and pay good teachers more, create more innovative charter schools, and ensure that parental choice is an option not just in wealthy communities but in all communities. (para. 78)

In addition to business leaders, our nation’s government leaders are also concerned about the current education system. The economy and the status of our middle class are dependent upon a strong education system. President Obama was involved in education reform in order to prepare Americans for jobs of the future and restore the nation’s economy (United States Government, 2015). The United States continues to lag behind several countries in academics including Japan, Korea, Canada, New Zealand, and Austria. The 2009 Program for International Student Assessment (PISA) revealed American students’ achievement ranking is 17th in science and 14th in reading (Bohrnstedt, 2013).

Several organizations assess and compare American student achievement to the

international community. The National Assessment of Educational Progress (NAEP) periodically tests students and releases the results to the public in the Nation's Report Card. According to the 2013 Nation's Report Card issued by NAEP, the nation's twelfth graders who are at or above proficient level in mathematics are 26% and in reading 38% are at or above proficient level. There was no change in the twelfth-grade students' performance since the last assessment given by NAEP in 2009. These data show America is not making progress in secondary education, and the majority of students are graduating lacking proficient skills in reading and math.

Since NAEP assessments are administered uniformly using the same sets of test booklets across the nation, NAEP results serve as a common metric for all states and selected urban districts. The assessment stays essentially the same from year to year, with only carefully documented changes. This permits NAEP to provide a clear picture of student academic progress over time. (Institute of Education Sciences National Center for Education Statistics, 2015, "NAEP: A Common Yardstick," para. 1)

PISA tests 15-year-old students internationally in reading, science, and mathematics every 3 years. The last assessment was conducted in 2012.

Percentages of top performing 15-year-old students (those scoring at level 5 or above) in mathematics literacy ranged from 55 percent in Shanghai-China to nearly 0 percent in Colombia and Argentina. In the United States, 9 percent of 15-year-old students scored at proficiency level 5 or above, which was lower than the OECD average of 13 percent. (Institute of Education Sciences National Center for Education Statistics, 2012, "US Performance in Mathematics Literacy," para. 1).

Top performing 15-year-old students (those scoring at level 5 or above) in reading

literacy ranged from 25 percent in Shanghai-China and 21 percent in Singapore to nearly 0 percent in 3 education systems. In the United States, 8 percent of U.S. 15-year-old students scored at proficiency level 5 or above, which was not measurably different from the OECD average of 8 percent. (Institute of Education Sciences National Center for Education Statistics, 2012, “US Performance in Reading Literacy”, para. 1).

The U.S. average mathematics, science, and reading literacy scores in 2012 were not measurably different from average scores in previous PISA assessment years with which comparisons can be made (2003, 2006 and 2009 for mathematics; 2006, and 2009 for science; and 2000, 2003, and 2009 for reading. (Institute of Education Sciences National Center for Education Statistics, 2012, “US Performance Over Time,” para. 1)

If the students graduating high school and attending college, 60% are learning they are not academically prepared. These students are taking required remedial courses, not earning college credit. A high school diploma with a college preparatory curriculum does not guarantee college readiness (National Center for Public Policy and Higher Education, 2010). In 2012, the college graduation rate for first time undergraduate students graduating within 6 years was 59% (Institute of Education Sciences National Center for Education Statistics, 2014).

In order to better prepare high school graduates for college, high schools need to be reformed. Researchers have studied the best practices that are yielding results in high school reform (Alliance for Excellent Education, 2015; National High School Alliance, 2005). They examined restructuring the traditional high school into a smaller, personalized learning environment; improving school climate; increasing rigor and relevant academic student-centered instruction; building adult capacity for the purpose of improving instruction; and implementing collaborative leadership. These strategies improved student achievement (Alliance for Excellent

Education, 2015; Education Alliance at Brown University, 2001; National High School Alliance, 2005).

One education reform model receiving national attention is the Early College High School Initiative launched by The Bill and Melinda Gates Foundation in 2002. The goal of early college is to provide underrepresented students access to college and increase high school graduation rates (American Institutes for Research, 2005; Gates Foundation, 2004). Early colleges combine high school and college to afford students the opportunity to earn a 2-year degree while concurrently earning a high school diploma (American Institutes for Research, 2005). The early college model is aligned to President Obama's goal that America lead the world in college graduation by 2020 (U.S. Department of Education, 2013).

In 2012, President Obama said, "If we want America to lead in the 21st century, nothing is more important than giving everyone the best education possible – from the day they start preschool to the day they start their career" (Obama, 2012, para. 11). He also developed a high school redesign initiative that encouraged schools to implement learning strategies that provided rigorous, relevant instruction with real-world experiences. He emphasized personalized instruction that included career and college exploration because graduating students prepared for college is imperative (U.S. Department of Education, 2013).

The North Carolina early college model reflects President Obama's redesign initiatives. North Carolina Early College High School Initiative is one of the nation's most ambitious efforts to transform education around three critical goals: 1) improving academic outcomes for all students; 2) creating a workforce well prepared for the state's emerging economy; and 3) demonstrating effective ways to transform conventional schools and districts. (North Carolina New Schools, 2015, p. 12)

Since 2005, the number of early colleges has increased in North Carolina. There are 116 early colleges across the state. Despite the dissolution of North Carolina New Schools Organization in May 2015, the North Carolina Department of Public Instruction (NCDPI) continues to advocate for the expansion of the early college principles and strategies into traditional comprehensive high schools.

Early colleges are high schools located on the campus of 2- or 4-year colleges that provide an academically rigorous curriculum. Students earn a high school diploma and substantial college credit and/or an associate's degree in 4-5 years at no cost to the students or parents (North Carolina New Schools, 2013). Early colleges are a partnership with local public school districts and public community colleges and/or universities. The high school employs a principal and high school teachers who provide the high school instruction. The two education institutions collaborate to provide support services for students including a college liaison who supports the students in their college courses and tutoring services. The college liaison and high school counselor work together to schedule students in high school and college courses simultaneously. Additionally, the college liaison is the bridge between the college and the high school navigating the college requirements. Early colleges set high expectations for all students with the goal of graduating all students prepared for college and career. The early college target population includes first generation college, economically disadvantaged, underrepresented, and underperforming students (American Institutes for Research, 2005; North Carolina New Schools, 2013).

The success of early colleges is well documented with low drop-out rates and high achievement scores on North Carolina end-of-course (EOC) tests. "The combined graduation rate for the 69 schools with full cohorts of students completing in 2014 was 95.6 percent" (North

Carolina New Schools, 2015, p. 12). Early colleges are accomplishing these results with critical success factors which include high expectations, purposeful actions, and meaningful relationships. Also, early colleges are significantly smaller in size than traditional high schools, and students are immersed into a college going culture (North Carolina New Schools, 2013).

Early college high schools are based on the following design principles: personalization, purposeful design, leadership, readiness for college, powerful teaching and learning, and redefining professionalism. These were put into practice with the intent that all early college graduates would be prepared for success in college and career. Personalization focuses on building relationships among students and teachers which is vital to student success. Purposeful design means that every decision is thoughtful and designed to foster student growth and success. Leadership includes collaboration and accountability that develops a collective vision. Readiness for college means that all students are prepared for college. Powerful teaching and learning is a strong focus on instructional strategies that make instruction rigorous and relevant. Early college teachers are continuously participating in training and development to improve their skills and mastery. Redefining professionalism includes not only collaboration and distributive leadership but also continual reflection and individual improvement (Edmunds, 2015).

Research indicates that early college high schools have higher graduation rates, academic performance rates on tests, and college readiness than traditional high schools. The SERVE Center at the University of North Carolina at Greensboro is a university-based research, development, dissemination, evaluation, and technical assistance center that conducted a study to analyze the success of early colleges. SERVE collected the following data: 83% of the early college students graduate in 5 years compared to 79% of traditional high school students, and

89.1% of early college students entered college compared to 73.8% of traditional high school students. The principles and strategies implemented in early college high school have proven successful (Edmunds, 2015). Early colleges are having significant impact on students entering college and graduating (Berger, Turk-Bicakci, Garet, Knudson, & Hoshen, 2014). The early college strategies can and should be replicated in traditional comprehensive high schools (Edmunds, 2015).

The purpose of this study was to examine the design principles of early college high schools and the feasibility of replicating them in traditional high schools. The early college high school six design principles include (a) powerful teaching and learning, (b) personalization, (c) redefining professionalism, (d) college readiness, (e) purposeful design, and (f) leadership. The study was designed to address two concerns. First, traditional high schools need reform to improve academic performance, reduce dropout rates, and increase college readiness. Second, the study was intended to evaluate the success of early college high school principles and strategies that are being implemented.

Professional Significance of the Problem

The significance of this study is to add to the body of knowledge regarding effectiveness of early college strategies and the replication of them at traditional high schools. The results of this study will provide additional information on the effectiveness of the early college high school model. The early college structure has proven to reduce dropout rates, raise achievement levels, increase student growth, improve student attendance, and improve student college and career readiness. This research has significance to educators and policymakers interested in replicating the early college strategies for school reform in a traditional high school. The early college strategies and design model have the potential to increase graduation rates, improve

student academic achievement, and increase college readiness in traditional high school graduates.

Overview of the Methodology

This study implemented a mixed methodology that used quantitative and qualitative data. Quantitative analysis was used to compare graduation rates, student performance scores, student growth scores, and college course completion in traditional high schools that are implementing early college design principles and strategies. Qualitative data include surveys of traditional high school principals and teachers designed to determine the fidelity of implementation of early college design principles and instructional strategies. These traditional high school principals were interviewed to assess their perceptions of the efficacy of the early college model. The quantitative and qualitative data were analyzed to determine any change in student outcomes following the implementation of early college design principles.

Definition of Terms

Achievement. Graduation rates, North Carolina EOC test scores, and college matriculation rates.

Community college. A higher education institution that primarily serves the local community. Also known as a 2-year college, because it offers an associate or 2-year degree (American Association of Community Colleges [AACCC], 2017).

Design principles. Early college high school principles of powerful teaching and learning, personalization, redefining professionalism, college readiness, purposeful design, and leadership that are intended to create a paradigm shift in the traditional high school structure.

Dropout. Student who leaves high school before completing graduation requirements.

Dual enrollment. High school student who is concurrently enrolled in high school and

college courses.

Early college high school. A small cooperative innovative high school located on a college campus where a local school district partners with a community college to provide students with the opportunity to take high school classes simultaneously with college courses. Students can earn substantial transferrable college credit as well as an associate's degree in 4 to 5 years (Hoffman & Vargas, 2010).

Early college liaison. The liaison's main function is to build positive working relationships between the college and the high school. The liaison is the chief advocate for high school students with college instructors (North Carolina New Schools, 2013).

First generation college students. Students whose parents did not graduate from college with a bachelor's degree or 4-year degree (North Carolina New Schools 2013).

Institutions of higher education. Any 2- or 4-year college. This includes community colleges.

Jobs for the Future (JFF). An action/research agency that works to ensure all underprepared young people have the skills necessary to succeed in the economy by developing solutions to create change in our education system.

NAEP. The largest nationally representative and continuing assessment of what America's students know and can do in various subject areas.

North Carolina EOC test. Standardized test given to North Carolina high schools in the areas of Math I, English II, and biology. Test results are used to evaluate the quality of the school.

Professional learning community (PLC). A group of teachers and administrators who collaborate to review teaching practices, strategies, and data to improve student learning

outcomes.

PISA. An international assessment that measures 15-year-old students' reading, mathematics, and science literacy every 3 years.

SERVE. A university-based research, development, dissemination, evaluation, and technical assistance center located on the campus of the University of North Carolina at Greensboro. Purpose is to collaborate with educators and policymakers to improve education (SERVE Center, 2015).

Research Questions

1. Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college high school strategies and design principles?
2. What are the traditional high school teachers' perceptions of the impact of early college strategies and design principles?
3. What are the traditional high school principals' perceptions of the impact of early college strategies and design principles?

Chapter 2: Literature Review

This chapter presents a review of the literature relevant to the study of early college high schools as a school reform model. This chapter is organized around the themes represented in the research questions which include (a) a review of high school reform strategies, (b) college readiness, (c) a brief history of the development of early college high schools, (d) the early college high school design principles, (e) effectiveness of the early college model, and (f) early college as a reform model. The review of literature began with a look at high school reform strategies and college readiness which lead to the history of early college high school and their effectiveness and concluded with the early college as a reform model.

High School Reform Strategies

Twenty-five years after the publication of *A Nation at Risk* (U.S. National Commission on Excellence in Education, 1983), a follow-up report intended to evaluate education improvements was released in 2008, *A Nation Accountable* (U.S. Department of Education, 2008). “On a strictly domestic level, our performance at the high school level is as alarming as it was at the time of *A Nation at Risk*, if not worse” (U.S. Department of Education, 2008, p. 10). In 2008, nationwide only 70% of students in the class of 2006 graduated. The report highlighted the improvements in education following *A Nation at Risk* but emphasized the need to still reform the nation’s high schools (U.S. Department of Education, 2008).

In 2014, the national high school graduation rate reached an historic mark of 82% (U.S. Department of Education, 2015b); however, high schools are not graduating all students nor are they graduating college ready students. In 2005, only 59% of students who entered a 4-year institution for the first time graduated within 6 years (Mattern et al., 2014). Many students are not completing college degrees because they are arriving unprepared. In 2011-2012,

approximately one third of students reported taking a remedial college course, 29% at public 4-year postsecondary schools and 41% at public 2-year colleges (Skomsvold, 2014). These data are based on college students' self-reporting. This percentage would be higher for students taking remedial courses if estimates were based on actual student transcript data (Radford & Horn, 2012).

Several evidence-based high school reform strategies have been implemented including small schools, rigorous curriculum, personal relationships, personalized learning, career academies, dual enrollment, and Common Core Standards.

Small schools. The reform strategy to convert high schools into smaller schools, small learning communities, or schools within schools indicate better student results. Stiefel, Schwartz, and Wiswall (2015) studied New York City's small high school reform movement and found that students attending small high schools are 10-13% more likely to graduate in 4 years than their peers in large high schools. The smaller schools serve less students which fosters an environment to develop strong personal relationships between students and teachers (U.S. Department of Education Office of Planning, Evaluation and Policy Development, 2016).

While research indicates that small schools have higher graduation rates (Stiefel et al., 2015), there are several factors impacting this success. Many new small schools are supported by additional funding. According to Stiefel et al. (2015), the small high schools in the New York City district were supported by nonprofit organizations such as New Vision for Public Schools and the Gates Foundation. Likewise, 80 of the 116 small cooperative innovative high schools in North Carolina receive additional state funding. Additional funding is appropriated by the North Carolina General Assembly at approximately \$300,000 per year (NCDPI, 2016).

In addition to increased funding, small schools usually have autonomy to implement

innovative curriculum and pedagogy, strong leaders who communicate one vision/mission to the staff and parents, shared leadership with teachers, and sustainability through funding and building professional capacity (Semel & Sadovnik, 2008). Small schools typically serve a different population than the traditional large high school. Less advantaged and struggling students usually attend small high schools as opposed to students in the comprehensive high school (Stiefel et al., 2015).

In 2002, New York City closed 31 large failing high schools and developed a high school choice process for all rising ninth graders. The small schools of choice were created to serve students in the district's most disadvantaged communities. The schools were opened through a competitive proposal process that was designed to stimulate innovation and forward thinking. All stakeholders were involved in the proposal process: teachers, administrators, parents, and community members. Most of the small schools of choice receive additional funding and support from an intermediary school partner such as New Visions for Public Schools, the Urban Assembly, or the Institute for Student Achievement (Bloom & Unterman, 2013).

The Bill and Melinda Gates Foundation provided funding for a study to evaluate the sustainability of the New York City small schools of choice. Bloom and Unterman (2013) published their findings in 2013 comparing the students in the small schools of choice to the other high schools that remained after closing the 31 failing high schools. The Class of 2005 cohort graduated 66.6% of small schools of choice students compared to the control group of 58.3%. The Class of 2006 cohort graduated 70.4% of small schools of choice students compared to the control group of 59.2%. The Class of 2007 cohort graduated 74.6% of small schools of choice students compared to the control group of 65.1%. The results reveal that on average small schools of choice increased 4-year graduation rates by 9.5 percentage points (70.4 to

60.9%) compared to the control group counterparts of traditional high school students (Bloom & Unterman, 2013).

Bloom and Unterman (2013) also used qualitative data, interviews, surveys, and focus groups in the study. According to the principals and teachers at the 25 top small schools of choice with the highest effectiveness data, the elements that impact their success are the two core principles that are implemented daily as a part of culture – personalized learning environments or relationships and high academic expectations or rigor.

One principal noted that teachers take on leadership roles in small schools of choice more than traditional schools. “Teaching in a SSC requires a steadfast dedication to the school and continuous rigorous assessment of what is and is not working for students” (Bloom & Unterman, 2013, p. 19).

Principal and teacher perspectives support the findings of Stiefel et al. (2015) that while small schools are producing better test scores and higher graduation rates, there are several strategies used within the small school that makes isolating the variable difficult. Small schools allow for personalized learning which usually includes use of real-world applications and creates a more rigorous curriculum (U.S. Department of Education Office of Planning, Evaluation and Policy Development, 2016).

Career academies. Career academies are another high school reform strategy designed to keep students engaged in school and prepare them for postsecondary education and employment after graduation. They are organized as small learning communities in large comprehensive high schools around a career theme. They are usually partnered with businesses and community leaders to provide students with work based educational opportunities (Kemple, 2008).

Kemple (2008) studied nine urban high schools across the United States comparing career academy students to non-career academy students. After graduation, career academy students earned an average of 11% more per year than students in the non-career academy group. Young men in the career academies earned an average 17% more per year than the non-career academy young men. This is a significant impact because this same group has experienced a major decline in earnings in recent years. Career academies are one of few high school interventions that have proven to improve the workforce prospects of men (Kemple, 2008).

Dual enrollment. Since high socioeconomic status (SES) students are more likely to attain a college degree than low SES students, educational leaders are searching for ways to raise the completion rates specifically for low SES students. Dual enrollment is a high school reform strategy that allows students to take college courses while still in high school. The intent is to prepare students for college gradually while providing the opportunity to earn college credit for free or discounted tuition (An, 2013). There are a variety of dual enrollment models including online courses taught by college instructors, face-to-face classes taught by college instructors on the high school campus, face-to-face college courses taught by high school teachers, and college courses taught on the college campus by college instructors (U.S. Department of Education Office of Planning, Evaluation and Policy Development, 2016).

An (2013) used a National Education Longitudinal Study in 1988 of eighth-grade students to estimate the impact of dual enrollment on college degree attainment. His sample size was 8,800. He created a follow-up questionnaire for the students in 1990, 1992, 1994, and 2000. Results indicated that participation in a dual enrollment program positively affected the college degree attainment. Students who participated in dual enrollment programs increased completion of a postsecondary degree by 8 percentage points and a bachelor's degree by 7 percentage points

(An, 2013). In An's study, dual enrollment is targeted at low SES students by specifically studying first-generation college students who participated in dual enrollment. Results showed that first-generation participants were more likely to attain a college degree than first-generation nonparticipants. The study also found some evidence that first-generation students were more likely to benefit from dual enrollment courses than students with a college-educated parent (An, 2013).

Based on An's (2013) study, the U.S. Department of Education recommended dual enrollment as a high school reform strategy. By providing high school students with college-level coursework and in some cases experiences on college campuses, dual enrollment can promote students' understanding of, and adjustment to, the rigor of college-level work and to engage with the college environment, both essential for future college success (U.S. Department of Education Office of Planning, Evaluation and Policy Development, 2016, p. 3).

Common Core Standards. The Common Core Standards movement began in 2010 as a strategy to reform K-12 education. The purpose of developing the Common Core Standards was "to create more consistency nationally and to align expectations across high schools, colleges, and entry level work force opportunities" (Venezia & Jaeger, 2013, p. 130). The National Governors Association Center for Best Practices and the Council of Chief State School Officers (CCSSO) jointly led the movement that established a set of Common Core State Standards which are expectations for all students in Grades K-12. Common Core State Standards would allow students across states to learn the same skills and content at each grade level. This was an historical movement because prior to Common Core State Standards, the public school curriculum was predominately determined by each individual state. In essence, if all states adopt the Common Core Standards, the U.S. would have a national curriculum. The benefits of a

national curriculum as opposed to individual state-adopted curricula would include shared expectations and consistency, focus, efficiency and quality of assessments (Porter, McMaken, Hwang, & Yang, 2011).

Porter et al. (2011) studied the Common Core Standards comparing them to the current state standards and what is currently being taught. They also compared Common Core Standards to common state assessments and NAEP. Finally, they compared the Common Core Standards to other countries' educational standards (Porter et al., 2011).

The comparison results revealed Common Core Standards are significantly different from what states were teaching and assessing prior to Common Core Standards. The standards are also extremely different from the standards of countries with higher student achievement on NAEP than the United States. The highest achieving countries put more emphasis on performance procedures in their educational objects, whereas Common Core focuses on higher order thinking skills. The researchers recommended benchmarking the Common Core Standards against the highest achieving countries on NAEP and high-performing states (Porter et al., 2011).

The National Association of Secondary School Principals (NASSP) supports the adoption and implementation of Common Core Standards. In the *Policy Recommendations for College and Career Ready Standards in Secondary Schools*, it states “(Common Core Standards) specify the knowledge and skills that students must possess to be college and career ready upon graduation from high school” (NASSP, 2013, p. 3). NASSP (2013) argued that Common Core Standards were compared to international standards, and the expectations have been increased for middle and high school literacy instruction. As a part of Common Core Standards, all content area teachers, not just language arts teachers, are responsible for teaching reading, writing, listening, and speaking (NASSP, 2013). NASSP defined the Common Core Standards

as college and career ready standards that are a guide, not the curriculum itself.

College Readiness

Preparing students for college is not just an early college objective; it is the goal of high schools across the nation. However, data show that only a small portion of high school students are graduating ready for college. Only 28% of the graduating class of 2015 who took the American College Test (ACT, 2015), demonstrated college readiness in all four subjects. Even though the ACT measures college readiness in terms of academic preparedness, ACT (2015) acknowledged that it is only one factor. According to Mattern et al. (2014), “while core academic skills are necessary, they are not sufficient for academic and workplace success, and that a holistic approach to CCR is needed” (p. 6).

Various definitions of college readiness have developed over the years based primarily on academic skills such as ACT/SAT scores, high school grade point averages (GPAs), class rank, and high school course rigor (Mattern et al., 2014).

The ACT report suggests that schools are narrowly focusing on academic skills in K-12 education. It suggests expanding the K-12 curriculum to include crosscutting skills such as critical thinking, problem solving, and technology as well as working with others, adapting, and managing stress techniques. In order to better prepare students for college and career, the accountability model for schools needs to include assessments beyond the core subjects (Mattern et al., 2014).

David Conley, professor of educational policy and leadership, founded the Center for Educational Policy Research at the University of Oregon. Since the center has conducted numerous research studies on college readiness, Conley is recognized as a college readiness expert. Conley (2007) defined college readiness as, “the level of preparation a student needs to

enroll and succeed—without remediation—in a credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program” (p. 5). He emphasized that college readiness includes student knowledge, skills, behaviors, and attitudes (Conley, 2007). Additionally, he extended his definition to include cognitive strategies, content knowledge, academic behaviors, contextual skills, and knowledge (Conley, 2008). Students need self-awareness, self-control, study and time management skills, college context knowledge, and academic skills to be prepared for college. Other researchers have also found that the following factors indicate college readiness: academic rigor in high school, knowledge of college prior to college entrance, and student developmental needs (Jackson & Kurlaendar, 2014).

A bachelor’s degree not only increases a person’s lifetime earnings but also improves his or her healthcare, family stability, and job security. Additionally, people who earn bachelor’s degrees are more involved in their communities (Baum, Ma, & Payea, 2013; Carnevale, Rose, & Cheah, 2011; Jackson & Kurlaender, 2014). “College graduates earn, on average, far more than college dropouts, and these higher earnings translate directly into higher income tax payments that can help solve growing fiscal problems at the federal and state levels” (Schneider & Yin, 2011, p. 4). Researchers estimate that college students who entered in 2002 as freshmen but did not graduate within 6 years cost the U.S. an estimated \$3.8 billion in lost income, \$566 million in lost federal taxes, and \$14 million in lost state taxes. These estimates are for just 1 year and one cohort of students (Schneider & Yin, 2011).

AACC has been emphasizing the need to improve college readiness for the past few years. AACC and the School Superintendents Association hold an annual college readiness summit to share best practices for preparing high school students for college (Pierce, 2016).

According to Walter Bumphus, president of the America Association of Community Colleges, “Community college and K-12 partnerships are critical in developing pathways for student success” (Pierce, 2016, p. 33).

In 1967, the Education Commission of the States opened in Denver, Colorado. It is an interstate committee designed to strengthen education policy at the state level. It continues to collaborate with policy leaders to address educational concerns by combining resources and providing states with a means to communicate with one another about current education issues.

In 2014, the Education Commission of the States developed a Blueprint for College Readiness. It was created to provide K-12 and higher education leaders with information about the education reform efforts across the nation. It included college and career readiness standards and assessments, higher education admission standards, and suggestions for a definition of college and career readiness. The commission also emphasized that each state’s college and career definition needs to be reflected in the school system accountability systems and in the university college admission requirements (Glancy, Fulton, Anderson, Zinth, & Millard, 2014).

The Blueprint for College Readiness noted that 48 states have adopted Common Core State Standards or similar rigorous content standards. Twenty-five states require schools to provide advance placement, international baccalaureate, or dual enrollment in college courses. The Blueprint emphasized the need to provide teachers with professional development to prepare them to deliver high-quality instruction aligned with Common Core Standards. Forty-six states are administering college and career readiness assessments such as SAT, ACT, and/or state developed college ready assessments. The commission is encouraging K-12 educators to partner with 2- and 4-year institutions to set standard scores on the assessments that reflect college readiness which will allow students priority consideration for admission (Glancy et al., 2014).

The commission also recommended that high school, college, and state leaders consider including the following elements in high school graduation requirements:

- Align statewide minimum high school graduation course requirements with statewide minimum higher education course requirements.
- Introduce early interventions for high school students not meeting graduation and college readiness standards by eleventh grade.
- Create alternative routes/diplomas for high school graduation.
- Incorporate multiple measures to determine a student's college and career readiness, including recognition of non-cognitive or "soft" skills through options such as student portfolios.
- Provide competency-based options to show proficiency in course requirements both at the high school and postsecondary levels (Glancy et al., 2014, p. 17).

The Blueprint states that if college and career readiness is an expectation of high school graduates, it should be measured as part of each state and school district accountability model. However, the commission realizes that "College and career readiness is hard to measure; no single formula or definition guarantees freshman year success in college" (Glancy et al., 2014, p. 3).

Martinez and Klopot (2005) prepared a report for the Pathways to College Network that demonstrated that academics is only part of college readiness.

Multiple research studies have shown the following to be the strongest predictors of college attendance and completion, particularly for minority and low-income students: academic preparation, social support, access to information, parental involvement, and knowledge about college and financial aid. (Martinez & Klopot, 2005, p. 5)

Venezia and Jaeger (2013) evaluated current college intervention/transition programs in an effort to improve college readiness. There are a variety of intervention strategies to prepare high school students for college including academics, psychosocial, behavioral supports, and developing habits of mind. While each one emphasizes a different area of college readiness, most of them coincide (Venezia & Jaeger, 2013). Venezia and Jaeger reviewed the following programs and their strategies: TRIO, early colleges and middle colleges, dual enrollment, early assessment programs, and default curricula.

TRIO is a federally funded program which provides outreach and services to low-income students, students with disabilities, and first generation students. Upward Bound and Talent Search are different programs under TRIO. Each one provides a variety of support including tutoring, counseling, scholarship, and financial aid assistance. GEAR UP is another TRIO program that focuses on college readiness in public schools for high-poverty students from seventh grade through high school.

Early colleges and middle colleges are high schools located on college campuses that are partnerships between a school system and a postsecondary institution. They provide students with the opportunity to earn a high school diploma and college credit simultaneously. Most of these schools provide the college courses for free or reduced tuition.

Dual enrollment is a program that provides high school students the opportunity to attend their traditional high school and take college course concurrently. Most of the college courses are provided for free or reduced tuition.

The early assessment program is a California initiative to help students prepare for placement tests before they graduate so they do not need to take remedial college courses.

Default curricula is an attempt to eliminate tracking with honors and regular courses; all

courses are college preparatory.

These programs concentrate on the following strategies: better academic preparation, increased psychosocial and behavioral support, greater exposure to college, better alignment between high school and college curricula, and development of the habits of mind (Venezia & Jaeger, 2013). Table 1 indicates which programs implemented these college intervention strategies in Venezia and Jaeger's (2013) study. The data revealed that the early college and middle college were the only programs to implement all six intervention strategies.

Table 1

Strategies Used by Selected College Readiness Interventions and Reforms

Intervention Form Strategy	Better Academic Preparation	Increased psychosocial and behavioral support	Greater exposure to college	Better information about college	Better alignment between high school and college	Development of appropriate of habits of mind
TRIO UpwardBound	X	X		X		X
TRIO Talent Search		X	X	X		
TRIO GEAR UP	X	X	X	X		X
Early College & Middle College	X	X	X	X	X	X
Dual Enrollment	X		X		X	
Early Assessment Program	X					X
Default Curricula	X					X

Source: (Venezia & Jaeger, 2013).

The federal funded programs under TRIO (Upward Bound, Talent Search, and GEAR UP) have assisted 2 million students in graduating from college over the past 50 years; however, the funding is not adequate to provide for all students in need of these services. Of the 11 million students eligible, funding is only available to service approximately 7% of them (Venezia & Jaeger, 2013). The evaluation of the TRIO programs showed mixed results on the courses participants take, which is the main indicator of college readiness (Venezia & Jaeger, 2013).

The only college readiness intervention program to meet all areas of student needs from better academic preparation to psychosocial support was the early college and middle college high school model. These students completed more college courses in high school, but their academic progress declined once they transitioned to college. A longitudinal study in 2006-2007

found that early college students' GPAs decreased when they moved from the early college high school to college from 2.63 to 2.48 (Kim & Barnett, 2008). The study seems to suggest that once students were away from the high expectations and additional psychosocial and behavioral supports of the early college, they did not perform as well (Venezia & Jaeger, 2013).

Venezia and Jaeger (2013) reviewed data from a 2006 case study by Hughes, Karp, Fermin, and Bailey of dual enrollment in five states. Hughes et al. (2006) found that dual enrollment students who take college courses while enrolled in a traditional high school transition better to college and remain enrolled in college. Another evaluation study conducted by Hughes for The Community College Research Center (CCRC) studied the effects of dual enrollment in California. The results showed that students who completed dual enrollment courses were more likely to graduate from high school, enroll in a 4-year postsecondary institution, and persist in college (Hughes, Rodriguez, Edwards, & Belfield, 2012).

Finally, Venezia and Jaeger (2013) reviewed the Common Core State Standards as a means to better prepare students for college. Since Common Core State Standards is relatively new, they concluded that it is too early to know if the new standards are affecting college readiness. Venezia and Jaeger concluded, "to support postsecondary readiness for more students, reforms should take a systemic, comprehensive approach to provide students with both academic and nonacademic resources and opportunities" (p. 132).

Leonard (2013) conducted a study of a 3-year early college program that was part of a traditional high school where middle quartile or average students enrolled in college and high school courses simultaneously. The cost of the early college program was divided between the high school, community college, and the parents. Parents paid approximately \$600 per year. This study used an explanatory case study methodology. The study wanted to answer, "How can

parental support help increase college readiness skills for academically average students” (Leonard, 2013, p. 183)?

The study interviewed students, parents, and teachers. The student and parent interviews revealed strong parental support. “Parents played a significant role in helping 15 year olds make a sensible decision with long ranging effects” (Leonard, 2013, p. 194). Interviews of students and parents revealed that parents encouraged students to attend the early college; in many cases, it was a joint decision between parent and student to enroll. The study also showed that parents support students when the course work is difficult. One father of a junior early college student stated, after receiving a poor report card,

I said that if that was the best he could do, then I would accept that, but if that was not the best he could do (and I knew he could) then “all you’re doing is cheating yourself. And you’re the one that’s going to pay for it.” (Leonard, 2013, p. 196)

The results showed that the parental support was “behind-the scenes but nonetheless crucial for student success and college readiness” (Leonard, 2013, p. 200). The parents’ financial contribution of \$600 per year may have been an influential factor in the parent involvement. According to Leonard (2013), “One of the strengths of this early college program was that it opened new pathways to students who wanted to consider college in their future, students who might easily be overlooked” (p. 200). Based on his study, Leonard concluded college readiness strategies should include not only the student but also the family, counselors, and social networks.

History of the Early College Model

The early college high school initiative began in 2002, but preparing public high school students for college dates back to the 1950s when students began taking high school courses that were college level (College Entrance Examination Board, 2003; Nodine, 2009). The development of the advance placement program by the College Entrance Examination Board (2003) allows high schools to begin teaching courses with “assessments that colleges would find rigorous enough to use as a basis for granting credit” (p. 1). These courses were designed for advanced high school juniors and seniors only.

In the 1970s, the focus of college level courses in high school shifted from advanced students to underrepresented and underserved students. With the opening of a middle college high school in 1974 on the campus of LaGuardia Community College, students began taking college and high school courses in a small setting with additional supports and personalized instruction (Nodine, 2009; Venezia & Jaeger, 2013). With the financial support of Ford Foundation and others, the middle college high school concept spread across the U.S. “By 1993, a network of middle college high schools coalesced and became known as the Middle College National Consortium” (Nodine, 2009, p. 4). Middle college high schools are 5-year schools located on 2-year college campuses. Students take high school classes in ninth and tenth grades and half high school/half college in eleventh and twelfth grades. The thirteenth grade is comprised of all college courses (Webb, 2004).

The small school movement began in the late 1980s and early 1990s. Small learning communities, academies, and schools within schools began to develop as reform strategies in traditional high schools (Nodine, 2009). Research shows that in small schools, more students remain in school, students have good relationships with teachers, and they experience academic

success (Bloom & Unterman, 2013). The movement toward small learning environments added to the climate that produced the early college movement.

In 2000, the U.S. Department of Education worked with the Carnegie Corporation of New York, the Charles Stewart Mott Foundation, and the Woodrow Wilson National Fellowship Foundation to create the National Commission on the High School Senior Year. The commission was charged with analyzing the senior year of high school and making recommendations to improve the academic rigor to prepare students for work or college. The commission made three recommendations: improve curriculum alignment, raise achievement, and provide more rigorous alternatives (U.S. Department of Education, 2001).

The commission suggested aligning the curriculum between K-12 and postsecondary education to create one system of P-16 which includes prekindergarten to the final year (16th year) of a 4-year college or university. Raising achievement includes a college preparatory curriculum for all students. The report stated, “Every student should be entitled to the high-quality coursework required for success on the job or in postsecondary education” (U.S. Department of Education, 2001, p. 22).

According to the National Commission on the High School Year, providing more rigorous alternatives includes every senior should do the following: “a capstone project, perform an internship, complete a research project, participate in community service, or take college-level courses” (U.S. Department of Education, 2001, p. 22). The recommendations from the National Commission on the High School Senior Year have become part of the early college concept.

Building on the middle college, the small schools movement, and the National Commission on the High School Senior Year, the Bill & Melinda Gates Foundation initiated the early college model in 2002 to reform high school education. With support from the Carnegie

Corporation of NY, the Ford Foundation, and the W. K. Kellogg Foundation, the Gates Foundation founded the early college high school movement in 2002 (Nodine, 2009; Venezia & Jaeger, 2013).

Intermediary organizations were established to create partnerships between public high schools and institutions of higher learning, both community colleges and universities. JFF, a national nonprofit that “improves the pathway leading from high school to college to family sustaining careers” (Webb & Mayka, 2011, p. 1), manages the early college high school initiative. JFF works with the intermediary organizations, community foundations, national policy developers, and institutions of higher learning. Initially, the Gates Foundation provided grants to seven partner organizations to open 100 early colleges across the U.S. The partner organizations have grown to 13 under the coordination of JFF (Nodine, 2009). North Carolina New Schools was one of the intermediary organizations that launched the early college model in North Carolina. With the dissolution of North Carolina New Schools in 2015, NCDPI is overseeing the early colleges in the state under the Cooperative and Innovative High School Program.

JFF defines the early college model as, “A bold approach, based on the principle that academic rigor, combined with the opportunity to save time and money, is a powerful motivator for students to work hard and meet serious intellectual challenges” (Webb & Mayka, 2011, p. 1).

“Early Colleges are small schools, developed through partnerships between school districts and colleges, that provide students with an opportunity to graduate high school with a year or more of college credit earned – or even an associate’s degree” (Barnett, Bucceri, Hindo, & Kim, 2013, p. 3). One of the main beliefs of the early college model is that students can complete college level work beginning as a high school freshman with the appropriate support

and a well-structured program (Smith, Fischetti, Fort, Gurley, & Kelly, 2012).

The target population of early college high schools is students who struggle transitioning into postsecondary education and are underrepresented in colleges and universities (Barnett et al., 2013; Edmunds, 2012). This includes students who are first generation college goers, English language learners, economically disadvantaged or low-income, and minority students of color (Barnett et al., 2013; Edmunds, 2012; Nodine, 2009). “In the Early College model, it’s less about which students you admit and more about what you offer them” (Barnett et al., 2013, p. 7).

Early College Design Principles

Since the target population for early colleges is comprised of first generation, low-income, and underrepresented students, the model is based on providing academic and affective supports as well as providing students opportunities (Barnett et al., 2013). Early college design principles are based mainly on the Middle College National Consortium Early College High School core principles:

Core Principle 1: Early college schools are committed to serving students underrepresented in higher education.

Core Principle 2: Early college schools are created and sustained by a local education agency, a higher education institution, and the community, all of whom are jointly accountable for student success.

Core Principle 3: Early college schools and their higher education partners and community jointly develop an integrated academic program so all students earn one to two years of transferable college credit leading to college completion.

Core Principle 4: Early college schools engage all students in a comprehensive support system that develops academic and social skills as well as the behaviors and conditions

necessary for college completion.

Core Principle 5: Early college schools and their higher education and community partners work with intermediaries to create conditions and advocate for supportive policies that advance the early college movement. (Barnett et al., 2013, pp. 3-4; Nodine 2009, p. 7)

The early college high school model provides students with the opportunity to earn a high school diploma and an associate in arts and/or associate in science degree in compressed time, 5 years instead of the traditional 6. Students earn 2-year college degrees at minimal or no cost to their families. Early colleges demand rigorous work and high expectations of students, but the high schools provide preparation, motivation, and comprehensive support to equip students to be successful (Nodine, 2009).

The North Carolina New Schools Project, an original partner organization with the Gates Foundation, used the early college core principles to refine the work of the early college into “design principles.” The design principles include the following: powerful teaching and learning, personalization, redefining professionalism, purposeful design, leadership, and college readiness (Pascopella, 2011).

The powerful teaching and learning principle requires teachers to create lessons that develop critical thinking, application, and problem-solving skills in all students. Teachers have expectations of themselves and others that instructional practices will be rigorous and high quality (Pascopella, 2011).

Personalization is about developing good student teacher relationships. Teachers understand that knowing students well is an important part of their success in school. “These high schools ensure that adults leverage their knowledge of students in order to improve student

learning” (Pascopella, 2011, p. 2).

Redefining professionalism includes collaboration among teachers, distributive leadership, and developing the capacity of all teachers (Pascopella, 2011). Early college principals cultivate a shared leadership model with teachers and support staff allowing them to make decisions and take ownership of school improvement (Hoffman & Vargas, 2010).

Purposeful design is the way the school is organized. “The organization of time and space and allocation of resources ensure that the best practices become common practice” (Pascopella, 2011, p. 2). All components of an early college are driven by the purposeful design to graduate all students ready for college and career (Edmunds, 2012).

Leadership is focused on a shared vision and mission for the school. Administrators are change agents who emphasize sharing leadership in order to improve student results and holding high expectations for all (Pascopella, 2011). One of the primary design features of the early college model is the distributive leadership that empowers teachers to make decisions (Barnett et al., 2013).

College readiness in the early college high school is based on the understanding that the mission of the school is to prepare all students for college and career. They maintain high expectations for all students which eliminates sorting and tracking based on ability. Early colleges promote a “college going culture” (Barnett et al., 2013, p. 19). Students are given the opportunity to live in the college world by locating the early college on a community college or university. Additionally, students are given access to the college campus such as dining halls, tutoring centers, college library, and student centers. As a result of these opportunities, students see themselves as college students (Barnett et al., 2013).

Effectiveness of the Early College Model

The (early college) initiative is based upon a “theory of change”: by changing the structure of the high school years, compressing the number of years to a college degree, and removing financial and other barriers to college, early college high schools have the potential to improve high school graduation rates and better prepare traditionally underserved students for family supporting careers. (Webb, 2004, p. 4)

Due to the recent development of the early college model, within the last 15 years, the research is scant. According to Edmunds (2015), a researcher for the SERVE Center at the University of North Carolina at Greensboro, “As a relatively new intervention, early colleges have a limited but growing research base” (p. 7). Beyond the national evaluation commissioned by the Bill and Melinda Gates Foundation, much of the research is small scale or qualitative studies including dissertations (Edmunds, 2015).

Although the Gates Foundation has a strong interest in early colleges due to their financial support, the study the foundation commissioned to be conducted by the American Institutes for Research in 2013 is the largest national evaluation of early colleges. The study focused on the impact of 10 early college high schools across the United States that enrolled students in Grades 9-12 and conducted a lottery admission process. The study compared high school graduation rates, college enrollment, and college degree attainment for the students who were enrolled in the early colleges to the students who applied but were not offered enrollment in the early college high schools through the lottery process. Since the target population of an early college is first generation, economically disadvantage, and underrepresented students, most of the students in this study are at risk.

The study found that 81% of early college students enrolled in college, while only 72% of the comparison students (at-risk) enrolled. Additionally, 25% of early college students earned a

postsecondary degree compared to only 5% of the comparison students, at-risk students who applied to early college but were not offered enrollment through the lottery (Berger et al., 2014).

The study expanded its analysis to include the impact based on student background. Results revealed that 29.4% of minority early college students earned a college degree compared to 3% of the comparison minority students. Low income early college students were 8.5 times more likely to obtain a college degree, 22.1% to 2.6%, of the low-income comparison students.

According to Berger et al. (2014), the data indicate, “Early Colleges in our sample were highly effective in getting students on the path to a college degree” (p. 21). These early college students are at-risk students who are first generation, low socioeconomic, and underrepresented in colleges and universities. There are still questions about the long-term impact of early colleges; however, the impact of accelerated college completion without tuition costs affects students and their families. Early college graduates earn degrees earlier, enter the workforce sooner, and have the potential to earn additional lifetime income (Berger et al., 2014).

In 2011, JFF published a national study of the early college graduating classes of 2007, 2008, and 2009. The findings include that 24% of the 2009 graduates who were enrolled in the early college high school for 4 years earned an associate’s degree or 2 years of college credit, and 44% earned 1 year of college credit. Of the 2009 4-year early college cohort graduates, 73% enrolled in college the next year compared to 69% of traditional high school graduates enrolling in college the year after graduation. According to National Student Clearinghouse data, 86% of 2010 early college graduates enrolled in postsecondary education following graduation (Webb & Mayka, 2011).

Kaniuka and Vickers (2010) conducted a mixed-methods case study of Cross Creek Early College (CCEC) in North Carolina “to determine to what degree the school is affecting student

performance and attempt to develop some understanding as to why” (p. 167). They used a two-way chi-square analysis to compare the Cross Creek students to traditional high school students. The qualitative data were comprised of an online survey administered to early college seniors and teachers.

The results of Kaniuka and Vickers’s (2010) study showed the early college students performed significantly better than traditional high school students. CCEC had 89.8% of their students pass Algebra I compared to 77.9% of the traditional students; and 99.8% of CCEC students passed English I compared to 85.3% of the traditional students. Additionally, the achievement gap was much narrower in Cross Creek. The average achievement gap at CCEC was 8%, whereas the traditional high school achievement gap was 25.5%.

Of Cross Creek’s 61 seniors, 31 responded to Kaniuka and Vicker’s (2010) survey. The central theme of the student surveys was that Cross Creek was a caring and student-centered school. One student wrote, “Relationships are just as important as academics” (Kaniuka & Vicker, 2010, p. 174). The student surveys consistently said that the school was successful because the teachers exhibited the following behaviors: caring, treating students as individuals, and getting to know the students. The idea of a family was another reoccurring theme. Students used words such as “home away from home, and family” (Kaniuka & Vicker, 2010, p. 175).

Teacher surveys echoed student surveys of strong relationships and support. One teacher’s comments summarized the theme:

CCEC provides an educational environment that encourages learning beyond what traditional high schools offer. Teachers are willing to employ all types of strategies and accommodations to improve the learning environment for all students. Students are presented with a rigorous curriculum and equal amounts of support to be successful

student within the program. (Kaniuka & Vickers, 2010, p. 176)

Kaniuka and Vickers (2010) concluded that CCEC students are performing better academically than their traditional high school peers; however, the surveys revealed improving student achievement goes beyond revamping the curriculum. “The difference as seen in CCECHS is how the dynamic between teacher, student, and curriculum can manifest itself in superior academic performance” (Kaniuka & Vickers, 2010, p. 180).

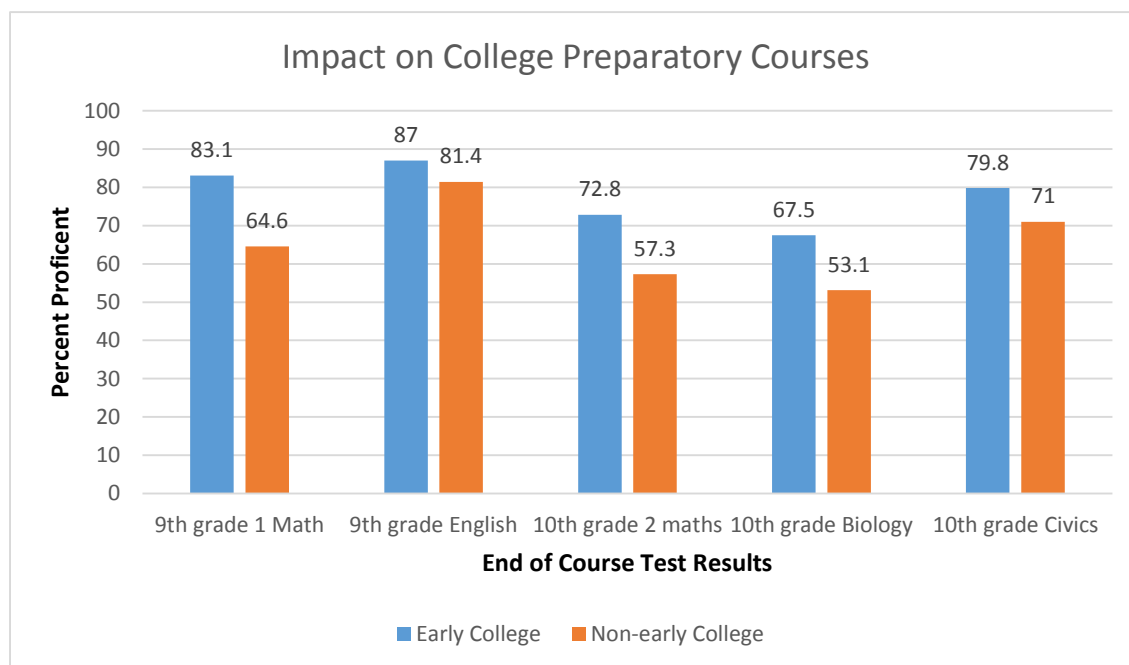
Thompson and Ongaga (2011) also studied one early college in North Carolina, Hudson Early College High School, to offer insight into student and teacher relationships and challenges. The descriptive single case study collected data in the form of individual and focus group interviews of students and teachers. Two themes emerged: caring relationships and teacher constraints. The results revealed that relationships, student to student and student to teacher, were personalized and promoted a positive culture of social and academic success; however, survey data revealed that the teachers faced the same challenges of traditional high school teachers. They felt the same pressure of state tests while teaching diverse learners with a variety of learning abilities. Early college teachers had the additional stress of a new school philosophy and structure in the old traditional mind-set of the school district. The teachers expressed frustration over the message to innovate but within the limitations of the district rules.

Other implications were raised by Thompson and Ongaga’s (2011) study. Early colleges target underrepresented students who includes minorities and economically disadvantaged students. During the interviews, African-American students expressed the need to hire more teachers of color at the school. Another theme that emerged was a concern of rigor and workload. Several students expressed that the rigor and group project work can be overwhelming and not all students succeed academically. Since the early college does not offer

high school electives but only college courses, structures could be added to support students who struggle. The study revealed that early college teachers wanted and needed more professional development to implement the innovative ideas of early college (Thompson & Ongaga, 2011).

The SERVE Center, a university-based research center, conducted a longitudinal study to review the impact the North Carolina early college model. The study compared early college students who were admitted from a lottery process to the group of students who applied but were not accepted in the lottery process. Edmunds (2012) studied ninth and tenth grades for a total of 715 students in both the treatment and control growth in six North Carolina early colleges. The results shared in this 2012 report only have data for the ninth and tenth grade. Edmunds continued to follow this group through high school and released final results in a second study in 2015.

Edmunds's (2012) results revealed that more early college students passed the state EOC tests in the following subjects than non-early college students: English I, biology, civics and economics, and two math courses by tenth grade. Figure 1 illustrates that early college students earned higher EOC proficiency scores than non-early college students.



Figure

1. Impact on High School College Preparatory.

Source: (Edmunds, 2012).

Additional data from Edmunds's (2012) study revealed that early colleges in North Carolina have a significant impact on factors that help students remain in school. In the study, early college students were absent an average of 1.3 fewer days than the comparison group. They were also suspended half as much as the control group. Early college students had a 6.5% suspension rate compared to 13.1% suspension rate for non-early college students. The early college students remained in school with 96% enrolled in a North Carolina public school in tenth grade compared to 89% of the comparison group (Edmunds, 2012).

Edmunds (2012) also interviewed students and staff to understand how the model is purposefully designed to prepare students for college. Interviews revealed that all high school courses are taught at the honors level with high expectations. One early college student stated, "In high school classes, they go harder so when you take the college classes, it'll go easier, so it'll be much easier for you" (Edmunds, 2012, p. 86).

Qualitative data also revealed that high school courses are aligned to college with syllabi and college objectives. Students are also provided supports to help them interact with adult college students and instructors. Study skills, time management techniques, and college logistics are taught as part of the curriculum to prepare students to be independent in college courses (Edmunds, 2012).

One early college student discussed the difference in dual enrollment at a traditional high school versus attending early college on a college campus.

The thing with high school is...you're in high school and you're taking some college classes, too. Here in the early college you are in college. This is like the end of the beginning...so then it just opens up a new pathway for us to keep going. (Edmunds, 2012, p. 88)

Edmunds (2012) concluded, "This approach seems to be working well, as early colleges have been having a substantial positive impact on a variety of outcomes associated with college readiness" (p. 88). Edmunds (2015) released the final results of this study indicating that early colleges are succeeding in expanding access to college. There were five major findings.

First, more early college students were taking college preparatory classes on schedule. In ninth grade, 92% of early college students were on the college prep schedule compared to 85% of the control group. In tenth grade, 88% of early college students were on schedule compared to 73% of the control group. In eleventh grade, 82% of early college students were on schedule compared to 74% of the control group. In twelfth grade, 77% of early college students were on schedule compared to 68% of the control group (Edmunds, 2015).

The second finding showed that early college students earn an average of 22 college credits while in high school compared to three college credits earned by non-early college

students.

The third finding from Edmunds' (2015) study demonstrated 83% of early college students graduated compared to 79% of the control group.

The fourth finding indicated that more early college students enroll in college. Since early college students are enrolled in college while in high school, the study included 2 additional years beyond high school to allow the non-early college students an opportunity to enroll beyond high school. Early college students enrolled in college at an 89% rate compared to 74% of non-early college students. This is a significant 15 percentage points higher for early college students (Edmunds, 2015).

The final finding of Edmunds's (2015) study revealed that early colleges develop a culture that focuses explicitly on college readiness. The qualitative data of interviews, surveys, and site visits confirmed that early colleges focus on the mission of preparing all students for college. Early colleges provide study skills, time management, and college logistics as well as critical thinking and writing skills. "Students reported that they felt very prepared for college because of their early college experiences" (Edmunds, 2015, p. 5).

In 2009, Smith studied the effects of the early college model as it relates to teaching and learning comparing early college students to comprehensive high schools. Smith used a nonexperimental design (ex post facto) study with a control group of comprehensive high school students and a comparison group of early college students. The sample was comprised of students from three comprehensive high schools and one early college high school. He collected student work samples from English and social studies teachers to evaluate. Work samples included discourse, products, and performance beyond standardized test scores. Teachers submitted assignments and they were scored using rubrics. Smith collected samples from 30

teachers and 494 students from early college high school and comprehensive high schools.

The results revealed that early college students had higher authentic intellectual responses than comprehensive high school students. This suggests that the level of work was higher in the early college. The findings also suggest that the early college principles of powerful teaching and learning positively impacted student performance (Smith, 2009). Smith (2009) concluded,

Teachers must be willing to take risks and learn new teaching practices and be open to input from colleagues. In this study, teachers in early college high schools had less experience as a group, but created assignments that were more sophisticated, and their students created work that was more sophisticated. (p. 165)

Of the limited research available, most of it focuses on student achievement and student perspectives. Rice (2011) completed a research study from the principal's viewpoint. Rice conducted interviews of 12 early college high school principals. All principals selected followed the early college design principles and implemented the common instructional framework. The sample represents 12 of the 13 original North Carolina early college high schools (Rice, 2011).

The purpose of Rice's (2011) study was to understand principal perceptions of the effectiveness of the early college model. The following themes emerged from the interviews as significant factors contributing to the success of early college students.

- The location of the early college on a college campus.
- Beginning in the ninth grade with a college mind-set and reviewing academic growth throughout high school.
- Providing academic and social supports are important.
- College access to services for students on the college campus such as college tutoring labs.

- Student attitudes and being intrinsically motivated.
- Positive, strong, and sustainable relationships between staff and students.
- Leaders building relationships with staff and collaborating on decisions – empowering teachers.

Results revealed these 12 principals were risk-takers with a passion for innovation (Rice, 2011). Rice (2011) concluded, “Early college high school leaders were change agents who have shifted the paradigm to a culture of empowering teachers, students, parents, and communities all across the state of North Carolina” (p. 122).

While much of the research is yielding positive results for early college students, there are some negative implications. Alaie (2011) conducted a case study of one group of early college students in a large introductory college biology course. Urban College opened Urban High School in 2003 with a grant from the Gates Foundation. This case study of 37 early college high school students who enrolled in a 700-student college lecture biology course followed their progress. The students scored proficient on a state Living Environment exam that indicated their preparedness for the college course. College staff expressed concern that the students would struggle in a large 700-student class because they were accustomed to relationship-based instruction at the early college (Alaie, 2011).

The course did not have weekly assignments and the instructor did not take attendance at the lectures. The first assignment was an exam scheduled 5 weeks into the course. Of the 37 early college students, 31 failed the first exam. Many of them appeared to lose interest in the course after suffering a failing grade. The second exam reflected a similar result with 33 failing. The students had one exam remaining that counted for 50% of the course grade. The instructor offered an extra credit essay worth 10% so the students could salvage 60% of the grade. A total

of 11 of the 37 early college students did not complete the extra credit essay. The final exam yielded the following: three early college students did not show up to take it, and 29 failed it. Final course grades were as follows: 24 early college students earned an “F,” seven earned a “D,” four earned a “C,” and two earned a “B” (Alaie, 2011).

Urban College guaranteed college acceptance to the early college students. Of the 37 early college students, only nine elected to matriculate to Urban College. After their first semester, the highest GPA of the nine was 2.87, five of the nine earned less than 1.0 GPA, and one student was withdrawn with a 0 GPA (Alaie, 2011).

The transition from high school to college is difficult, especially for first generation students. According to Alaie (2011), this case study demonstrates that “ways must be found to ensure consistent class attendance and to support the students in the transition of responsibility for learning from teacher to themselves” (p. 436).

Another early college study that included science courses yielded less than positive results. Miller and Corritore (2012) studied 33 early colleges in North Carolina to measure the effect on student progression through the math and science high school courses. The study focused on early college students’ successful completion of a sequence of college preparatory math and science courses. In order to demonstrate college readiness, it is important that students successfully complete four math and science courses in order to avoid falling behind. The study revealed that early college students progress through the math course sequence at a higher rate than students statewide; however, they fall behind in science after the 10th grade (Miller & Corritore, 2012).

Over 90% of early college students take three high school math courses by the end of eleventh grade compared to only 70% of traditional high school students; however, early college

students are 16.1 percentage points less likely to have taken two high school science courses by the end of the eleventh grade than the traditional high school student. By the end of the twelfth grade, early college students are 10.8 percentage points less likely to have taken three high school science courses compared to traditional high school students. Thus, attending an early college has a nil to negative effect on science course completion. Since many early colleges have a thirteenth grade, many students may complete their science course sequence in the thirteenth grade (Miller & Corritore, 2012).

Miller and Corritore (2012) admitted that the early college model changes the high school experience, but it also changes the college experience. They raised concerns that accelerating the time for attaining a college degree may adversely affect students. Attending a university for 2 years as opposed to the traditional 4 years may negatively impact social and professional networks that students develop in a traditional 4-year college experience (Miller & Corritore, 2012).

While the focus of this study was the effect of early college principles and strategies on high school students, there has been at least one study on the impact of adult college students. While this may not seem applicable, it is. If colleges decide that the presence of early college high school students are negatively impacting their adult learners, it could have serious implications for the continuation of early colleges.

Williams and Southers (2010) studied the impact of high school students on the learning environment of adult students at the community college. A survey with a Likert scale was developed and sent to 38 community college chief academic officers (CAO) who host early college high schools. Additionally, they interviewed three CAOs. The findings were as follows:

- Over 90% of respondents said the early college did not hinder their ability to fulfill

the mission of the community college.

- Over 60% of respondents said the early college helped their college fulfill its mission.
- Eighty-eight percent said the early college created space problems.
- Fifty-eight percent cited discipline problems with early college students.
- Seventy-five percent were aware of adult student complaints about the presence of early college students (Williams & Southers, 2010).

While the community college CAOs supported the early college high schools, they admitted that there were concerns with the adult learners. Most agreed that ideally the early college students should be separated from the adult learners to eliminate negative effects on the adult learning environment (Williams & Southers, 2010).

According to NCDPI, early colleges are producing results. As of 2015, 95% of early colleges have outperformed the state average cohort graduation rate. In addition, many North Carolina early colleges have a 100% graduation rate. In EOC state testing, 90% of early colleges have met or exceeded growth, and 91% of early colleges received an A or B state school performance grade (Lake, 2016).

Early College as a Reform Model

Early college high schools are “purposefully designed to ensure that students are ready for college” (Edmunds, 2012, p. 81). The early college model is aligned with strategies that have been proven to work for high school reform. The model includes the small, personalized learning community; strong personal relationships; rigorous curriculum of dual enrollment with high expectations for all students; and implementation of the Common Core Standards as directed by each individual state. Some early colleges even have a specific career focus as related to career academies.

Additionally, the early college high school model implements most of the strategies mentioned in the college readiness research that expands beyond academic preparation. Early college high schools are incorporating key aspects of college readiness including academic, social, and emotional support; study skills; time management; self-monitoring of work; and dual enrollment in rigorous college courses (Edmunds, 2012).

Summary

Data show traditional comprehensive high schools are not adequately preparing students for college and career. Following *A Nation at Risk*, a multitude of high school reform strategies have been implemented over the past 3 decades to improve schools with an emphasis on preparing graduates for college and career.

The early college model has data to indicate success in the area of student academic performance, graduation rates, college enrollment, and college degree completion. This study investigated the feasibility of replicating the early college model in whole or in part at traditional, comprehensive high schools.

Chapter 3: Methodology

Early college high school is a relatively new high school reform model that began in 2002. The purpose of this study was to examine the feasibility of the implementation of early college high school principles and strategies into traditional comprehensive high schools as a reform model.

Since traditional high schools are not adequately preparing students for college and career, educators are continually searching for a reform strategy or model. Traditional comprehensive schools have high drop-out rates, low academic achievement, and too many graduates taking college remediation courses (Alliance for Excellent Education, 2015; Civic Enterprises, 2015). Early college high schools have demonstrated success. In a study conducted by SERVE, Edmunds (2012) concluded, “This (early college) approach seems to be working well, as early colleges have been having a substantial positive impact on a variety of outcomes associated with college readiness” (p. 88).

The research study was designed to answer the following questions about the implementation of early college design principles and strategies in traditional high schools.

1. Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college high school strategies and design principles?
2. What are the traditional high school teachers’ perceptions of the impact of early college strategies and design principles?
3. What are the traditional high school principals’ perceptions of the impact of early college strategies and design principles?

Methodology

The researcher conducted a study using mixed methodology. “Mixed methods research is used only when we address research problems which have objective and subjective elements in its manifestation” (Ponce & Pagan-Maldonado, 2014, p. 115).

Mixed methods research has become a good approach for educational research. Education is both objective and subjective by nature. It is difficult to determine the actual cause and effect of student achievement because so many factors can impact a student’s success or failure.

Convergence design using parallel phases was the mixed-method approach used in this study (Ponce & Pagan-Maldonado, 2014). The researcher collected qualitative data with surveys and interviews that provide the subjective component, the perspective of teachers and principals. The quantitative data were the graduation rates, student performance and growth rates on North Carolina EOC tests, and number of college courses completed in the years 2012-2016. The qualitative data revealed the perceptions of the teachers and principals of the experiences they were providing students through personalization, teaching and learning, professionalism, leadership and purposeful design, and college preparedness. The quantitative data allowed the researcher to compare the means of EOC test scores, student growth, graduation rates, and college completion in the high schools before and after the implementation of early college design principles and strategies. The qualitative data provided information about the teachers’ and administrators’ thoughts and beliefs on the implementation of early college design principles and strategies and its impact on students.

Research Context

In 2011, North Carolina New Schools, the early college high school reform organization, began an initiative known as the Rural Innovative Schools. The purpose was to expand college

readiness and reduce dropouts by applying early college high school strategies into 18 existing traditional high schools in low-wealth districts in North Carolina (Edmunds, Coyle, Klopfenstien, Mathis, & Clemons, 2016). Each high school began implementing the early college high school six design principles: college readiness, powerful teaching and learning, redefined professionalism, personalization, purposeful design, and leadership. Each school received coaching and professional development for all teachers and principals. Additionally, staff members visited successful early colleges and worked to implement the same strategies in their schools. According to Edmunds, Coyle et al. (2016), drop-out rates have decreased, graduation rates have increased, and more students are completing college courses in these Rural Innovative Schools.

Participants

Despite the dissolution of North Carolina New Schools in the spring of 2016, two school districts that participated in the Rural Innovative Schools Initiative have continued to implement the early college design principles. The researcher selected these districts because the high schools have demonstrated an increase in graduation rates and student growth on North Carolina EOC tests since 2012, when the Rural Innovative Initiative began. The two districts were also similar in size and demographics.

District A is located in northwestern North Carolina on the Virginia border next to two metro areas. Despite the county's close proximity to two large cities, it is a rural district. The county has three school districts including the county school system and two separate small city school districts. District A is the county school system that serves approximately 8,500 students in 17 schools with three traditional high schools. According to Edmunds, Henson, Naumenko, Hutchins, and Lewis (2016) two of the three traditional high schools in District A were a part of

the original Rural Innovative Schools Initiative and is included in this study.

School A1 participated in the Rural Innovative Initiative from 2013-2016. It has an enrollment of approximately 650 students with 48% receiving free or reduced lunch. The school employs 41 teachers, and 71% have 10 plus years of experience. The teacher turnover rate is 14%.

School A2 was the first high school in the district to participate in the Rural Innovative Schools Initiative beginning in 2012 until 2016. It has an enrollment of approximately 850 students with 57% receiving free or reduced lunch. The school employs 56 teachers, and 60% have 10 plus years of experience. The teacher turnover rate is 8%.

District B is located in the foothills of western North Carolina. It serves approximately 8,500 students in 19 schools. It is a rural district with no large cities in close proximity. The district has three traditional high schools, all of which were a part of the Rural Innovative Initiative. It is a technology-focused district where all students have access to a technology device; kindergarten through Grade 12 have 1:1 access. The district was recognized as an Apple Distinguished Program for its integration of Apple technology into instructional best practices in 2015-2016. Another distinguishing characteristic is that under universal access, all students have access to free breakfast and lunch each day.

School B1 was in the original cohort of Rural Innovative Schools in 2012. It has an enrollment of approximately 740 students. The school employs 47 teachers, and 62% have 10 plus years of experience. The teacher turnover rate is 9%.

School B2 joined the Rural Innovative Schools in the second year in 2013. It has an enrollment of approximately 795 students. The school employs 50 teachers, and 60% have 10 plus years of experience. The teacher turnover rate is 15%.

School B3 also joined the Rural Innovative Schools in the second year in 2013. It has an enrollment of approximately 830 students. The school employs 61 teachers, and 61% have 10 plus years of experience. The teacher turnover rate is 10%.

The study included these five high school principals and a total of 255 high school teachers. Participation in the study was voluntary. All five principals were invited to participate in the interviews. Interviews were designed to be conducted by phone or in person.

Instruments

The instrument used in the study was a digital survey (Appendix A). The researcher received permission to use the survey from its developer. The survey questions were generated from an existing survey, The Early College High School Staff Survey, created by researchers at SERVE Center of UNC Greensboro and used with permission (Appendix B). SERVE is a university-based research center that conducts research and project evaluations for states, districts, and schools. The goal of SERVE is to improve education with research and data. The survey was used by SERVE researchers in several studies evaluating the success of early college high schools in North Carolina. The survey asked early college high school teachers specific questions about the implementation of the following early college design principles: leadership and purposeful design, powerful teaching and learning, personalization, and redefined professionalism. The Early College High School Staff Survey was used and validated in the *Study of the Efficacy of North Carolina's Learn and Earn Early College Model* (Dodge, 2010).

The survey used by the researcher was adapted from the original version using the online program, Survey Monkey. The survey collected demographic information including the teacher's high school, subject area taught, and years of experience in education. It gauged the teacher perceptions of the implementation of early college strategies in their high school. The

survey consisted of 30 questions that focused on the following early college design principles: leadership and purposeful design, powerful teaching and learning, personalization, and redefined professionalism.

The survey questions used a 4- or 5-point Likert scale for teacher responses. Teachers were asked to reflect the degree they agree or disagree regarding personalization and development of relationships with students. Additional questions asked teachers to gauge the frequency they collaborate with colleagues and participate in professional dialogue. Teachers were asked the frequency they use innovative early college instructional strategies such as collaborative group work, writing to learn, and classroom talk. Teachers were given a choice of never, a few times, once or twice a month, once or twice a week, or almost every day. Finally, educators were asked to evaluate the beliefs of teachers in the school, such as teachers believe good teaching is important. Their choices are not true at all, somewhat true, mostly true, or entirely true.

The purpose of the survey was to determine the impact of the early college design principles and strategies on student achievement, student growth, and college readiness. The results of teacher surveys provided evidence of the fidelity of implementation and use of the early college design principles.

The results of the survey were used to develop interview questions for the principals. The interviews included questions about the administrators' background including information such as tenure at current school, years of administrative experience, and involvement in the planning of the implementation of early college principles and strategies. Each traditional high school principal was invited to be interviewed to determine his or her perceptions of the early college design principles as a reform model, the impact of the early college principles on student

achievement, and the successes and challenges of implementation.

Procedures and Data Collection

Prior to beginning the study, the researcher contacted the superintendents of District A and District B for permission to use the schools in the study. Once IRB approval was received, formal approval was received from both school districts (Appendices C and D).

The researcher collected the quantitative data of student achievement, student growth, and graduation rates from NCDPI using the North Carolina School Report Cards. The college course completion data were collected from each school district and individual high school.

The researcher distributed consent forms to the staff members of the five high schools as a part of the electronic survey, and submission of the survey was agreement to the informed consent. The consent form included an explanation of the study with a commitment that it was voluntary and confidential. The surveys were emailed to the teachers and principals at the five traditional high schools. Once the survey results were reviewed, the researcher generated interview questions based on the emerging themes to use with the five principals. The researcher included interview questions such as principal's view of early college design principles, perception of the impact of the principles, and suggestions for continued implementation of the principles. All principal interviews were recorded and then transcribed for accuracy.

Data Analysis

The researcher analyzed data for each high school from 2012 to 2016. The EOC proficiency and achievement data, student growth data, and graduation rates were collected from NCDPI School Report Cards. The college course completion rates were collected from each district and individual high school. Research Question 1 was answered by comparing the means of the data from 2012, before implementation of early college design principles and strategies, to

2016, 4 years following implementation.

Comparisons of the EOC proficiency mean calculated by NCDPI were made for each of the five high schools for each year including 2012, 2013, 2014, 2015, and 2016. Since 2012-2013 was an EOC test renorming year, it was necessary to include additional years in the comparison. The researcher completed statistical analysis through Statistical Package for the Social Sciences (SPSS) to compare the data. *T* tests were conducted to compare the mean of the EOC scores for each high school.

Student growth data were calculated beginning in 2014 by NCDPI. The researcher compared the mean of student growth for each of the five high schools for the years 2014, 2015, and 2016.

Additionally, the graduation rates for each high school were compared in each individual school to determine if a change has occurred within each school since the implementation of early college design principles and strategies.

Also, comparisons of the data of the five schools were included. *T* tests were conducted to compare the means of EOC test results, student growth data, and graduation rates between the five high schools to see the different impacts that early college strategies had in comparison at each high school.

Finally, the mean of the number of completed college courses was calculated using individual school data compiled by the school and/or district. The college course rates were compared by each high school and between high schools. The original intent of the implementation of early college design principles and strategies was to improve graduation rates and increase college course completion. Comparison of college course completion means for each individual school and between the five schools allowed the researcher to see the different

impact of the strategies. *T* tests were conducted in comparing the mean of the college course completion of the different high schools.

Research Question 2 was answered using teacher survey data. The researcher analyzed the survey data for each school separately to determine the statistical significance of the implementation of the following early college design principles: leadership and purposeful design, powerful teaching and learning, personalization, and redefined professionalism. The researcher completed statistical analysis of the survey data through SPSS to find the average scores and mean for each of these three subscales by teacher content area taught, years of experience, and teacher's school in each of the selected early college design principles. Each question response was assigned a value of 1-4 or 1-5 depending on the answer choices. Some of the questions' responses were a 4 scale and others were a 5 scale. For example, teachers were asked to determine the frequency that they ask students to defend their own ideas or point of view in writing or discussion. The response choices were never, a few times, once or twice a month, once or twice a week, or almost every day. This question response had a value of 1-5 respectively.

Statistical analysis included a one-way ANOVA test which provided information to assist the researcher in identifying statistically significant responses in the surveys. Then the researcher created a table of each analysis by school followed by an explanation of the statistical significance or lack thereof. The researcher analyzed the surveys of each high school by design principles based on teacher content area and years of experience. Chapter 4 includes a table for each of the five schools for each of the four design principles by teacher content area and years of experience.

Methodological triangulation of the data was used to answer Research Question 3 by

analyzing principal interviews to compare and contrast patterns. A frequency table was created for coding key words, similar ideas, reoccurring responses, and common themes as pertained to implementation of early college principles as described by the school administrators in the interviews. The data provided the researcher with information about the school administrators' perceptions of the implementation of early college principles, the impact on his or her school, and the successes and challenges of implementation.

Delimitations of the Study

1. Sample only included schools that have used early college design principles with support and coaching from New Schools Project.
2. Sample only included five North Carolina traditional high schools that have previously implemented early college design principles and strategies.

Limitations of the Study

1. The researcher did not have any control over the number of teachers who responded to the voluntary survey.
2. Student growth data analysis was limited to the brief number of years the data were available.

Summary

Mixed-methods research was used to gain insight into teacher and principal perceptions of the implementation of early college design principles in traditional high schools while providing statistical data to evaluate the use of early college as a reform model. Using this approach, the researcher was able to answer the three research questions. Results of the study are discussed in Chapter 4.

Chapter 4: Results

Introduction

The purpose of this study was to examine the feasibility of the implementation of early college high school principles and strategies into traditional comprehensive high schools as a reform model.

The study's population was originally designed to include five traditional high schools in two separate school districts which were a part of the North Carolina New Schools Rural Innovative High Schools Initiative. District A is located in northwestern North Carolina, and District B is in the foothills of western North Carolina. The two districts are similar in size and demographics. Both districts are considered rural serving approximately 8,500 students each.

Edmunds, Henson et al. (2016) only included two of the three high schools in District A. There was no mention of the third high school participating in the Rural Innovative project in the evaluation report; therefore, the researcher concluded only two of the three high schools participated. However, further investigation revealed that all three traditional high schools in District A were involved in the Rural Innovative Initiative. District A assistant superintendent said all three high schools participated in the Rural Innovative Initiative and implemented early college design principles between 2012-2016. Thus, the decision was made to include the additional high school from District A in order to conduct a complete analysis. For the purposes of this study, the third high school in District A is labeled School A3.

School A3 participated in the Rural Innovative Initiative from 2013-2016. It has an enrollment of approximately 800 students with 54.8% receiving free or reduced lunch. The school employs 53 teachers, and 55% have 10 plus years of experience. The teacher turnover rate is 9.5%.

Of the six principals, only five agreed to be interviewed. All five principals were offered a face-to-face interview or phone interview, but all elected to participate in a phone interview. The principal of School B1 sent the survey to the school staff but did not grant an interview. The principal of School A2 granted an interview but did not send the survey to the school staff. Since School A2 did not have staff survey data to analyze and compare to test scores, growth, and graduation rates, the school's quantitative data were excluded from analysis. The data analysis is comprised of five high schools as the study originally intended; however, Principal A2's interview was intentionally included.

Methodology

The research method used was a mixed-methods study containing both quantitative and qualitative data collection and analysis. Since education is both objective and subjective by nature, it is difficult to determine the actual cause and effect of student achievement. Therefore, a mixed-methods study was a good approach to include both types of data.

The results of the study have been presented by each research question in sequential order. The research was guided by the following questions about the implementation of early college design principles and strategies in traditional high schools:

1. Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college high school strategies and design principles?
2. What are the traditional high school teachers' perceptions of the impact of early college strategies and design principles?
3. What are the traditional high school principals' perceptions of the impact of early college strategies and design principles?

Analysis of Research Question 1

Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college high school strategies and design principles? The research question was answered by analyzing the EOC proficiency scores, student growth data, graduation rates, and college course completion data for the high schools during the years that the traditional schools implemented early college strategies from 2012-2016. The EOC proficiency scores, student growth data, graduation rates, and college course completion rates were only available in the form of summary data. Using SPSS, *t* tests were conducted; however, the lack of the number of subjects and the standard deviation for EOC proficiency scores, student growth data, graduation rates, and college course completion rates would not allow the researcher to conduct additional *t* tests to analyze the data statistically.

EOC proficiency data. The EOC proficiency data were analyzed for the years 2013-2016. Since the curriculum changed in 2012-2013 to Common Core, the EOC tests changed; therefore, the EOC proficiency data for 2012 was eliminated from the analysis.

Tables 2 and 3 show the results of a paired sample *t* test for the five high schools' mean EOC proficiency data for the years 2013 and 2016. A paired sample *t* test was conducted to compare EOC proficiency from the beginning of implementation of early college design principles in 2012-2013 to the end of the formal implementation in 2015-2016.

Table 2

High Schools EOC Proficiency Rates 2013 and 2016 Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Proficiency16	53.6400	5	5.81919	2.60242
	Proficiency13	41.5800	5	12.76605	5.70915

Table 3

Paired Samples t Test of the Five High Schools EOC Proficiency Scores

	Mean	Std. Deviation	Paired Differences			T	Df	Sig (2 tailed)
			Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
EOC Rate 16- EOC Rate 13	12.06000	9.99215	4.46862	-.34689	24.46689	2.699	4	.054

The paired sample t test was conducted to compare the means of EOC proficiency for all five high schools for 2013 and 2016. The t test, $t(4)=2.699$, $p=.054$, showed that there was no significant difference between the overall EOC proficiency rate means for the five schools between the years 2013 and 2016.

Figure 2 shows the EOC proficiency data for each high school for the years 2013-2016.

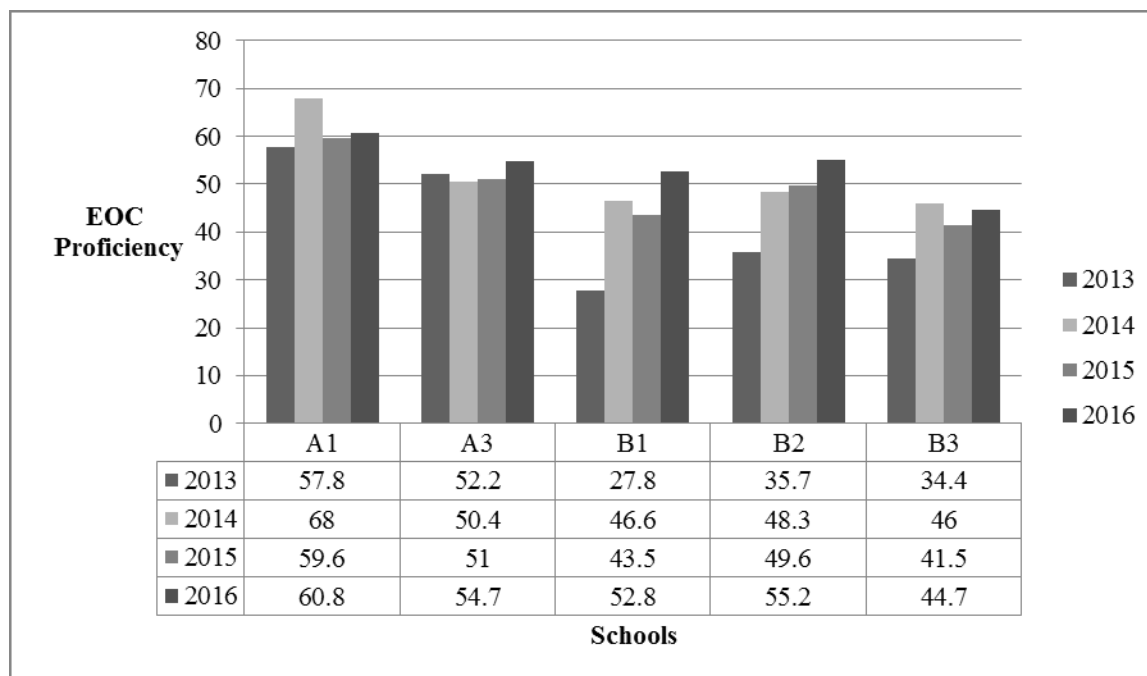


Figure 2. EOC Proficiency for Each High School.

All five schools included in the data analysis have increased EOC proficiency rate means from 2013 to 2016; however, there has been fluctuation in the proficiency rate means at Schools A1, A3, B1, and B3. School B1 had the highest increase from 2013 to 2016 from 27.8 to 52.8. School B2 had an increase each year; however, there is no way to isolate the early college design principles as the reason for the increases.

Student growth data. NCDPI began calculating student growth in 2014. Tables 4 and 5 show the results of a paired sample t test for student growth for the five traditional high schools for the years 2014 and 2015. A paired sample t test was conducted to compare student growth for 2014 and 2015.

Table 4

Paired Samples Statistics Growth 2014 and 2015

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Growth15	70.2200	5	11.30562	5.05603
	Growth14	73.2000	5	13.39142	5.98882

Table 5

Paired Samples t Test of the Five High Schools Growth Rates 2014 and 2015

	Mean	Std. Deviation	Paired Differences			T	Df	Sig (2 tailed)
			Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Growth 15- Growth 14	-2.98000	8.45086	3.77934	-13.47313	7.51313	-.788	4	.475

The paired sample t test was conducted to compare the means of student growth for all five high schools for 2014 and 2015. The t test, $t(4) = -.788$, $p = .475$, showed that there was no significant difference between the student growth rate means for the five high schools between the years 2014 and 2015.

Tables 6 and 7 show the results of a paired sample t test for student growth for the five traditional high schools for the years 2015 and 2016. A paired sample t test was conducted to compare student growth for 2015 and 2016.

Table 6

Paired Samples of the Five High Schools Growth Rates 2015 and 2016

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Growth16	75.9800	5	13.29519	5.94579
	Growth15	70.2200	5	11.30562	5.05603

Table 7

Paired Samples t Test of the Five High Schools Growth Rates 2015 and 2016

	Mean	Std. Deviation	Paired Differences			T	Df	Sig (2 tailed)
			Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Growth 16-Growth 15	5.76000	7.74196	3.46231	-3.85292	15.37292	1.664	4	.172

The paired sample t test was conducted to compare the means of student growth for all five high schools for 2015 and 2016. The t test, $t(4)=1.664$, $p=.172$, showed that there was no significant difference between the student growth means for the five high schools between the years 2015 and 2016.

Tables 8 and 9 show the results of a paired sample t test for student growth for the five traditional high schools for the years 2014 and 2016. A paired sample t test was conducted to compare student growth for 2014 and 2016.

Table 8

Paired Samples Statistics of the Five High Schools Growth 2016 and 2014

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Growth16	75.9800	5	13.29519	5.94579
	Growth14	73.2000	5	13.39142	5.98882

Table 9

Paired Samples t Test of the Five High Schools Growth 2016 and 2014

	Mean	Std. Deviation	Paired Differences		T	df	Sig (2 tailed)
			Std. Error Mean	95% Confidence Interval of the Difference			
				Lower Upper			
Growth 16-14	2.78000	16.04391	7.17505	-17.14114 22.70114	.387	4	.718

The paired sample t test was conducted to compare the means of student growth for all five high schools for 2014 and 2016. The t test, $t(4)=.387, p=.718$, showed that there was no significant difference between the student growth rate means for the five high schools between the years 2014 and 2016.

Figure 3 shows the student growth scores for each of the traditional high schools.

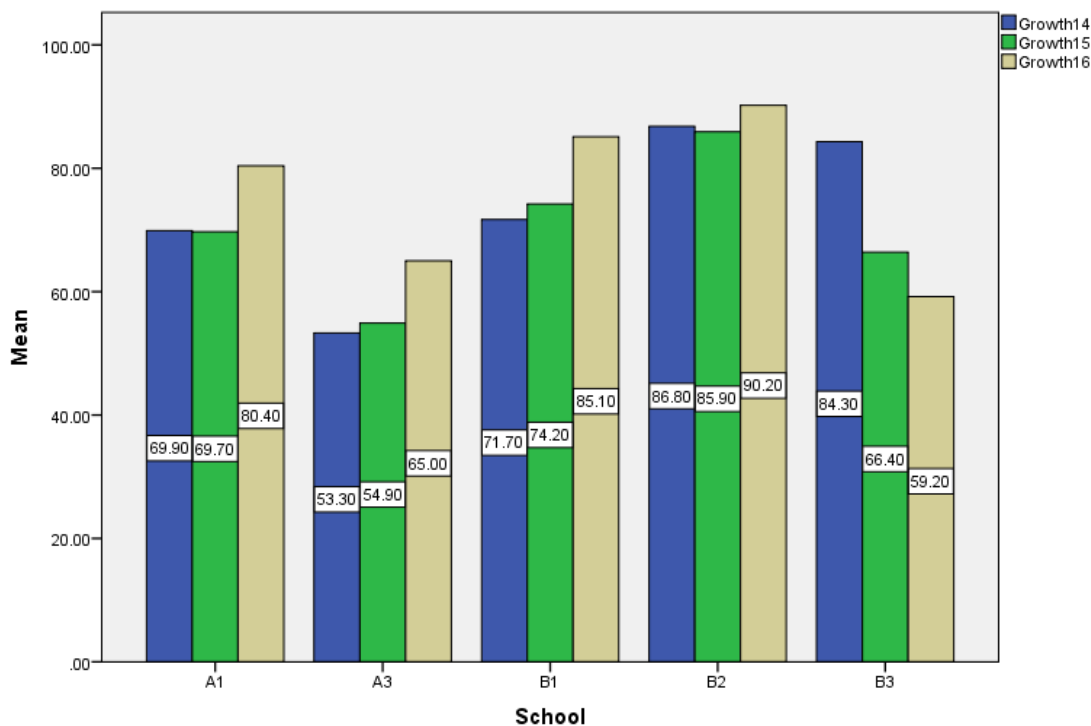


Figure 3. Student Growth for Each High School.

Figure 3 indicates the student growth scores for each school in 2014, 2015, and 2016.

The student growth increased in Schools A1, A3, B1, and B2; however, the student growth scores decreased in School B3 from 2014 to 2015 and again in 2016. School B1 experienced the most growth from 71.7% in 2014 to 85.1% in 2016.

Graduation rates. Tables 10 and 11 show the results of a paired sample t test for the five high schools' means of graduation rates for the years 2012 and 2016. The graduation rate in 2012 was before the traditional high schools began implementing early college design principles and strategies. In 2016, the formal implementation of early college principles ended with the dissolution of North Carolina New Schools and the Rural Innovative Initiative. A paired sample t test was conducted to compare graduation rates from the beginning of implementation of early college design principles in 2012-2013 to the end of formal implementation in 2015-2016.

Table 10

T Test of Graduation Rates

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	GradRate16	90.5400	5	2.35011	1.05100
	GradRate12	79.8200	5	5.87384	2.62686

Table 11

Paired Samples t Test of the Five High Schools Graduation Rates 2012 and 2016

	Mean	Std. Deviation	Std. Error Mean	Paired Differences 95% Confidence Interval of the Difference		T	df	Sig (2 tailed)
				Lower	Upper			
Grad Rate 16- Grad Rate 12	10.72000	4.48297	2.00484	5.15366	16.28634	5.347	4	.006

The paired sample t test was conducted to compare the means of graduation rates for all five high schools for 2012 and 2016. The t test, $t(4)=5.347$, $p=.006$, showed there was a significant difference between the means of the graduation rates for the five schools between years 2012 and 2016.

Figure 4 indicates the graduation rate for each high school for 2012 and 2016. The years were compared because of their significance. The schools began implementing early college design principles and strategies in the year 2012-2013 and continued formal implementation until 2016. The graduation rates are compared before implementation in 2012 to the conclusion of formal application in 2016.

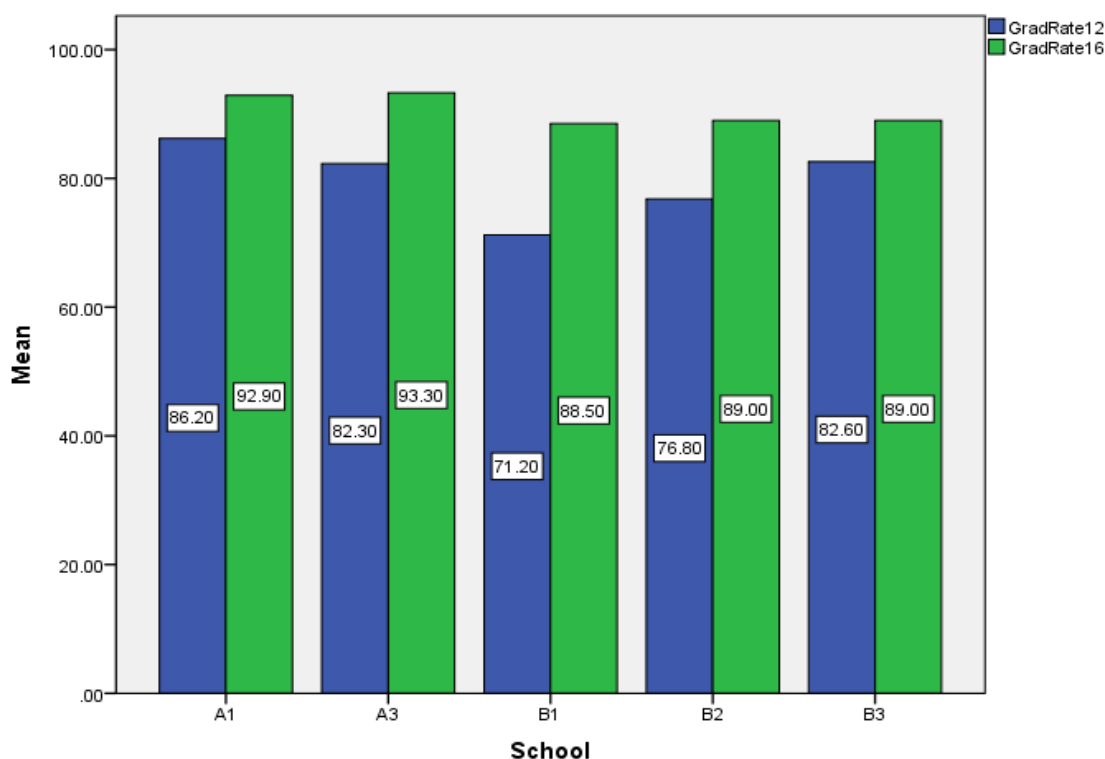


Figure 4. Graduation Rates for Each High School.

The graduation data indicate that all schools experienced an increase from 2012 to 2016. School B1 had the largest graduation rate increase from 71.2 to 88.5. School B3 had the smallest graduation rate increase from 82.6 to 89.0.

College course completion data. The college course completion data were not available for all of the traditional high schools included in the study. College course completion is defined as a student earning a grade of a C or higher in the course. The limited data available with the lack of the number of participants and the standard deviation for college course completion rates would not allow the researcher to conduct *t* tests to analyze the data statistically. The data that were available were summary data.

Since the Rural Innovative Initiative ended with the dissolution of North Carolina New Schools, District B lost funding for the college liaison at each of the traditional high schools.

With the loss of this position, the college course information was no longer collected by each individual school. The principals did not have the data and deferred to the district. District B did not maintain the college course completion data after the conclusion of the Rural Innovative Initiative. District B's community college partner did not have the college course completion data either.

District A continued to fund the college liaison position at the three traditional high schools; however, the information for college course completion was limited. Due to a change in the person serving in the college liaison role at each high school, the data were not available by individual high school for all years 2012-2016. District A's community college partner provided the college course completion data by the entire district, not individual high school.

School A1 only had the data for the years 2015 and 2016. In 2015, of the 346 college courses taken by students in School A1, 275 courses were completed with a C or higher for a total of 79%. In 2016, of the 506 courses taken by students in School A, 450 courses were completed with a C or higher for a total of 89%. School A1 had a 10% increase in college course completion in the last year of formal implementation of early college design principles.

School A3 was not able to provide the college course completion data.

District A's community college partner did maintain the college course completion totals for all of the district's traditional high school students. The following are summary data provided for all students not by individual high school. In 2012, 297 college courses were taken and passed with a C or higher. In 2013, 838 college courses were taken and passed with a C or higher. In 2014, 1,042 college courses were taken and passed with a C or higher. In 2015, 1,599 college courses were taken and passed with a C or higher. In 2016, 915 college courses were taken and passed with a C or higher.

The college courses completed by District A traditional high school students increased each year from 2012 to 2015. There was 81% increase of college courses completed from 2012, the beginning of early college design principles implementation, to 2015; however, there was a decrease by 43% of college courses completed from 2015 to 2016, the final year of formal early college design principle implementation.

Analysis of Research Question 2

What are the traditional high school teachers' perceptions of the impact of the early college strategies and design principles? This research question was answered using the responses of the teachers on the digital survey modified from the SERVE early college survey. The survey was distributed electronically via Survey Monkey to five traditional high schools that participated in the Rural Innovative Initiative from 2012-2016. An invitation to complete the voluntary survey was emailed to 250 teachers. A total of 108 participants responded, but only 96 included the name of their assigned school. For the purpose of this study, to compare the means of the responses by high school, only the 96 were used in the analysis.

A one-way ANOVA test was used to determine the mean rating for the questions and the design principles. Data were disaggregated by teacher years of experience, teacher content area, and each individual high school by design principle. Table 12 represents teacher survey responses to the powerful teaching and learning early college design principle by years of experience.

Table 12

Powerful Teaching and Learning Scores by Teachers' Years of Experience in the Five High Schools

Question	0-5	6-10	11-20	21-25	26+
1. This year how often have you asked students to solve problems based on life outside of school?	3.3	3.7	3.4	3.6	4.1
2. How often have you allowed your students to decide on the projects or research topics they will work on?	2.6	2.9	2.3	2.7	2.6
3. How often have you allowed students to work together on projects or assignments?	3.6	3.9	3.7	3.9	3.5
4. How often have you emphasized making connections between what goes on inside and outside of school?	4.4	4.5	4.0	4.5	4.1
5. How often do you make connections between what's taught in your class and what's taught in other classes?	3.3	3.9	3.8	4.1	3.6
6. How often have you asked students to defend their own ideas or point of view in writing or in a discussion?	3.6	4.0	3.5	3.5	2.9
7. How often have you asked your students to do an oral presentation for the class?	1.9	2.3	2.1	2.7	2.5
8. How often have you asked students to read difficult or complex texts?	2.6	3.8	3.3	3.3	2.5
Mean scores by years of experience	3.1	3.6	3.3	3.5	3.1

Table 12 illustrates the mean score under the powerful teaching and learning design principle for each question for all respondents by years of experience. Based on a 5.0 scale, the mean response score in this category for all respondents with 5 or fewer years was 3.1; the mean response score for 26 plus years was also 3.1; the mean response score for 6-10 years was 3.6; the mean response score for 11-20 years was 3.3; and the mean response score for 21-25 years

was 3.5. The data seem to indicate that teachers in the middle of their careers are more focused on powerful teaching and learning than brand new teachers and teachers closer to retirement in these schools.

Table 13 illustrates teacher survey responses to the powerful teaching and learning early college design principle by content area.

Table 13

Powerful Teaching and Learning Scores by Teacher Content Area in the Five High Schools

Question	Sci	His	Eng	Math	Elec
1. This year how often have you asked students to solve problems based on life outside of school?	2.5	3.6	3.8	3.6	3.6
2. How often have you allowed your students to decide on the projects or research topics they will work on?	2.3	2.8	2.8	1.8	2.6
3. How often have you allowed students to work together on projects or assignments?	4.5	3.5	3.8	3.8	3.5
4. How often have you emphasized making connections between what goes on inside and outside of school?	4.2	4.5	4.4	4.0	4.4
5. How often do you make connections between what's taught in your class and what's taught in other classes?	3.5	4.3	4.0	3.3	3.5
6. How often have you asked students to defend their own ideas or point of view in writing or in a discussion?	3.2	3.9	4.1	3.9	3.0
7. How often have you asked your students to do an oral presentation for the class?	2.0	2.4	2.4	1.9	2.3
8. How often have you asked students to read difficult or complex texts?	3.3	3.8	3.9	2.5	2.6
Mean scores by content area	2.7	3.6	3.7	3.0	3.2

Note. Sci is Science, His is history, Eng is English, Math is math, and Elec is elective.

Table 13 indicates the mean response score in the category of powerful teaching and learning for all respondents by content area was 3.7 for English, 3.6 for history, 3.0 for math, 3.2 for electives, and 2.7 for science. The data indicate that the content of humanities courses lends itself to making connections from the course to other classes and doing oral class presentations.

Table 14 represents teacher survey responses to the powerful teaching and learning early college design principle by each individual high school.

Table 14

Powerful Teaching and Learning Mean Scores of the Five High Schools

Question	A1	A3	B1	B2	B3
1. This year how often have you asked students to solve problems based on life outside of school?	4.3	3.3	3.9	3.1	3.6
2. How often have you allowed your students to decide on the projects or research topics they will work on?	2.3	2.9	2.6	2.4	2.6
3. How often have you allowed students to work together on projects or assignments?	3.1	3.8	3.6	3.4	4
4. How often have you emphasized making connections between what goes on inside and outside of school?	4.4	4.3	4.3	4.0	4.3
5. How often do you make connections between what's taught in your class and what's taught in other classes?	3.8	3.7	3.7	3.5	3.8
6. How often have you asked students to defend their own ideas or point of view in writing or in a discussion?	3.8	3.3	3.6	3.1	3.7
7. How often have you asked your students to do an oral presentation for the class?	2.0	2.4	2.3	2.3	2.3
8. How often have you asked students to read difficult or complex texts?	3.0	3.0	3.3	2.8	3.1
Mean scores per high school	3.3	3.3	3.4	3.0	3.4

Table 14 represents the mean responses under the powerful teaching and learning design principle for each question for all respondents in each high school. The mean based on a 5.0 scale for School B1 and School B3 was 3.4; the mean for School A1 and School A3 was 3.3; and the mean for School B2 was 3.0. The lowest strategies were oral presentations with a mean of 2.3 and student choice for projects with a mean of 2.6. The data indicate that the schools are implementing the powerful teaching and learning strategies on a monthly basis, which is moderate.

Table 15 represents teacher survey responses to the personalization early college design principle by years of experience.

Table 15

Personalization Scores by Teacher Years of Experience in the Five High Schools

Question	0-5	6-10	11-20	21-25	26+
1. In general, the teachers and staff in this school believe all students can do well.	3.2	3.3	3.0	3.2	3.2
2. Teachers and staff in this school care about their students.	3.4	3.7	3.3	3.4	3.4
3. Teachers and staff expect students to do their best.	3.3	3.6	3.3	3.3	3.2
4. Teachers know something personal about each of their students.	2.8	3.1	3.0	2.9	2.9
5. Teachers provide a lot of encouragement to students.	3.2	3.3	3.2	3.1	3.2
6. Teachers praise their students when they work hard.	3.2	3.3	3.2	3.3	3.2
7. Teachers in this school listen to what their students have to say.	3.0	3.1	3.1	3.1	3.1
8. Teachers and staff in this school respect and appreciate their students.	3.2	3.3	3.3	3.1	3.2
Mean scores by years of experience	3.1	3.3	3.2	3.1	3.1

Table 15 illustrates the mean score for personalization for each question for all

respondents by years of experience. Based on a 4.0 scale, the mean was 3.1 for teachers with 5 years or less, 21-25, and 26 plus years; the mean score was 3.3 for 6-10 years; and the mean score was 3.2 for 11-20 years of experience. The lowest strategy was “teachers know something personal about each of their students” with a mean score of 2.9.

Table 16 represents teacher survey responses to personalization by teacher content area in the five high schools.

Table 16

Personalization Scores by Teacher Content Area in the Five High Schools

Question	Sci	His	Eng	Math	Elec
1. In general, the teachers and staff in this school believe all students can do well.	3.3	2.9	3.1	3.0	3.2
2. Teachers and staff in this school care about their students.	3.8	3.4	3.3	3.4	3.4
3. Teachers and staff expect students to do their best.	3.3	3.1	3.3	3.4	3.3
4. Teachers know something personal about each of their students.	3.0	3.1	3.0	2.6	3.0
5. Teachers provide a lot of encouragement to students.	3.3	3.1	3.3	3.0	3.2
6. Teachers praise their students when they work hard.	3.3	3.2	3.4	3.1	3.1
7. Teachers in this school listen to what their students have to say.	3.0	3.0	3.1	3.1	3.1
8. Teachers and staff in this school respect and appreciate their students.	3.5	3.1	3.2	3.2	3.2
Mean scores by content area	3.3	3.1	3.2	3.1	3.2

Note. Sci is science, His is history, Eng is English, Math is math, Elec is electives.

Table 16 illustrates the mean score for personalization for each question for all respondents by content area. Based on a 4.0 scale, the mean score was 3.3 for science; the mean

score was 3.2 for English and electives; and the mean score was 3.1 for history and math. The data seem to indicate that personalization is occurring with all subject area teachers.

Table 17 represents teacher survey responses to the personalization design principle in each of the five high schools.

Table 17

Personalization Mean Scores of the Five High Schools

Question	A1	A3	B1	B2	B3
1. In general, the teachers and staff in this school believe all students can do well.	2.9	3.3	3.2	3.1	3.1
2. Teachers and staff in this school care about their students.	3.4	3.9	3.3	3.4	3.3
3. Teachers and staff expect students to do their best.	2.9	3.7	3.3	3.1	3.3
4. Teachers know something personal about each of their students.	2.9	3.3	2.9	2.8	2.9
5. Teachers provide a lot of encouragement to students.	3.3	3.5	3.2	2.9	3.1
6. Teachers praise their students when they work hard.	3.5	3.4	3.2	3.1	3.1
7. Teachers in this school listen to what their students have to say.	3.1	3.3	3.1	3.0	3.0
8. Teachers and staff in this school respect and appreciate their students.	3.1	3.5	3.3	3.1	3.1
Mean scores per high school	3.1	3.4	3.1	3.0	3.0

Table 17 illustrates the mean under personalization for each question for all respondents by individual high school. Based on a 4.0 scale, the mean score was 3.4 for School A3; the mean score was 3.1 for School A1 and School B1; and the mean score was 3.0 for School B2 and School B3. According to the survey data, all of the schools studied are implementing

personalization frequently with School A3 at the highest degree.

Table 18 represents teacher survey responses to the redefined professionalism early college design principle by years of experience.

Table 18

Redefined Professionalism by Teachers' Years of Experience in the Five High Schools

Question	0-5	6-10	11-20	21-25	26+
1. How often do you work with or communicate with your colleagues on lesson plans or unit planning?	3.7	3.1	3.5	3.4	3.9
2. How often do you communicate with your colleagues on logistics such as planning field trips or ordering materials?	2.6	2.1	2.2	2.1	2.3
3. How often do you work with your colleagues to develop assessments?	2.9	2.3	2.5	2.8	2.7
4. How often do you participate in peer observation and provide or receive feedback?	2.2	1.9	1.9	2.3	1.6
5. How often do you work with or communicate with your colleagues about instruction or instructional strategies?	3.1	3.1	3.2	3.4	3.4
6. How often do you collaborate with your colleagues to develop and implement interdisciplinary units?	2.3	2.0	1.9	2.4	1.8
Mean scores by years of experience	2.8	2.4	2.5	2.7	2.6

Table 18 illustrates the mean score under the redefined professionalism for each question for all respondents by teacher years of experience. The mean score, based on a 5.0 scale, was 2.4 for 6-10 years; 2.5 for 11-20 years; 2.6 for 26 plus years; 2.7 for 21-25 years; and 2.8 for less than 5 years of experience.

Table 19 represents teacher survey responses to the redefined professionalism design principle by teacher content area.

Table 19

Redefined Professionalism Scores by Teacher Content Area in the Five High Schools

Question	Sci	His	Eng	Math	Elec
1. How often do you work with or communicate with your colleagues on lesson plans or unit planning?	3.5	2.9	3.9	4.3	3.3
2. How often do you communicate with your colleagues on logistics such as planning field trips or ordering materials?	1.7	1.6	1.6	1.9	1.9
3. How often do you work with your colleagues to develop assessments?	3.2	2.8	1.8	3.9	2.6
4. How often do you participate in peer observation and provide or receive feedback?	1.3	1.3	1.8	1.5	1.8
5. How often do you work with or communicate with your colleagues about instruction or instructional strategies?	2.3	2.8	3.1	4.5	2.6
6. How often do you collaborate with your colleagues to develop and implement interdisciplinary units?	2.5	2.7		1.3	1.7
Mean scores by content area	2.4	2.4	2.4	2.9	2.3

Note. Sci is science, His is history, Eng is English, Math is math, Elec is electives.

Table 19 illustrates the mean score under the redefined professional design principle for each question for all respondents by teacher content area. Based on a 5.0 scale, the mean score is 2.3 for elective teachers; 2.4 for science, history, and English teachers; and 2.9 for math teachers. These data indicate that math teachers are collaborating with their colleagues more than other subject areas. Math had the highest means in the strategies of communicating with colleagues to create lesson plans with a mean of 4.3 and communicating with colleagues about instruction with a mean of 4.5.

Table 20 represents teacher survey responses to the redefined professionalism early

college design principle by each individual high school.

Table 20

Redefined Professionalism Mean Scores of the Five High Schools

Question	A1	A3	B1	B2	B3
1. How often do you work with or communicate with your colleagues on lesson plans or unit planning?	3.5	3.8	3.2	4.0	3.4
2. How often do you communicate with your colleagues on logistics such as planning field trips or ordering materials?	2.3	2.3	2.3	2.2	2.2
3. How often do you work with your colleagues to develop assessments?	2.0	2.8	2.4	3.1	2.7
4. How often do you participate in peer observation and provide or receive feedback?	2.1	1.8	1.9	2.1	2.1
5. How often do you work with or communicate with your colleagues about instruction or instructional strategies?	3.0	3.3	3.0	3.9	3.0
6. How often do you collaborate with your colleagues to develop and implement interdisciplinary units?	1.5	2.1	1.8	2.4	2.3
Mean scores per high school	2.4	2.6	2.4	2.9	2.6

Table 20 represents the mean score under the redefined professionalism design principle for each question for all respondents by individual school. Based on a 5.0 scale, the mean score is 2.9 for School B2; 2.6 for School A3 and School B3; and 2.4 for School A1 and School B1. The highest rated strategy with a mean score of 3.6 was working with colleagues to plan lessons and units once or twice a month. The lowest two strategies with a mean score of 2.0 were observing peers and providing feedback and collaborating with colleagues to develop to do interdisciplinary units.

Table 21 represents teacher survey responses to the leadership and purposeful design

principle by years of experience.

Table 21

Leadership and Purposeful Design Scores by Teacher Years of Experience in the Five High Schools

Question	0-5	6-10	11-20	21-25	26+
1. Teachers act as if they are responsible for students' learning even if the students are not in their classes.	2.6	2.5	2.7	2.9	2.5
2. School staff meets regularly to discuss how to meet the needs of students.	2.5	3.3	3.0	2.8	2.9
3. If a child doesn't learn something the first time, teachers here will try another way.	2.7	3.1	3.1	3.2	2.8
4. Teachers in this school feel responsible for making sure that students don't drop out of school.	2.9	3.3	3.2	2.9	2.9
5. Teachers believe that good teaching is more important to students' engagement in schoolwork than is their home environment.	2.4	2.4	2.3	2.6	2.0
Mean score by years of experience	2.6	3.0	2.9	2.9	2.6

Table 21 illustrates the mean score under the leadership and purposeful design principle for each question for all respondents by years of experience. Based on a 4.0 scale, the mean score is 3.0 for 6-10 years; 2.9 for 11-20 and 21-25 years; and 2.6 for less than 5 and 26 plus years. These data indicate that teachers in the middle of their career are implementing this design principle more than new teachers and those near retirement. This trend was also noticed in the powerful teaching and learning principle.

Table 22 represents teacher survey responses to the leadership and purposeful design principle by teacher content area.

Table 22

Leadership and Purposeful Design by Teacher Content Area in the Five High Schools

Question	Sci	His	Eng	Math	Elec
1. Teachers act as if they are responsible for students' learning even if the students are not in their classes.	2.5	2.5	2.4	2.3	2.9
2. School staff meets regularly to discuss how to meet the needs of students.	3.0	2.6	3.0	2.9	3.0
3. If a child doesn't learn something the first time, teachers here will try another way.	3.0	2.8	3.2	2.9	3.0
4. Teachers in this school feel responsible for making sure that students don't drop out of school.	2.8	2.8	3.1	2.9	3.2
5. Teachers believe that good teaching is more important to students' engagement in schoolwork than is their home environment.	2.2	2.5	2.2	2.4	2.3
Mean scores by content area	2.7	2.6	2.8	2.7	2.9

Note. Sci is science, His is history, Eng is English, Math is math, Elec is electives.

Table 22 illustrates the mean score under the leadership and purposeful design principle for each question for all respondents by teacher content area. Based on a 4.0 scale, the mean is 2.9 for elective teachers; 2.8 for English teachers; 2.7 for math and science teachers; and 2.6 for history teachers.

Table 23 represents teacher survey responses to the leadership and purposeful design principle by individual high school.

Table 23

Leadership and Purposeful Design Mean Scores of the Five High Schools

Question	A1	A3	B1	B2	B3
1. Teachers act as if they are responsible for students' learning even if the students are not in their classes.	2.6	2.8	2.6	2.8	2.5
2. School staff meets regularly to discuss how to meet the needs of students.	2.8	3.4	2.7	3.3	2.7
3. If a child doesn't learn something the first time, teachers here will try another way.	3.1	3.4	2.8	2.9	2.8
4. Teachers in this school feel responsible for making sure that students don't drop out of school.	3.1	3.3	3.1	2.9	2.9
5. Teachers believe that good teaching is more important to students' engagement in schoolwork than is their home environment.	2.4	2.6	2.2	2.4	2.2
Mean scores per high school	2.8	3.0	2.7	2.8	2.7

Table 23 illustrates the mean score under the leadership and purposeful design principle for each question for all respondents by individual school. Based on a 4.0 scale, the mean score was 3.0 for School A3; 2.8 for School A1 and School B2; and 2.7 for School B1 and School B3. These data indicate that School A3 is implementing the leadership and purposeful design principle frequently and more than the other schools.

Table 24 represents a one-way ANOVA test that was applied using SPSS to determine any differences between the implementation of early college design principles among the five traditional high schools. The early college design principles are identified with initials: powerful teaching and learning (PTL), personalization (P), redefined professionalism (RD), and leadership and purposeful design (LP).

Table 24

ANOVA Test Differences Among Design Principles

Design Principles		Sum of Squares	Df	Mean Square	F	Sig.
PTL	Between Groups	92.315	4	23.079	.806	.524
	Within Groups	2605.342	91	28.630		
	Total	2697.656	95			
P	Between Groups	131.304	4	32.826	4.158	.004
	Within Groups	718.435	91	7.895		
	Total	849.740	95			
RP	Between Groups	97.924	4	24.481	1.575	.188
	Within Groups	1414.815	91	15.547		
	Total	1512.740	95			
LP	Between Groups	71.425	4	17.856	3.036	.021
	Within Groups	535.200	91	5.881		
	Total	606.625	95			

Note. PTL is Powerful teaching and learning, P is personalization, RP is redefined professionalism, L is leadership and purposeful design.

The ANOVA test, $F(4, 91)=0.806$, $p=0.524$, indicated there was no significant difference among the schools for the powerful teaching and learning early college design principle. The ANOVA test, $F(4, 91)=1.575$, $p=.188$, indicated there was no significant difference among the schools for the redefined professionalism early college design principle.

The ANOVA test, $F(4, 91)=4.158$, $p=.004$, indicated there was a significant difference among the schools for the personalization early college design principle. The ANOVA test, $F(4, 91)=3.036$, $p=.021$, indicated there was a significant difference among the schools for the leadership and purposeful early college design principle.

After the ANOVA test yielded a result of a significant difference among the schools for two of the design principles, a Scheffe post hoc test was conducted. A Scheffe post hoc test is designed for situations in which the researcher has obtained a significant F test with a factor that

consists of three or more means and additional investigation of the differences among means is necessary to provide specific information on which means are significantly different from each other. The Scheffe post hoc test was used to determine which pairs of schools had a significant difference in the areas of personalization and leadership and purposeful design. Table 25 shows the differences between the groups, the five high schools, from the Scheffe post hoc test.

Table 25

Multiple Comparisons Scheffe Post Hoc Test

DV	(I)Site	(J)Site	Mean Diff (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PTL	B3	A1	.14815	1.45628	1.000	-4.4310	4.7273
		B2	2.94180	1.76221	.596	-2.5993	8.4829
		A1	.87037	2.15387	.997	-5.9022	7.6430
		A3	.82037	1.57857	.992	-4.1433	5.7840
	B1	B3	-.14815	1.45628	1.000	-4.7273	4.4310
		B2	2.79365	1.76221	.644	-2.7474	8.3347
		A1	.72222	2.15387	.998	-6.0504	7.4948
		A3	.67222	1.57857	.996	-4.2914	5.6359
	B3	B3	-2.94180	1.76221	.596	-8.4829	2.5993
		A1	-2.79365	1.76221	.644	-8.3347	2.7474
		A1	-2.07143	2.37145	.943	-9.5282	5.3853
		A3	-2.12143	1.86454	.861	-7.9843	3.7414
	A1	B3	-.87037	2.15387	.997	-7.6430	5.9022
		A1	-.72222	2.15387	.998	-7.4948	6.0504
		B2	2.07143	2.37145	.943	-5.3853	9.5282
		A3	-.05000	2.23836	1.000	-7.0883	6.9883
	A3	B3	-.82037	1.57857	.992	-5.7840	4.1433
		A1	-.67222	1.57857	.996	-5.6359	4.2914
		B2	2.12143	1.86454	.861	-3.7414	7.9843
		A1	.05000	2.23836	1.000	-6.9883	7.0883

(continued)							
DV	(I)Site	(J)Site	Mean Diff (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
P	B3	A1	-.62963	.76473	.953	-3.0342	1.7750
		B2	.27778	.92538	.999	-2.6320	3.1875
		A1	-.22222	1.13105	1.000	-3.7787	3.3342
		A3	-2.97222*	.82894	.016	-5.5787	-.3657
	B1	B3	.62963	.76473	.953	-1.7750	3.0342
		B2	.90741	.92538	.915	-2.0023	3.8172
		A1	.40741	1.13105	.998	-3.1490	3.9639
		A3	-2.34259	.82894	.102	-4.9491	.2639
	B3	B3	-.27778	.92538	.999	-3.1875	2.6320
		A1	-.90741	.92538	.915	-3.8172	2.0023
		A1	-.50000	1.24530	.997	-4.4157	3.4157
		A3	-3.25000*	.97911	.033	-6.3287	-.1713
	A1	B3	.22222	1.13105	1.000	-3.3342	3.7787
		A1	-.40741	1.13105	.998	-3.9639	3.1490
		B2	.50000	1.24530	.997	-3.4157	4.4157
		A3	-2.75000	1.17542	.251	-6.4460	.9460
	A3	B3	2.97222*	.82894	.016	.3657	5.5787
		A1	2.34259	.82894	.102	-.2639	4.9491
		B2	3.25000*	.97911	.033	.1713	6.3287
		A1	2.75000	1.17542	.251	-.9460	6.4460

(continued)

DV	(I)Site	(J)Site	Mean Diff (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
P	B3	A1	1.07407	1.07315	.909	-2.3003	4.4485
		B2	-1.93915	1.29860	.694	-6.0225	2.1441
		A1	1.32870	1.58722	.951	-3.6621	6.3195
		A3	-.19630	1.16327	1.000	-3.8541	3.4615
	B1	B3	-1.07407	1.07315	.909	-4.4485	2.3003
		B2	-3.01323	1.29860	.259	-7.0965	1.0701
		A1	.25463	1.58722	1.000	-4.7362	5.2455
		A3	-1.27037	1.16327	.878	-4.9281	2.3874
	B3	B3	1.93915	1.29860	.694	-2.1441	6.0225
		A1	3.01323	1.29860	.259	-1.0701	7.0965
		A1	3.26786	1.74756	.483	-2.2271	8.7629
		A3	1.74286	1.37401	.807	-2.5776	6.0633
	A1	B3	-1.32870	1.58722	.951	-6.3195	3.6621
		A1	-.25463	1.58722	1.000	-5.2455	4.7362
		B2	-3.26786	1.74756	.483	-8.7629	2.2271
		A3	-1.52500	1.64948	.930	-6.7116	3.6616
	A3	B3	.19630	1.16327	1.000	-3.4615	3.8541
		A1	1.27037	1.16327	.878	-2.3874	4.9281
		B2	-1.74286	1.37401	.807	-6.0633	2.5776

A1 1.52500 1.64948 .930 -3.6616 6.7116

(continued)							
DV	(I)Site	(J)Site	Mean Diff (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
LP	B3	A1	-.33333	.66004	.992	-2.4088	1.7421
		B2	-1.32275	.79870	.604	-3.8342	1.1887
		A1	-1.03704	.97621	.889	-4.1066	2.0326
		A3	-2.28704*	.71547	.044	-4.5367	-.0373
	B1	B3	.33333	.66004	.992	-1.7421	2.4088
		B2	-.98942	.79870	.820	-3.5008	1.5220
		A1	-.70370	.97621	.971	-3.7733	2.3659
		A3	-1.95370	.71547	.124	-4.2034	.2960
	B3	B3	1.32275	.79870	.604	-1.1887	3.8342
		A1	.98942	.79870	.820	-1.5220	3.5008
		A1	.28571	1.07483	.999	-3.0940	3.6654
		A3	-.96429	.84508	.860	-3.6215	1.6930
	A1	B3	1.03704	.97621	.889	-2.0326	4.1066
		A1	.70370	.97621	.971	-2.3659	3.7733
		B2	-.28571	1.07483	.999	-3.6654	3.0940
		A3	-1.25000	1.01451	.823	-4.4400	1.9400
	A3	B3	2.28704*	.71547	.044	.0373	4.5367
		A1	1.95370	.71547	.124	-.2960	4.2034
		B2	.96429	.84508	.860	-1.6930	3.6215

A1	1.25000	1.01451	.823	-1.9400	4.4400
----	---------	---------	------	---------	--------

Note. * The mean difference is significant at the 0.05 level.

The Scheffe post hoc test indicated there was a significant difference among the schools in the variable personalization. School A3 had a significant difference between Schools B3 and B2. School A3 was higher than Schools B2 and B3 in the strongly agree response to the variable personalization. There was also a significant difference among School A3 and School B3 in the variable leadership and purposeful design. School A3 was much higher in the mostly true response than School B3. The data indicate that School A3 is implementing the personalization and leadership and purposeful design principles to a higher degree than School B3.

Table 26 provides the mean of the survey responses for each school on the early college design principles powerful teaching and learning (PTL), personalization (P), redefined professionalism (RP), and leadership and purposeful design (LP). The powerful teaching and learning and redefined professionalism design principles scores are based on a 5.0 scale. Powerful teaching and learning and redefined professionalism responses were coded as follows: 1=never, 2=a few times this year, 3=once or twice a month, 4=once or twice a week, and 5=almost every day. The personalization and leadership and purposeful design principles scores are based on a 4.0 scale. Personalization responses were coded as follows: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. Leadership and purposeful design responses were coded as follows: 1=not true at all, 2=somewhat true, 3=mostly true, and 4=entirely true.

Table 26

Early College Design Principles by School

School		PTL	P	RP	LP
A1	Mean	3.3125	3.1250	2.3958	2.8000
	N	8	8	8	8
	Std. Deviation	.77632	.20045	.63582	.26186
A3	Mean	3.3188	3.4688	2.6500	3.0500
	N	20	20	20	20
	Std. Deviation	.57279	.33412	.60914	.36056
B1	Mean	3.4206	3.1905	2.4383	2.6722
	N	27	27	27	27
	Std. Deviation	.62369	.45110	.51297	.54988
B2	Mean	3.0791	3.0625	2.9405	2.8571
	N	14	14	14	14
	Std. Deviation	.58600	.21230	.59055	.31796
B3	Mean	3.4213	3.0972	2.6173	2.6537
	N	27	27	27	27
	Std. Deviation	.77456	.32584	.83310	.53510

The mean score of each school indicates that all five schools are implementing the personalization design principle. The overall mean score for personalization was 3.19 based on a 4.0 scale, which a 3 indicates agree in the survey responses. Teacher survey responses demonstrate that they agreed that teachers in their school care about students, praise them, provide encouragement, and expect them to do their best. The data indicate that the five schools are developing relationships with students and personalizing their education.

The overall mean score for redefined professionalism was 2.60 based on a 5.0 scale, which a 2 on the survey indicates “a few times this year.” Teacher survey responses demonstrate that they are communicating with colleagues on lesson plans, assessments, instructional strategies, and peer observations a few times a year. The data indicate that the teachers are only implementing this early college design principle a few times a year.

Analysis of Research Question 3

What are the traditional high school principals' perceptions of the impact of early college strategies and design principles? This research question was answered using the responses of the five traditional high school principals' interviews. When analyzing data from the interviews, several themes emerged including relationships and personalization; powerful teaching and learning; and college readiness. Themes mentioned one or two times were considered to have a low frequency. Themes mentioned three or four times were considered to have a moderate frequency. Themes mentioned five times were considered to have a high frequency. Table 27 illustrates themes which emerged from the participants regarding implementation of early college principles and the frequency in which the themes emerged in their interviews.

Table 27

Interview Response Frequencies

	Participants	PA1	PA2	PA3	PB2	PB3
Relationship/Personalization		X	X	X	X	X
Powerful Teaching & Learning		X	X	X	X	X
College Readiness/College Going Culture		X	X	X	X	X
Redefined Professionalism				X	X	
Instructional Rounds		X	X	X		X
Lesson Tuning		X			X	X
Collaboration		X			X	
Leadership/Teacher Leaders			X	X	X	
Learning Protocols				X		X
Professional development/Building Teacher Capacity		X	X	X	X	X
Student Engagement/Student Centered		X	X	X	X	X
Teacher “Buy In”		X		X	X	X

High frequency themes, mentioned by all five principals, included relationships and personalization; powerful teaching and learning; college readiness; professional development/developing teacher capacity; and student engagement/student centered. Moderate frequency themes, mentioned by three or four principals, included instructional rounds; teacher buy in; lesson tuning; and leadership/teacher leaders. Low frequency themes, mentioned by only one or two principals, included redefined professionalism; collaboration; and learning protocols. Further analysis of each of the high frequency themes follows with quotes and summarizations from the principal interviews. To guarantee anonymity, principals are identified by the school’s

names A1, A3, B1, B2, and B3.

Relationships/personalization. The personalization early college design principle emerged repeatedly in the five principal interviews. PA3 was the principal of the district's early college prior to leading School A3. PA3 commented, "Relationships and personalization make all the difference in the world." She said that the focus on relationships "has changed this school." When she arrived, a high percentage of freshmen were failing. She attributed this to the lack of relationships. The school had a 34% Hispanic population, and she worked diligently to develop relationships between students and teachers to make all students feel a part of the school. She mentioned a new strategy she implemented that focused on relationships. Discipline has gone down immensely during her tenure. PA3 stated, "We do not spend time on discipline here." Building a rapport with students and staff has been a priority.

When asked which early college principle or strategy had the most impact in a traditional high school, PA1 responded, "Personalization...it maximizes their (students) potential, and we create personalized four-year plans." She not only focused on developing positive relationships but also giving students advice and guidance.

PA2 stated, "A myth that I want to dispel is high school teachers teach content and don't have relationships with students like elementary." The principal was assigned to A2 in July 2015 and was focused on building positive relationships among staff and students. Due to her brief tenure at A2, she had minimal experience with the early college design principles.

PB2 has continued to focus on the personalization design principle with student relationships through a strong student mentor program. Every student was assigned a mentor from the community to work with him or her throughout high school.

Following the dissolution of North Carolina New Schools and the Rural Innovative

Initiative, PB3 chose two early college design principles to continue: personalization and powerful teaching and learning.

Powerful teaching and learning. All five principals have continued to focus on powerful teaching and learning in different ways. Both PB3 and PA1 have continued to emphasize powerful teaching and learning with early college strategies including instructional rounds and lesson tuning. PB2 is using PLCs to focus on student-centered teaching. He focused on PLCs aligning the standards to teaching objectives. He accredited early college strategies to his observation that more teachers are collaborating and coming together to improve their instruction. PB2 saw evidence of this in the increased student engagement in classrooms.

PA3 and PA2 have continued to focus on teaching and learning with professional development that emphasizes student engagement and modeling lesson protocols. PA3 has become the instructional leader by leading professional development. She is also using teacher leaders to guide the conversations in small groups with a focus on learning protocols which are a part of the early college design principles.

College readiness. Both Districts A and B had a college liaison position for each traditional high school funded by the Rural Innovative Initiative. This position promoted enrollment in college courses and assisted students with everything from registration to communicating with college instructors. With the dissolution of New Schools and the Rural Innovative Initiative, District B eliminated the college liaison position due to lack of funds. However, District A continued to fund the position in all three high schools. All District A principals credited their college course completion success with the work of their college liaisons.

PA2 formed a college and career readiness committee with the purpose of making

students aware of opportunities that low income rural students should take advantage of including free college with college and career promise. Her school also emphasized career readiness with a job outlook program.

Despite the elimination of the college liaison, District B has continued to support the college going culture with a facilitator in each high school to assist students with college courses. PB2 and PB3 mentioned the use of teaching strategies to prepare students for college, not just taking college courses while in high school.

PB2 did express a concern that students were taking college courses simply to boost their GPA. He wanted to ensure students are taking the college courses to improve themselves and learn, not just to obtain a higher grade with an extra quality point. He stressed the importance of preparing students for college with powerful teaching and learning, not just college course completion.

Professional development/building teacher capacity. Professional development was a major part of the Rural Innovative Initiative, and all five principals have continued to focus on building teacher capacity. All of the principals mentioned that the professional development provided by New Schools was positive. The instructional coaches who worked with teachers in specific content areas were valuable. PB3 noted that his teachers had the most buy in when they were receiving content-specific coaching.

Additionally, the New Schools Summer Institute that provided professional development on a variety of topics for a group of teacher leaders from each school improved teaching and learning. PA3 and PA1 have tried to continue the Summer Institute by creating their own team of teacher leaders and providing off site summer professional development.

After the dissolution of New Schools and the loss of instructional teacher coaches, PA3

said she began to lead professional development for her staff. She has developed strategic professional development with learning protocols to make learning more engaging for students. She also developed a Summer Leadership Camp modeled after the New Schools Summer Institute. This team is comprised of half of the teachers on staff including strong leaders, and average and weaker teachers. PA3 takes them to a resort off site where they study an educational leadership book. Additionally, she models the learning protocols and strategies emphasized by early college design principles. At her back to school staff meeting, she has the teacher leaders from Summer Leadership Camp model these protocols in small groups.

PA1 has continued to build teacher capacity with professional development focused on collaboration and student-centered instruction. She is the instructional leader who leads much of the professional development for her teachers.

Student engagement/student centered. All five of the principals mentioned instruction that engaged students or student centered instructional strategies. PB2 said that the early college design principles were “positively impacting what we were seeing in student engagement in the classroom.” His teachers saw the early college principles and strategies as an improvement model, and they bought into it.

PA1 discussed the continuation of teacher collaboration and their focus on student-centered learning. Teachers are still using the early college strategies to develop engaging lessons.

PA2 saw the power of the early college strategies through increased student engagement. She felt that the early college strategies were validated when the school met growth in 2015-2016 for the first time in several years.

Impact of early college design principles and strategies. When asked about the impact

of the early college design principles and strategies, four of the five principals said that all of them had a positive influence on staff and students; however, PA2 had a different opinion. PA2 stated, “New Schools did not do anything new. They added a new title, a new twist. A lot of it was the fundamentals of teaching.” This principal was assigned to school A2 in July 2015; therefore, PA2 only had 9 months with the Rural Innovative Program before New Schools dissolved. While she agreed to an interview, she did not send the researcher’s survey to her staff nor did she share the college course completion data. The interview was forced and very challenging. PA2 statements and actions indicate a distinct opinion of the early college design principles.

PB3 stated, “I really think all (early college design) principles had a positive impact on the school and students.” PA3 responded, “New Schools was onto something and I bought into it. It took me a while to realize that every time you went to a New Schools meeting, they were modeling a protocol.”

One principal felt that the six early college design principles could not be divided out separately. PB2 stated,

As a whole, they are all effective. It is not really black and white with lines between them. They all coincide together. For example, the leadership principle comes with the development of the others. If we are doing all of the other principles and strategies, the teacher leadership will happen.

Summary

In summary, the data answering Research Question 1 regarding a change in student achievement, student growth, graduation rates, and college course completion following implementation of early college design principles indicate changes did occur. Paired sample *t*

tests showed that there was no significant difference between EOC proficiency means and student growth means. However, the EOC proficiency means increased for all high schools following the implementation of early college design principles. The student growth scores increased in four of the five schools. Paired sample *t* tests showed that there was a significant difference between the means of the graduation rates for the five schools between 2012 and 2016. All five schools experienced an increase in graduation rates following the implementation of early college design principles; however, there is no way to isolate the early college design principles as the sole cause for the increase in EOC means, student growth means, and graduation rates.

Teacher survey responses were used to answer Research Question 2 regarding teacher perceptions of the implementation of early college design principles. These data indicate that teachers were implementing the personalization design principle more frequently than the other three.

Research Question 3 regarding principal perceptions of the impact of early college design principles was answered through the responses of their interviews. Information from the interviews provides evidence that the design principles were implemented from 2012-2016 in each of the five high schools. All of the principals indicated that they emphasized personalization, powerful teaching and learning, college and career readiness, and professional development.

Chapter 5: Conclusions

Introduction

Despite improvements in education, leaders are still searching for ways to reform high schools. Traditional comprehensive high schools have high dropout rates, low academic achievement, and too many graduates taking college remediation courses (Alliance for Excellent Education, 2015; Civic Enterprises, 2015). According to *A Nation Accountable*, the follow up report to *A Nation at Risk*, “our performance at the high school level is as alarming as it was at the time of *A Nation at Risk*, if not worse” (U.S. Department of Education, 2008, p. 10).

The purpose of this study was to examine the feasibility of the implementation of early college high school design principles and strategies into traditional comprehensive high schools as a reform model. The intent of early colleges was to target first generation and underrepresented students to provide them with support in order to be successful in secondary education. Early college high schools were “purposefully designed to ensure that students are ready for college” (Edmunds, 2012, p. 81).

This study of early college design principles was guided by the following research questions.

1. Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college high school strategies and design principles?
2. What are the traditional high school teachers’ perceptions of the impact of early college strategies and design principles?
3. What are the traditional high school principals’ perceptions of the impact of early college strategies and design principles?

In 2011, North Carolina New Schools began a program known as the Rural Innovative Initiative. The purpose was to expand college readiness and reduce dropouts by applying early college high school design principles and strategies in 18 existing traditional high schools in low-wealth districts in North Carolina (Edmunds, Henson et al., 2016). In this mixed-methods study, five traditional high schools that had implemented early college design principles and strategies through the North Carolina New Schools Rural Innovative Initiative from 2012-2016 were studied. Two school districts were selected due primarily to their similarity in demographics. Both are rural school districts serving approximately 8,500 students each. There was a total of three high schools in each district, and all six participated in the Rural Innovative Initiative. Only five of the six high schools were included in the data analysis because one principal failed to send the survey to her staff; however, the principal did grant an interview, and her responses were included.

Quantitative data were collected from NCDPI high school report cards including EOC proficiencies, graduation rates, and student growth rates. Using SPSS, paired sample *t* tests were conducted to compare the means of EOC proficiency data, graduation rates, and student growth data. The teacher survey was adapted from the Early College Strategies Survey developed by SERVE Center of UNC-Greensboro. The survey was administered to teachers in the five traditional high schools. The responses to the 30 questions concerning the implementation of early college design principles and strategies were based on a 4- and 5-point Likert scale. The powerful teaching and learning and redefined professionalism early college design questions were based on a 5.0 scale. Powerful teaching and learning and redefined professionalism responses were coded as follows: 1=never, 2=a few times this year, 3=once or twice a month, 4=once or twice a week, and 5=almost every day. The personalization and leadership and

purposeful early college design principles questions are based on a 4.0 scale. Personalization responses were coded as follows: 1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. Leadership and purposeful design responses were coded as follows: 1=not true at all, 2=somewhat true, 3=mostly true, and 4=entirely true. The survey data allowed for a comparison of the implementation of early college principles by high school as well as by teacher content area and years of experience.

Qualitative data were collected through open-ended interviews of the five traditional high school principals. The six high school principals were invited to participate in an interview, but only five granted an interview. Principals were asked a predetermined set of questions relating to the early college design principles in their schools. Emerging early college themes were analyzed based on frequency with an emphasis on high frequency themes.

The research questions are answered and interpreted in this chapter. Recommendations are included for education leaders pertaining to the use of early college principles as a reform model. The chapter concludes with limitations of the study, suggestions for further research, and a conclusion.

Interpretation of Findings

Research Question 1. “Is there a change in student achievement, student growth, graduation rates, and college course completion in traditional high schools following the implementation of early college strategies design principles?” Quantitative research was conducted to answer Research Question 1. Data were collected from NCDPI school report cards.

The paired sample *t* test was conducted to compare the proficiency means for the five schools in 2013 and 2016. The results showed that there was no significant difference between the EOC proficiency rate means for the five schools in the years 2013 and 2016; however, all

schools had an increase in EOC proficiency means from 2013 to 2016. School B1 had the highest increase from 2013 to 2016 from 27.8 to 52.8. The EOC proficiency in B1 is consistent with teacher perceptions that powerful teaching and learning is occurring more than once or twice a month. School B1 had the highest mean on the teacher survey in the category of powerful teaching and learning with a 3.42 mean.

North Carolina began calculating student growth data in 2014. A paired sample t test was conducted to compare the means of the student growth for the five high schools for 2014 and 2015, 2015 and 2016, and 2014 and 2016. The t test results indicated that there was no significant difference between the student growth rate means for the five high schools in any of the years compared; however, the student growth rate increased in four of the five schools: A1, A3, B1, and B2. School B3 experienced a decrease in growth from 2014 to 2015 and again in 2016. School B1 experienced the most growth from 71.7% in 2014 to 85.1% in 2016.

When comparing test data to teacher perceptions from survey responses, both Schools B1 and B3 had the highest mean of 3.4 for implementation of the powerful teaching and learning design principles. The schools with the highest and the lowest student growth data both had the highest teacher perception that powerful teaching and learning is occurring more than once or twice a month. Since there is a conflict between teacher perceptions and student growth data, no conclusion could be drawn about the impact of the powerful teaching and learning strategies.

The graduation rate means were compared for all five high schools for 2012 and 2016. The comparison of graduation rates was made before the implementation of early college design principles in 2012 and the year the program ended in 2016. A paired sample t test was conducted to compare the graduation rate means. The results showed that there was a significant difference between the means of the graduation rates for the five schools in the years 2012 and

2016. All five high schools experienced an increase in graduation rates from 2012 to 2016. School B3 had the smallest graduation rate increase from 82.6% to 89.0%, a gain of 6.4 percentage points. School B1 had the largest increase in graduation rate from 71.2% to 88.5%, a gain of 17.3 percentage points.

While college course completion data were intended to be part of the analysis, the lack of availability of the data made it difficult. All of the five traditional high schools had a college liaison during the Rural Innovative Initiative. With the dissolution of North Carolina New Schools and the initiative, the funding for the position was lost. District A continued to fund the position, but District B did not. As a result, District B did not have the college course completion data at either the school or district level. District B's community college partner did not have the data either.

District A's community partner had the data for the entire district not by individual high school. There was an 81% increase of college courses completed from 2012, the beginning of implementation of early college design principles, to 2015. However, there was a decrease by 43% of college courses completed from 2015 to 2016, the final year of formal early college design principle implementation.

Research Questions 2 and 3. Research Question 2 was, "What are the traditional high school teachers' perceptions of the impact of the early college strategies and design principles?" Research Question 3 was, "What are the traditional high school principals' perceptions of the impact of the early college strategies and design principles?"

In order to answer Research Question 2, a digital survey was emailed to teachers in Schools A1, A3, B1, B2, and B3 through Survey Monkey. The survey was modified from the SERVE Center Early College Survey with permission. The survey was electronically distributed

to 250 teachers, of which 43% responded. Only 96 of the teachers who responded included the name of their assigned school. For the purposes of this study, to compare the means of the responses by school, only 96 respondents who identified their school were used in the analysis.

A one-way ANOVA test was conducted to determine the mean rating for the questions and the design principles. Data were disaggregated by teacher years of experience and teacher content area for all five high schools by early college design principle. Additionally, analysis was completed per high school by the early college design principle.

Research Question 3 was answered by interviewing five traditional high school principals using a set of questions concerning the implementation of early college design principles. Several themes emerged during the interviews. The data were analyzed using a frequency distribution table to determine the frequency. Themes mentioned by all five principals were considered to have a high frequency; themes mentioned by three to four principals were rated moderate frequency; and themes mentioned by only one or two principals were given a low frequency.

Part of the interpretation of the data includes comparing principal interview responses to teacher survey responses.

The teacher survey results for the powerful teaching and learning design principle based on teacher years of experience were compared by means of each response. Powerful teaching and learning responses were coded as follows: 1=never, 2=a few times this year, 3=once or twice a month, 4=once or twice a week, and 5=almost every day. Based on a 5.0 scale, the average score for teachers with 5 years or less and 26 plus years was 3.1; 11-20 years was 3.3; 21-25 years was 3.4; and 6-10 years was 3.6. The data indicate that teachers in the middle of their career are more focused on powerful teaching and learning than those at the beginning and end

of their career. The mean scores for powerful teaching and learning by content area were 3.7 for English, 3.6 for history, 3.0 for math, 3.2 for electives, and 2.7 for science. The data indicate that teachers were implementing powerful teaching and learning once or twice a month. The two strategies with the lowest responses were oral presentations with a mean of 2.2 and allowing students to select projects with a mean of 2.46. The humanity courses, English and history, had the highest means in these two areas with means of 2.4 and 2.8 respectively. These content areas seem to lend themselves to emphasizing these specific early college strategies of powerful teaching and learning.

The implementation of the powerful teaching and learning design principle by school revealed the following means on a 5.0 scale: 3.4 Schools B1 and B3, 3.3 Schools A1 and A3, and 3.0 School B2. Since response number 3 was once or twice a month, the data indicates that all of the schools are implementing this design principle on a monthly basis, which is only moderate. Principals A2, A3, and B2 focused on emphasizing student engagement and student-centered learning. Principals A2 and A3 continue to model the learning protocols that were a part of the early college powerful teaching and learning design principle. While all five principals mentioned the importance of the powerful teaching and learning early college design principle, the teachers are only implementing the strategies once or twice a month. The conclusion could be made that this is not enough. According to the 2014 ACT Report, *Broadening the Definition of College and Career Readiness: A Holistic Approach*, the curriculum should include critical thinking, problem solving, technology applications, and working with others in order to prepare students for college and career (Mattern et al., 2014). All of these skills are a part of the early college powerful teaching and learning principle.

The personalization early college design principle responses were coded as follows:

1=strongly disagree, 2=disagree, 3=agree, and 4=strongly agree. The mean for the personalization design principle by teacher years of experience based on a 4.0 scale was 3.1 for 5 or less, 21-25, and 26 plus; 3.3 for 6-10; and 3.2 for 11-20 years. The lowest strategy mean score was “teachers know something personal about each of their students” with a score of 2.9. By content area, the means were 3.3 science; 3.2 English and electives; 3.1 history and math. The data indicate that teachers agree that personalization is occurring with all content area teachers.

The data analyzed on implementation of the personalization design principle by school indicates it is occurring frequently. The personalization design principle includes the relationship piece of education. Survey items in this category included teachers care about their students, teachers provide a lot of encouragement and praise their students, and teachers respect their students. The mean per school based on a 4.0 scale is 3.4 School A3, 3.1 Schools A1 and B1, and 3.0 Schools B2 and B3. Since response number 3 stated agree, the survey data indicate that all schools are implementing the personalization early college design principle. School A3 had the highest mean for personalization, and this is reflected in the principal’s comments. She has served School A3 for 4 years. Her priority in year one was building relationships with staff and students. She focused on personalization with buy in and developing a rapport. As the former early college principal, she compared the atmosphere of her traditional high school to the early college. “It feels here like it did at the early college; it has an openness about it.” School A3 teachers’ perceptions along with the principal’s priority of relationships are reflected in the highest graduation rate of 93.30% in 2016 among the five high schools studied. This was an 11 percentage point increase from 82.3% in 2012 before the early college principles were implemented.

This finding that relationships are important to student success is consistent with research

by Kaniuka and Vickers (2010). They studied an early college in North Carolina to determine why the students were performing significantly better than traditional high school students. One student said, “Relationships are just as important as academics” (Kaniuka & Vickers, 2010, p. 174). The student surveys consistently said that the school was successful because teachers cared, treated students as individuals, and took time to get to know the students. Teacher surveys reiterated student perceptions of strong relationships and support (Kaniuka & Vickers, 2010). Thompson and Ongaga (2011) also studied a North Carolina early college and results revealed that relationships, including student to student and student to teacher were personalized and promoted a positive culture of social and academic success.

According to teacher survey data, redefined professionalism is being implemented less. The redefined professionalism responses were coded as follows: 1=never, 2=a few times this year, 3=once or twice a month, 4=once or twice a week, and 5=almost every day. The mean based on a 5.0 scale by teacher years of experiences was 2.4 for 6-10; 2.5 for 11-20; 2.6 for 26 plus; 2.7 for 21-25; and 2.8 for less than 5 years. The data indicate that teachers are rarely utilizing this early college design principle. This design principle had similar results by content area. The mean was 2.3 for electives; 2.0 for science, history, and English; and 2.9 for math. However, math teachers had the highest means on individual strategies of 4.3 communicating with colleagues to create lesson plans and 4.5 communicating with colleagues about instruction. Since response 4 stated once or twice a week, the math teachers are collaborating weekly. The results by school were 2.9 School B2, 2.6 Schools A3 and B3, and 2.4 Schools A1 and B1. These data indicate that redefined professionalism is the least implemented of the early college design principles in all of the five high schools at a rate of a few times this year.

The leadership and purposeful design early college principle responses were coded as

follows: 1=not true at all, 2=somewhat true, 3=mostly true, and 4=entirely true. The mean score on the teacher survey for leadership and purposeful design principles based on a 4.0 scale was 3.0 for 6-10 years of experience, 2.9 for 11-20 and 21-25, and 2.6 for less than 5 and 26 plus. The data indicate that teachers in the middle of their career are implementing this principle more than teachers at the beginning and end of their career. Based on content area, the mean was 2.9 electives, 2.8 English, 2.7 math and science, and 2.6 history. The data for each individual school revealed the mean was 3.0 for School A3, 2.8 for Schools A1 and B2, and 2.7 for Schools B1 and B3. According to teacher survey responses, School A3 seems to be implementing leadership and purposeful design more frequently than the other schools based on the teacher survey results with a mean response of mostly true. These data reflect Principal A3's interview comments. She developed a Summer Leadership Camp comprised of several teachers. She took them off site in the summer to study an educational leadership book. During the camp, she modeled early college learning protocols and they planned for the new school year. At the beginning of year staff meeting, these teachers led it by modeling the protocols with other teachers in small groups. In contrast, Principal B2 stated that he did not focus on the leadership design principle with regard to developing teacher leaders. He said, "The leadership principle comes with the development of the others. If we are doing all of the other principles and strategies, the teacher leadership will happen."

A one-way ANOVA test was used to determine any differences between the implementation of early college design principles among the five traditional high schools. The ANOVA test revealed that there is no significant difference between the high schools in implementation of two early college design principles: powerful teaching and learning and redefined professionalism. The ANOVA test showed that there was a significant difference

among the schools for personalization and leadership and purposeful design. The Scheffe post hoc test revealed School A3 had a significant difference between Schools B3 and B2 in the personalization variable. The ANOVA test also showed a significant difference among School A3 and School B3 in the variable leadership and purposeful design principle. The data indicate that School A3 is using personalization and leadership and purposeful design to a higher degree than the others.

Principal A3's comments reflect the statistical analysis. She started the interview talking about the importance of developing good relationships, getting buy in, and communicating with all stakeholders. She stated, "Relationships and personalization make all the difference in the world." She continued to say that her focus on relationships "has changed this school." Upon her arrival to School A3 4 years ago, her priority was developing relationships with the staff and students. The school has a diverse student body with a Caucasian staff. She emphasized making all students feel a part of the school through relationships. Principal B2 mentioned that he focused on relationships by providing each student a community mentor. While this is one good strategy, he did not discuss using any of the early college personalization strategies to develop relationships between students and teachers. Principal B3 said that he emphasizes personalization, but his interview responses were all focused on instructional strategies. He did not provide any examples of personalization or relationship building. The responses of these three principals seem to reflect their teachers' survey responses.

Since there was a significant difference between School A3 and School B3 in leadership and purposeful design with School A3 having a higher mostly true response, it is interesting that Principal B3 did not mention developing teacher leaders or providing opportunities for them to assist in decision-making processes during the interview; whereas Principal A3 focused on

teacher leadership development. She was implementing the leadership and purposeful design with her Summer Leadership Camp. Additionally, she provided opportunities for teachers to lead meetings and professional development.

Based on the data, the researcher has drawn the conclusion that leadership and purposeful design have a positive impact on student success. Principal A3 believes in developing teacher leaders, and the school has the highest graduation rate of 93.3% in 2016 of the five schools studied. School A3 also experienced an increase in student growth of 53.3 in 2014 to 65.0 in 2016. School B3 had a graduation rate of 89.0% in 2016; however, School B3 experienced a decrease in student growth of 84.3 in 2014 to 59.20 in 2016. This finding is consistent with research by Semel and Sadovnik (2008). They studied several small schools in New York City, and results revealed that school success was in part due to strong leaders who shared leadership with teachers and built professional capacity (Semel & Sadovnik, 2008). A research study of North Carolina early college principals revealed that positive, sustainable relationships along with collaborating with teachers on decisions and empowering teachers were two of the significant factors contributing to school success (Rice, 2011).

The mean score of the five high schools on the teacher survey by design principle indicates that all five schools are implementing the personalization design principle more than the others. The mean score for the five schools' personalization was 3.19 based on a 4.0 scale. The response 3 was agree which means teachers agree that they are personalizing education and building relationships with students. The powerful teaching and learning design principle based on a 5.0-point scale was a mean score of 3.34 which is once or twice a month. Based on a 4.0-point scale, the leadership and purposeful design mean was 2.78 which is between somewhat true and mostly true. The redefined professionalism is based on a 5.0 scale with a mean of 2.60.

Since response number 2 means a few times a year, the data indicates that this design principle is not implemented regularly. Based on teacher survey responses, the personalization design principle is being implemented more than the other principles, while redefined professionalism is the least achieved principle. The principal interviews reflect the data that personalization is the early college design principle that all teachers agreed was being implemented. Principal A1 stated that personalization was the early college principle that had the most impact on her school. She responded, “It maximizes (students) their potential and we create personalized four-year plans.” Principal A3 stated that building rapport with students and staff had been her priority. Principal PB2 mentioned a mentor program that provided every student with a community mentor for all 4 years. Principal A2 said that her focus had been on building positive relationships among staff and students. Principal B3 stated that he continued to implement personalization and powerful teaching and learning after the dissolution of the Rural Innovative Initiative.

Since redefined professionalism had a low mean that indicated it was only used a few times a year, it was interesting to compare teacher responses to principal interview comments. Redefined professionalism was only mentioned by two principals, A3 and B2. Both of them said that redefined professionalism was a priority even after the Rural Innovative Initiative ended. Principal A3 highlighted the value of PLCs. Principal B2 stated, “We were seeing more teacher collaboration and lesson tuning. It was impacting what we were seeing in student engagement in the classroom.” The principals’ comments are reflected in teacher survey responses. School B2 had the highest mean under redefined professionalism with 2.94, and School A3 had the second highest mean with a 2.65.

After completing the research study, the researcher concluded the data suggest that

implementation of early college design principles may have impacted student achievement data; however, there is no way to isolate the early college design principles as the single variable that effected the changes in these data. The research has concluded that each high school principal's perception of the early college design principles as a reform model impacted the implementation at their school. One principal felt that the design principles were nothing new, just a "new twist" on traditional good teaching practices. This principal's indifferent attitude toward the design principles was reflected in the fact that she did not share the survey with her staff. One principal stated that he implemented the design principles, but it was obvious in his interview that he was not passionate about it. He seemed to simply follow directions from the district. His teachers' survey responses and student achievement data reflected the attitude he portrayed in his interview responses. Finally, one principal said, "I bought into the early college design principles"; and she implemented them all. It was evident that she was a risk-taker with a passion for innovation. Her school graduation rate and student growth as well as teacher survey responses reflected the principal's passion for the early college design principles.

Limitations

There were limitations in the study that must be considered. One limitation to this study was limited data were available. College course completion rates were not available for District B at the school sites, district office, or college partner. With the elimination of the college liaison position in 2016 at each high school, the data were no longer collected. In District A, these data were only available as summary data by district, not individual high school. These data would have been valuable information in analyzing the effectiveness of early college design principles in each individual traditional high school. Additionally, the student growth data were only available for 2 years because North Carolina began collecting and analyzing it in the school

year 2013-2014.

The sample size of teacher survey responses was small. The survey was distributed to 250 teachers in five traditional high schools. There was a sixth school comprised of 56 teachers who could have been included, but the principal did not send them the survey. Only 96 teachers of 250 actually responded and submitted the name of their high school. While the researcher did not have control over the number of teachers who responded to the voluntary survey, the small response of 38% did impact the data available for analysis.

Due to the limited number of traditional high schools included in the North Carolina New Schools Rural Innovative Initiative, the scope of the study was limited. Only 18 low-wealth, traditional high schools were a part of the Rural Innovative Initiative. The researcher selected six of the 18 traditional high schools to study, or 33%. Only five were actually analyzed due to the sixth principal's failure to include her staff in the survey.

It should also be noted that the researcher is an early college high school principal. Regardless of these limitations, this study was important. Since the early college model is a relatively new educational practice, it may not stand the test of time primarily due to the funding needed to sustain it. The additional funding is necessary to provide students the college courses for free or at a reduced tuition; however, the early college design principles and strategies can be implemented in a traditional high school with or without the college courses.

Recommendations to Education Leaders

Based on this study, there are several recommendations which can be made to education leaders.

According to the Blueprint for College Readiness developed by the Education Commission of the States, if college and career readiness is an expectation of high school

graduates, it should be measured as a part of state and district level accountability models (Glancy et al., 2014). Since the college course completion data were not available for each individual high school for this study, the researcher recommends that the data become part of the high school accountability model.

Venezia and Jaeger (2013) conducted a study to evaluate college intervention and transition programs designed to improve college readiness. They reviewed the following programs: TRIO, early college and middle colleges, dual enrollment, early assessment programs, and default curricula. The only college readiness intervention program to meet all areas of the student needs was the early college and middle college high school model (Venezia & Jaeger, 2013).

The early college research demonstrates that the design principles are effective in increasing student success. In 2015, 83% of early college students graduated from high school compared to 79% of the control group (Edmunds, 2015). According to NCDPI, 95% of early colleges outperformed the state average cohort graduation rate in 2015. In EOC state testing, 90% of early colleges met or exceeded growth; and 91% of early colleges received an A or B state school performance grade in 2015 (Lake, 2016). Since North Carolina is experiencing success, this reform model should be replicated in traditional high schools by implementing the early college design principles.

While all five traditional high schools in the study experienced an increase in their graduation rates from 2012 to 2016, their EOC proficiency rates fluctuated in the time they implemented early college design principles. Four of the five high schools experienced an increase in student growth from 2012 to 2016. There is no way to isolate the early college design principles as the only variable impacting the changes in the data.

Teacher perceptions that personalization and powerful teaching and learning were occurring in their schools are consistent with research by Bloom and Unterman (2013). They studied 25 top small schools of choice with high effectiveness data and determined that personalized learning environments or relationships and high academic expectations and rigor were the two factors impacting success (Bloom & Unterman, 2013).

Teacher perceptions of redefined professional and leadership and purposeful design reflect that these design principles are only implemented a few times a year or somewhat in their high schools. The principal interviews also revealed that these principles were not the focus for the majority of them. According to Rice's (2011) study of North Carolina early college principals, these two early college design principles are a significant factor in the schools' success. "Early college high school leaders were change agents who have shifted the paradigm to a culture of empowering teachers" (Rice, 2011, p. 122). Redefined professionalism and leadership and purposeful design are about developing teacher leaders and creating a culture of collaboration among the staff. These early college design principles could be implemented in all traditional high schools and reform the education of high school graduates.

While this study was focused on the implementation of early college design principles, the researcher learned a great deal about high school leaders. It was obvious which principals actually valued the early college design principles and implemented them and the ones who were following district directives. Based on this study, the conclusion can be made that in order for high schools to be reformed and graduate students prepared for college and career, the principals must be change agents. District level leaders need to select high school principals based on their ability to adapt to change, take risks, lead people, lead change, and be innovative.

Recommendations for Future Research

A recommendation would be that future studies include an analysis of the North Carolina Cooperative Innovative High Schools that are not early colleges but are implementing similar design principles as the early college model. These are high schools that have received approval from NCDPI and the state legislature to provide innovative teaching techniques to at-risk students or students who would benefit from accelerated education.

A recommendation would be that future studies include replicating the study in five rural traditional high schools that would implement the early college design principles as a part of school improvement plans for 2 years. The principals would need professional development prior to the study in order to be knowledgeable of the early college design principles and be able to lead implementation. The study may include student surveys, interviews, and focus groups which would provide an additional lens for reflection and data interpretation.

Additional study of high school principals would provide information about high school reform. A study designed to analyze the training, experience, and perceptions of high school leaders in comparison to their student success rates, could help determine if they are indeed change agents.

Summary and Conclusion

The results of this study indicated that early college design principles can be an effective reform model for high schools. The quantitative student achievement data revealed an increase in graduation rates and EOC proficiencies; however, only 80% of the high schools had an increase in student growth data.

Teacher survey responses and principal interviews revealed that the five traditional high schools did implement the early college design principles and strategies. The results indicated that these design principles and strategies may have positively impacted the graduation rates,

student growth rates, EOC proficiencies, and college course completions. The study results revealed that the teachers and principals perceived that the early college design principles were implemented with varying degrees; however, the researcher could not isolate the early college design principles as the sole variable that impacted student achievement.

Another scope of the study was to reflect on the feasibility of the implementation of early college design principles and strategies in traditional high schools. When reviewing teacher perceptions based on survey responses, the design principles were implemented in all high schools in the study to some degree. Therefore, the researcher concludes that it is feasible to replicate the early college design principles in a traditional high school.

References

- Alaie, A. (2011). Early college high schools: Lessons learned in the college science classroom. *Urban Education* 46, 3, 426-439. doi:10.1177/0042085910377847
- Alliance for Excellent Education. (2015, April). *Below the surface: Solving the hidden graduation rate crisis*. Washington, DC.
- American Association of Community Colleges. (2017). *About community colleges*. Retrieved from www.aacc.nche.edu/AboutCC/Pages/default.aspx
- American College Test. (2015). *The condition of college and career readiness 2015*. Retrieved from <https://www.act.org/content/dam/act/unsecured/documents/CCCR15-NationalReadinessRpt.pdf>
- American Institutes for Research. (2005, March 16). *Early college high school initiative: Evaluation year end report*. Washington, DC.
- American Institutes for Research (2007, April 20). *Changes in rigor, relevance, and student learning in redesigned high schools*. Washington, DC.
- An, B. P. (2013). The impact of dual enrollment on college degree attainment: Do low SES students benefit? *Educational Evaluation and Policy Analysis*. doi:10.3102/0162373712461933
- Barnett, E., Buccerri, K., Hindo, C., & Kim, J. (2013) *Ten key decisions in creating early colleges: Design options based on research*. National Center for Restructuring Education,

Schools, and Teaching at Teachers College, Columbia University. Retrieved from http://www.tc.columbia.edu/ncrest/MCNC_Report_March_2014.pdf

Baum, S., Ma, J., & Payea, K. (2013). *Education pays 2012. The benefits of higher education for individual and society* (Trends in higher education series). New York: College Board Advocacy and Policy Center. Retrieved from <https://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report-022714.pdf>

Berger, A., Turk-Bicakci, L., Garet, M., Knudson, J., Hoshen, G. (2014). *Early college, continued success: Early college high school initiative impact study*. Report for American Institutes for Research. Retrieved from http://www.air.org/sites/default/files/AIR_ECHSI_Impact_Study_Report-_NSC_Update_01-14-14.pdf

- Bloom, H. S., & Unterman, R. (2013). *Sustained progress: New findings about the effectiveness and operation of small public high schools of choice New York City*. Retrieved from http://www.mdrc.org/sites/default/files/sustained_progress_FR_0.pdf
- Bohrnstedt, G. (2013, October 30). *Gains and gaps: Education performance after a nation at risk*. (American Institutes for Research Report). Retrieved from <http://www.air.org/resource/three-decades-education-reform-are-we-still-nation-risk>
- Carnevale, A. P., Rose, S. J., & Cheah, B. (2011, August) *The college payoff: Education Occupations, lifetime earnings*. Washington, DC: Center on Education and the Workforce, Georgetown University. Retrieved from <https://cew.georgetown.edu/cew-reports/the-college-payoff/#fullreport>
- Civic Enterprises: Everyone Graduates Center at the School of Education at Johns Hopkins University. (2015, May 12). *Building a grad nation: Progress and challenge in ending the high school dropout epidemic*. Washington, DC.
- College Entrance Examination Board. (2003). *A brief history of the advance placement program*. Retrieved from http://www.collegeboard.com/prod_downloads/about/news_info/ap/ap_history_english.pdf
- Conley, D. (2007). *Redefining college readiness volume 3*. Educational Policy Improvement Center prepared for Bill and Melinda Gates Foundation. Retrieved from <http://evergreen.edu/washingtoncenter/docs/conleycollegereadiness.pdf>
- Conley, D. (2008). Rethinking college readiness. *New England Board of Higher Education*, 22(5), 24-26. Retrieved from files.eric.ed.gov/fulltext/EJ794245.pdf
- Dodge, K. (2010). *Study of the efficacy of North Carolina's Learn and Earn early college high school model*. The University of North Carolina at Greensboro.
- Donohue, T. (2015, January 14). *State of America Business 2015*. Address. Retrieved from https://www.uschamber.com/sites/default/files/state_of_american_business_2015_final_speech_text2.pdf
- Edmunds, J. (2012). Early colleges: a new model of schooling focusing on college readiness. *New Directions for Higher Education*, 158, 81-89. doi: 10.1002/he.20017

- Edmunds, J. (2015). *Smoothing the way to college: Impact of early college high schools*. Report for SERVE Center, The University of North Carolina at Greensboro. Retrieved from http://www.serve.org/uploads/docs/Gen%20Documents/Smoothing_the_way_to_college.pdf
- Edmunds, J., Coyle, V.C., Klopfenstein, K., Mathis, J. & Clemons, E. (2016). *Rural innovative schools, scale-up: Year 1 baseline external evaluation report*. Greensboro, NC: The SERVE Center, University of North Carolina at Greensboro.
- Edmunds, J., Henson, R., Naumenko, O., Hutchens, B.C., & Lewis, K. (2016). *North Carolina's rural innovative high schools: Year 4 external evaluation report*. Greensboro, NC: The SERVE Center, University of North Carolina at Greensboro.
- Education Alliance at Brown University. (2001). *Data-driven high school reform: The breaking ranks model*. Providence, RI: Author.
- Gates Foundation. (2004, December 7). *New investments expand and strengthen national network of early college high schools*. Seattle, WA: Author.
- Gates Foundation. (2005, February 26). *Prepared remarks for National Education Summit on high schools*. Seattle, WA: Author.
- Glancy, E. Fulton, M., Anderson, L., Zinth, J. D., and Millard, M. (2014). *Blueprint for college readiness*. Education Commission of the States. Retrieved from <http://www.ecs.org/bpcr/html/educationissues/blueprint/blueprint-intro.html>
- Hackbarth, S. (2015). *Here are 13 ways to stronger and deeper economic growth*. Report prepared for U.S. Chamber of Commerce. Retrieved from <https://www.uschamber.com/above-the-fold/here-are-13-ways-stronger-and-deeper-economic-growth>
- Hoffman, N., & Vargas, J. (2010). *A policymaker's guide to early college design*. Report for Jobs for the Future. Retrieved from <http://files.eric.ed.gov/fulltext/ED520109.pdf>
- Hughes, K, Karp, M., Fermin, B., & Bailey, T. (2006). *Pathways to college access and success*. (CCRC Brief 27) New York: Community College Research Center, Teachers College, Columbia University. Retrieved from <https://academiccommons.columbia.edu/catalog/ac:157648>

- Hughes, K., Rodriquez, O., Edwards, L., & Belfield, C. (2012). *Broadening the benefits of dual enrollment: Reaching underachieving and underrepresented students with career-focused programs*. New York: Community College Research Center, Teachers College, Columbia University. Retrieved from <http://ccrc.tc.columbia.edu/media/k2/attachments/broadening-benefits-dual-enrollment-rp.pdf>
- Institute of Education Sciences National Center for Education Statistics. (2012). *Selected findings from PISA 2012*. Retrieved from https://nces.ed.gov/surveys/pisa/pisa2012/pisa2012highlights_1.asp
- Institute of Education Sciences National Center for Education Statistics. (2014). *The condition of education 2014 (NCES 2014-083)*. Institutional retention and graduation rates for undergraduate students. Washington, DC: Author.
- Institute of Education Sciences National Center for Education Statistics. (2015). *The nation report card: 2015 mathematics and reading assessments*. Retrieved from <https://nces.ed.gov/nationsreportcard/about/>
- Jackson, J., & Kurlaender, M. (2014). College readiness and college completion at broad access four year institutions. *American Behavioral Scientist*, 58, 947-971. doi: 10.1177/0002764213515229.
- Kaniuka, T. S., & Vickers, M. (2010). Lessons learned: How early college high schools offer a pathway for high school reform. *NASSP Bulletin*, 94(3), 165-183. doi:10.1177/0192636510384982.
- Kemple, J. J. (2008). *Career academies: Long term impacts on labor market outcomes, educational attainment, and transitions to adulthood*. Retrieved from <http://www.mdrc.org/publication/career-academies-long-term-impacts-work-education-and-transitions-adulthood>
- Kim, J., & Barnett, E. (2008). *MCNC early college high school students: Participating and performing in college coursework*. Report for National Center for Restructuring Education, Schools and Teaching, Teachers College, Columbia University. Retrieved from <http://files.eric.ed.gov/fulltext/ED522172.pdf>
- Lake, I. (2016, October). *Cooperative innovative high schools: CIHS regional meeting*. Session presented at the meeting Cooperative Innovative High School Leaders, Catawba Valley Community College, Hickory, NC.
- Leonard, J. (2013). Maximizing college readiness for all through parental support. *School Community Journal*, 23(1), 183-202. Retrieved from <http://files.eric.ed.gov/fulltext/EJ1004338.pdf>

- Martinez, N., & Klopot, S. (2005). *The link between high school reform and college access and success for low-income and minority youth*. Washington, DC: American Youth Policy Forum. Retrieved from <http://www.aypf.org/publications/HSReformCollegeAccessandSuccess.pdf>
- Mattern, K., Burrus, J., Camara, W., O'Connor, R., Hansen, M. A., Gambrell, J., Casillas, A., & Bobek, B. (2014). *Broadening the definition of college and career readiness: A holistic approach*. (ACT Research Report Series 2014. [5]). Retrieved from <http://files.eric.ed.gov/fulltext/ED555591.pdf>
- Miller, L., & Corritore, M. (2012). *Assessing the impact of North Carolina's early college high schools on college preparedness*. (Center on Education Policy and Workforce Competitiveness, 2012, Series No. 7) Charlottesville, VA, University of Virginia. Retrieved from http://curry.virginia.edu/uploads/resourceLibrary/7_Miller_EarlyCollegeSchools.pdf
- National Association of Secondary School Principals. (2013). *Policy recommendations for college and career ready standards in secondary schools*. Retrieved from https://www.nassp.org/Documents/Content/44755/14-111-AD_CollegeCareerBriefing_rev2.pdf?SSO=true
- National Center for Public Policy and Higher Education. (2010, June). *Beyond the rhetoric: Improving college readiness through coherent state policy*. Washington, DC: Author. Retrieved from http://www.highereducation.org/reports/college_readiness/CollegeReadiness.pdf
- National High School Alliance. (2005). *A call to action: Transforming high school for all youth*. Washington, DC: Author. Retrieved from <http://www.hartfordinfo.org/issues/wsd/education/CalltoAction2005.pdf>
- Nodine, T. (2009). *Innovations in college readiness*. Report for Jobs for the Future. Retrieved from http://www.jff.org/sites/default/files/publications/Innovations_in_College_Readiness_PDFVersion_102909.pdf
- North Carolina Department of Public Instruction (2016). Cooperative innovative high school programs. Raleigh, NC: Public Schools of North Carolina. Retrieved from <http://www.ncpublicschools.org/advancedlearning/cihs/>
- North Carolina New Schools. (2013). *Changing the future through early college high schools*. Retrieved from http://ncnewschools.org/wp_content/uploads/2014/08/Early_College_overview.pdf

- North Carolina New Schools. (2015). *Evaluation of innovative high school programs*. Report to the North Carolina General Assembly. Retrieved from <http://www.ncleg.net/documentsites/committees/JLEOC/Reports%20Received/2015%20Reports%20Received/Evaluation%20of%20Student%20Success%20in%20Cooperative%20Innovative%20Education%20Programs.pdf>
- Obama, B. (2012). *Weekly address: Congress should back plan to hire teachers* [Transcript.] Retrieved from <https://obamawhitehouse.archives.gov/the-press-office/2012/08/18/weekly-address-congress-should-back-plan-hire-teachers>
- Pascopella, A. (2011, October). Design principles for early college high school. *District Administration*. Retrieved from <https://www.districtadministration.com/article/design-principles-early-college-high-school>
- Pierce, D. (2016). All in this together. *Community College Journal*, 86, 32-36. Retrieved from <http://search.proquest.com.ezproxy.gardner-webb.edu/docview>
- Ponce, O., & Pagan-Maldonado, N. (2014). Mixed methods research in education: Capturing the complexity of the profession. *International Journal of Education Excellence*, 1(1), 111-135. ISSN 2373-5929.
- Porter, A., McMaken, J., Hwang, J., & Yang, R. (2011). Common core standards. *Educational Researcher*, 40(3), 103-116. doi:10.3102/0013189x11405038
- Radford, A. W., & Horn, L. (2012). *Web Tables- an overview of classes taken and credits earned by beginning postsecondary students (NCES 2013-151 REV)*. Washington, DC: National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education.
- Rice, L. G. (2011). *Principals' perception of the early college high school experience in selected North Carolina early college high schools*. (Doctoral dissertation). Retrieved from <http://search.proquest.com.ezproxy.gardner-webb.edu>
- Schneider, M., & Yin, L. M. (2011). *The high cost of low graduation rates: How much does dropping out of college really cost?* Washington, DC. American Institutes for Research. Retrieved from https://www.collegeincolorado.org/Images/CiC/pdfs/Press_Room/high_cost_of%20low_graduation.pdf
- Semel, S., & Sadovnik, A. R. (2008). The contemporary small-school movement: Lessons from the history of progressive education. *Teachers College Record*, 110(9), 1744-1771. Retrieved November 20, 2016, from Gardner-Webb University Library.
- SERVECenter. (2015). *About the SERVE center*. Retrieved from www.serve.org

- Skomsvold, P. (2014). *Profile of undergraduate students: 2011-12 (NCES 2015-167)*. National Center for Education Statistics, Institute of Education Sciences. U. S. Department of Education, Washington, DC. Retrieved from <https://nces.ed.gov/pubs2015/2015167.pdf>
- Smith, L. W. (2009). *The effects of philanthropic high school reform (early college high school) on the authentic intellectual quality of student responses*. (Doctoral dissertation). Retrieved from <http://search-proquest.com.ezproxy.gardner-webb.edu>
- Smith, R., Fischetti, J., Fort, D., Gurley, T., & Kelly, M. (2012). From the margins to the mainstream: Potential impact of early colleges on traditional high schools. *The Educational Forum*, 76, 383-394. Retrieved from <http://search.proquest.com.ezproxy.gardner-webb.edu>
- Stiefel, L., Schwartz, A. E., & Wiswall, M. (2015). Does small high school reform lift urban districts? Evidence from New York City. *Educational Researcher* 44(3), 161-172. Retrieved from <http://search.proquest.com.ezproxy.gardner-webb.edu>
- Thompson, C., & Ongaga, K. (2011). Flying the plane while we build it: A case study an early college high school. *The High School Journal*, 94(2), 43-57. doi:10.1353/hsj2011.000
- United States Department of Education (2001). *Raising our sights: No high school senior left behind*. National Commission on the High School Senior Year Publication. Retrieved from <http://files.eric.ed.gov/fulltext/ED459516.pdf>
- United States Department of Education (2008). *A nation accountable: Twenty five years after a nation at risk*. Washington, DC: United States Department of Education. Retrieved from <https://www2.ed.gov/rschstat/research/pubs/accountable/accountable.pdf>
- United States Department of Education. (2013). *Fact sheet: Redesigning American high schools*. Retrieved from <https://www.ed.gov/news/press-releases/fact-sheet-redesigning-americas-high-schools>
- United States Department of Education (2015a). Elementary and secondary education act. Retrieved from www.ed.gov/esea
- United States Department of Education (2015b). *U.S. high school graduation rate hits new record high*. Washington, DC: United States Department of Education. Retrieved from <https://www.ed.gov/news/press-releases/us-high-school-graduation-rate-hits-new-record-high>

- United States Department of Education. Office of Planning, Evaluation and Policy Development Policy and Program Studies Service (2016). *Using evidence to create next generation high schools*. Washington, DC: United States Department of Education. Retrieved from <https://www2.ed.gov/rschstat/eval/high-school/using-evidence-create-next-gen-highschools.pdf>
- United States Government. The White House. (2015). *Reforming no child left behind*. Retrieved from <https://obamawhitehouse.archives.gov/issues/education/k-12/reforming-no-child-left-behind>
- United States National Commission on Excellence in Education. (1983). *A nation at risk: the imperative for educational reform*. Report to the Nation and the Secretary of Education United States Department of Education. Washington, DC: The Commission [Supt. Of Docs., U.S. G.P.O. distributor].
- Venezia, A., & Jaeger, L. (2013). Transitions for high school to college. *The Future of Children*, 23, 117-136. Retrieved from <http://search.proquest.com/ezproxy.gardner-webb.edu>
- Webb, M. (2004) *What is the cost of planning and implementing early college high school?* Report for Jobs for the Future. Retrieved from <http://files.eric.ed.gov/fulltext/ED497817.pdf>
- Webb, M., & Mayka, L. (2011). *Unconventional wisdom: A profile of the graduates of an early college high school*. Report for Jobs for the Future. Retrieved from <http://files.eric.ed.gov/fulltext/ED519999.pdf>
- Williams, M., & Southers, T. (2010). Blurring the lines between high school and college: Early colleges and the effect on adult learners. *Adult Learning*, 21(1-2), 26-30. Retrieved from <http://journals.sagepub.com/doi/abs/10.1177/104515951002100105?journalCode=alxa>

Appendix A

Early College Strategies Used in Traditional High Schools Survey

Early College Strategies Used in Traditional High Schools Survey

1. What is your role in your high school?
 - ☐ Teacher
 - ☐ Administrator
2. What is the content or subject area you teach?
 - ☐ Science
 - ☐ History
 - ☐ English
 - ☐ Math
 - ☐ Elective
 - ☐ School Administrator
3. Please indicate your years of experience in education.
 - ☐ 0-5 years
 - ☐ 6-10 years
 - ☐ 11-20 years
 - ☐ 21-25 years
 - ☐ 26 plus years
4. This year how often have you asked students to solve problems based on life outside of school?
 - ☐ Never
 - ☐ A few times this year
 - ☐ Once or twice a month
 - ☐ Once or twice a week
 - ☐ Almost everyday
5. How often have you allowed your students to decide on the projects or research topics they will work on?
 - ☐ Never
 - ☐ A few times this year
 - ☐ Once or twice a month
 - ☐ Once or twice a week
 - ☐ Almost every day
6. How often have you allowed students to work together on projects or assignments?
 - ☐ Never
 - ☐ A few times this year
 - ☐ Once or twice a month

- Once or twice a week
 - Almost every day
7. How often have you emphasized making connections between what goes on inside and outside of school?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
8. How often do you make connections between what's taught in your class and what's taught in other classes?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
9. How often have you asked students to defend their own ideas or point of view in writing or in a discussion?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost everyday
10. How often have you asked your students to do an oral presentation for the class?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
11. How often have you asked students to read difficult or complex texts?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day

12. In general, the teachers and staff in this school believe all students can do well.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
13. Teachers and staff in this school care about their students.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
14. Teachers and staff expect students to do their best.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
15. Teachers know something personal about each of their students.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
16. Teachers provide a lot of encouragement to students.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
17. Teachers praise their students when they work hard.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
18. How often do you work with or communicate with your colleagues on lesson plans or unit planning?
- ☐ Never
 - ☐ A few times this year
 - ☐ Once or twice a month

- Once or twice a week
 - Almost everyday
19. How often do you communicate with your colleagues on logistics such as planning field trips or ordering materials?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
20. How often do you work with your colleagues to develop assessments?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
21. How often do you participate in peer observation and provide or receive feedback?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
22. How often do you work with or communicate with your colleagues about instruction or instructional strategies?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day
23. How often do you collaborate with your colleagues to develop and implement interdisciplinary units?
- Never
 - A few times this year
 - Once or twice a month
 - Once or twice a week
 - Almost every day

24. Teachers act as if they are responsible for student's learning, even if the students are not in their classes.
- ☐ Not true at all
 - ☐ Somewhat true
 - ☐ Mostly true
 - ☐ Entirely true
25. School staff meets regularly to discuss how to meet the needs of students.
- ☐ Not true at all
 - ☐ Somewhat true
 - ☐ Mostly true
 - ☐ Entirely true
26. If a child doesn't learn something the first time, teachers here will try another way.
- ☐ Not true at all
 - ☐ Somewhat true
 - ☐ Mostly true
 - ☐ Entirely true
27. Teachers in this school feel responsible for making sure that students don't drop out of school.
- ☐ Not true at all
 - ☐ Somewhat true
 - ☐ Mostly true
 - ☐ Entirely true
28. Teachers believe that good teaching is more important to students' engagement in schoolwork than is their home environment.
- ☐ Not true at all
 - ☐ Somewhat true
 - ☐ Mostly true
 - ☐ Entirely true
29. Teachers in this school listen to what their students have to say.
- ☐ Strongly Disagree
 - ☐ Disagree
 - ☐ Agree
 - ☐ Strongly Agree
30. Teachers and staff in this school respect and appreciate their students.
- ☐ Strongly Disagree

- Disagree
- Agree
- Strongly Agree

Appendix B

Permission to Use Survey

4/3/2017

Sheila S. Wyont
Principal

Dear Ms. Wyont,

With this letter, I give you permission to utilize, in part or in its entirety, the Early College Staff Survey, in your dissertation. This survey cannot be sold or otherwise used for financial gain.

Sincerely,

Program Director, Secondary School Reform
SERVE Center at the University of North Carolina at Greensboro

Appendix C

Approval from District A

Yes. There is a hard copy letter being mailed to you from my Superintendent in District A approving. Let me know if you don't receive in a day or two.

Appendix D

Approval from School District B

to me

Good morning,

Your request to use District Bas a research site has been approved. The decision to participate in the study, of course, remains at the discretion of the individual teachers and principals whom you contact. If I can answer any questions you may have or otherwise be of help, then please don't hesitate to let me know.

Good luck with your study!