A STUDY OF THE EFFECTS OF SMALL LEARNING COMMUNITIES ON STUDENT ACADEMIC ACHIEVEMENT

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A STUDY OF THE EFFECTS OF SMALL LEARNING COMMUNITIES ON STUDENT ACADEMIC ACHIEVEMENT

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The College of Graduate Studies

Austin Peay State University

In Partial Fulfillment

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The Requirements for the Degree

Educational Specialist

Mandy J. Frost

December, 2014

To the College of Graduate Studies:

We are submitting a field study written by Mandy J. Frost entitled "A Study of the Effects of Small Learning Communities on Student Achievement." We have examined the final copy of this field study for form and content. We recommend that it be accepted in partial fulfillment of the requirements for the degree of Educational Specialist.

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DEDICATION

I would like to dedicate the completion of this field study to my family. Without their help and support, none of this would have been possible. I would like to personally thank my husband Richard for always being there for me. You always knew when I needed you the most. You continue to support me in all that I do. I could not ask for a better husband and father for our children.

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ABSTRACT

MANDY J. FROST. "A Study on the Effects of Small Learning Communities on Student Achievement" (Under the direction of DR. J. GARY STEWART).

The purpose of this field study was to explore the impact of small learning communities on student academic achievement. This study used a matched pair design. All the students enrolled in the Health Science Academy during the 2013-2014 school year were matched to other students not enrolled in the Health Science Academy within the same Middle Tennessee School, based on their freshman year Tennessee Value Added Assessment System (TVAAS) prediction scores for English I and Algebra I.

This study found that, overall, there was no statistically significant difference when comparing students enrolled in small learning communities to those who were not enrolled in a small learning community in the areas of End-Of-Course growth for English I and Algebra I, final grade point average, discipline records, credits earned, and attendance when using a significance level of $p < 0.05$. This study used both MANOVA tests and a *t*-Test to determine the statistical significance of small learning communities on student academic achievement.

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CHAPTER I

INTRODUCTION

Statement of the Problem

According to the U.S. Department of Education (n.d.), "Four out of every ten college students, including half of those at two-year institutions, take remedial courses, and many employers comment on the inadequate preparation of high school graduates" (p. 1). The Clarksville-Montgomery County School System considers this statistic unacceptable. The school system's goal has always been to strive for a 100% graduation rate and to help students become college and career ready. Since the school system is well on its way to achieving its goal of 100% graduation rate, the area the district would now like to make improvements in the area of preparing students for the work-force. After much consideration, the district believes the next logical step in the achievement of this lofty goal would be in the implementation of career academies at the secondary level for most or all of their high schools.

Purpose of the Study

The purpose of this field study was to explore the impact of small learning communities on student academic achievement. The independent variables were the English and Mathematics students in the health science academy small learning community, and the dependent variables were the ninth grade English I and Algebra I End-of-Course (EOC) scores, number of credits earned, discipline points, final grade point average (GPA), and the attendance records for the identified freshman students that

were identified as part of the targeted population. This is the first year that all high schools within the district offered a specific career academy.

Significance of the Study

The research collected from the data and the accompanying analyses of the data from this field study will help to determine if implementing small learning communities within subject areas and within a large school setting has any statistical significance on End-of-Course (EOC) test scores, discipline records, credits earned, attendance records, and final grade point averages for freshman students, which correlate with academic achievement. The school's administration and Central Office employees will analyze the benefit to the school system from the data and analyses received as result of this field study. Implementation of small learning communities within the current high schools may be revised based upon the results of this study. The teachers in the district will benefit from the research findings in this field study by gaining knowledge about whether their English and Mathematics scores improved or did not improve during a school year after implementing a career academy. The parents and students will also benefit if the data reflects that small learning communities, such as the Health Science Academy, assisted in the improvement of academic achievement in their child's English and Mathematics End-Of-Course (EOC) test scores. This will provide the parents and teachers with the motivation and determination to support and promote the small learning communities (career academies) within the high schools. This data could provide a great selling point to recruit upcoming freshman students. Additionally, future researchers

may benefit from the research findings resulting from this field study for support in their own research studies.

Research Questions

1. Is there a significant difference between the number of credits earned of 9th grade students who are enrolled in a Small Learning Community, such as the Health Science Academy (HSA), and 9th grade students not enrolled in a Small Learning Community?
2. Is there a significant difference between Health Science Academy students' growth scores on the Algebra I End-of-Course (EOC) test and non-Health Science Academy students' growth scores?
3. Is there a significant difference between Health Science Academy students' growth scores on the English I End-of-Course (EOC) test and non-HSA students' growth scores?
4. Is there a significant difference between Health Science Academy students' discipline records and non-Health Science Academy students' discipline records?
5. Is there a significant difference between Health Science Academy students' final grade point average (GPA) and non-Health Science Academy students' final GPA?
6. Is there a significant difference between Health Science Academy students' number of absences and non-Health Science Academy students' absences?

Null Hypotheses

1. There will be no statistically significant difference in student End-of-Course (EOC) English I test scores between students who are participants in the Health Science Academy compared to the scores of those students who are not Health Science Academy participants.
2. There will be no statistically significant difference in student End-of-Course (EOC) Algebra I test scores between students who are participants in the Health Science Academy compared to the scores of those students who are not Health Science Academy participants.
3. There will be no statistically significant difference in student final grade point average (GPA) scores between students who are participants in the Health Science Academy compared to the scores of those students who are not Health Science Academy participants.
4. There will be no statistically significant difference in student discipline records between students who are participants in the Health Science Academy compared to the discipline records of those students who are not Health Science Academy participants.
5. There will be no statistically significant difference in the number of credits earned between students who are participants in the Health Science Academy compared to the credits earned of those students who are not Health Science Academy participants.
6. There will be no statistically significant difference in the attendance records between students who participates in the Health Science Academy compared to

the attendance records of those students who are not Health Science Academy participants.

Limitations

1. The first limitation in this study was that only one tool was utilized to measure growth of student academic achievement in English and Mathematics to determine the impact of small learning communities' implementation. The End-of-Course (EOC) was the only test administered to ninth grade students in this study to measure growth in English and Mathematics.
2. The second limitation was that this study does not address all the variables that could potentially affect student achievement, such as the student's home life or the knowledge of the teacher. Because this is the first year for career academies to be implemented into the high school curriculum, each teacher designed all the lessons in all aspects.
3. The third limitation was that the data was collected from only a one-year period. Results may prove unreliable in future examinations.
4. The fourth limitation in this study was that the data was collected from a small sample of students. Only 37 students were enrolled in the Health Science Academy.
5. The fifth and final limitation was that the study only compares the results of one small learning community within one school, rather than the entire small learning communities within the district.

Assumptions

1. One assumption in this study was that all students performed to the best of their abilities on the End-of-Course exams in the spring of 2014.
2. Another assumption in this study was that all teachers received the same amount of training on how to teach and implement Health Science related topics effectively in their subject areas.

Definition of Terms

1. **End-of-Course (EOC) Test:** Refers to a state required, standardized exam administered at or near the completion of a term of instruction (Domaleski, 2011).
2. **ACT EXPLORE Test:** The first test of a three course series to measure a student's progressive development of knowledge and skills in the same academic areas. This test is administered in eighth grade to determine a student's readiness for high school studies (ACT Resource Manuel, 2010).
3. **Small Learning Community:** A Smaller Learning Community is an environment in which a core group of teachers and other adults within the school know the needs, interests, and aspirations of each student well, closely monitor his or her progress, and provide the academic and other support he or she needs to succeed (Clark, Dayton, Tidyman, & Hanna, 2006).
4. **Career Academy:** One variety of a small learning community in which one class focuses on a career theme, and coordinated academic classes are flavored with this theme (Clark, et al., 2006).

5. **Grade Point Average (GPA):** Based on a four-point scale. A's are worth 4 points, B's are worth 3points, C's are worth 2 points, and D's are worth 1 point per credit. Grades are averaged at the semester to determine final grade point average for every student.
6. **Tennessee Value-Added Assessment System (TVAAS):** Measures the impact schools and teachers have on their students' academic progress. TVAAS measures a student's growth from year to year and not whether the student is proficient on the state assessment (Tennessee Value-Added Assessment System, n.d.)
7. **Power School Administrator–** Web-based information tool used across the district to allow administrators access to students' grades, discipline records, attendance information, and transcripts.
8. **John's Macintosh Program (JMP) –** A tool for expert data analysis, design of experiments, and Six Sigma implementation. JMP is a business unit of SAS Institute, Inc. for Windows and Macintosh. JMP focuses on exploratory data (John's Macintosh Program, n.d.)

CHAPTER II

REVIEW OF THE LITERATURE

Educators are increasingly focusing on the ninth grade as the year that determines the success of the student. Experiences in 9th grade are not only critical to sustaining their motivation to achieve but also their retention throughout high school. Ninth graders have the lowest grade point average, the most missed classes, the majority of failing grades, and more misbehavior referrals than any other high-school grade level (Willens, 2013). Students who run into academic trouble by the end of 9th grade are significantly less likely to complete high school, even if they were high achieving students before they entered high school (Allensworth & Easton, 2005).

To compound the issue, many schools allow elementary and middle school students to advance, ready or not, because of age issues, commonly known as social promotion. Yet, when they reach the ninth grade, the stakes are higher, and students are not prepared. High school students now have to earn enough credits to advance to the next grade level. They can no longer be socially promoted.

Furthermore, traditionally, high school has been a time when a student would try different classes and explore different career fields, but with the new graduation requirements, high schools are no longer a time for exploration. Students cannot try different electives and see which career paths might interest them. With the enrollment into high school, students must pick a cluster of classes that they think will interest them and are not allowed to switch to a different cluster of classes later on in high school and still meet graduation requirements.

Simply graduating from high school is no longer sufficient for students to be successful in life. Ensuring that all students who graduate high school are college and career ready by 2020 is one of President Obama's key education reform goals. Preparing young adults for success requires a different educational experience than it did even a generation ago. Nearly eight in ten future job openings in the next decade in the United States will require some workforce training or postsecondary education (Holzer & Lerman, 2009). Many high school graduates lack exposure to learning that links their work in school to college and careers.

Definition of College and Career Ready

According to Strauss (2010), there is no consensus in the education world on the definition of college and career ready. She further explains:

> ACT defines college readiness as acquisition of the knowledge and skills a student needs to enroll and succeed in credit-bearing, first-year courses at a postsecondary institution, such as a two– or four-year college, trade school, or technical school. (p. 1)

According to the National Center for Educational Statistics (Ingels, Pratt, Wilson, Burns, Currivan, Rogers, & Hubbard-Bednasz, 2007), among 2003-04 high school seniors who had enrolled in postsecondary education by 2006, 40% took remedial courses and 51% of students enrolled in a public two-year college were in need of remediation. The need for remedial courses in postsecondary education or training program determines if a student is college and career ready.

ACT research shows that career readiness requires the same level of foundational knowledge and skills in mathematics and reading that college readiness does. According to research, the majority of the jobs that require at least a high school diploma and pay a living wage for a family of four are projected to increase in number in the 21st century and provide opportunities for career advancement that require a level of knowledge and skills comparable to those expected of the first-year college student (Strauss, 2010). Strauss (2010) further explains that the level of knowledge and skills students need when they graduate from high school is the same whether they plan to enter postsecondary education or a workforce training program for jobs that offer salaries above the poverty line. Students who do not attend college will need additional workforce training to advance their careers. According to business owner Billy Harper, as cited in (Olson, 2006), it is very difficult to join the workforce with only a high school education. It has become more apparent that some postsecondary education is inevitable.

Need for a Reform in Education

The challenges confronting schools in the 21st century bring into sharp focus the need for the transformation of school settings into far more productive learning contexts. No Child Left Behind and the reports leading up to it, such as *A Nation at Risk* and *Goals 2000*, profoundly changed the standards by which America's Schools are judged (Felner, Seitsinger, Brand, Burns, & Bolton, 2007). For the first time in the history of America's efforts at providing public education, the goal is now nothing short of educating all students to high levels of proficiency. The United States Department of Education reported that in 2006-07, of the nation's nearly 100,000 schools, about 10,676 schools

were in need of improvements and 2,302 schools were in need of restructuring (Kuo, 2010).

In an age of reform and restructuring, educators are seeking new ways to improve their schools. According to Fleishman and Heppen (2009), an effective education combines rigorous and relevant curricula for all students in a personalized and responsive learning community with strong relations between teacher and student and between school and parents. Research has consistently shown that when a school is too big, serious problems often arise (Rothstein, 2001). Many traditional high schools are large, often over one thousand students, sometimes as many as three or four thousand. The size makes it easy for students to remain anonymous, with no strong adult or peer connections and no sense anyone really cares about them. The lack of connection is one of the reasons so many students, an average of about 50% in many urban districts, drop out of high school before they reach graduation (Clark, Tidyman, & Hanna, 2006).

Over the past decade, impressive amounts of money and human resources have been invested into breaking up the larger, comprehensive high school. Converting to a smaller, more personalized learning environment is supposed to enable teachers to personalize instruction so students' individual learning needs are met, and they are better prepared for post-secondary schooling and careers (Gewertz, 2009; & Oxley, 2008). Since the majority of students' difficulty is making transition from smaller, more personalized middle school settings to larger, impersonal comprehensive high schools, many educators and administrators have responded to the transition dilemma by either establishing smaller high schools or Smaller Learning Communities (SLC's) within larger high schools (Fulco, 2009). In 2005, this smaller school movement was considered

to be the "biggest and hottest high school reform in education today" (Miner, 2005, p.21), and it appears to be reformer's best current answer for meaningfully improving high schools.

According to Cotton (2001), government and private funding sources have made millions of dollars available to large schools – schools with student populations of over 1,000 students in grades 9 through 12 – to create small learning communities within the buildings they already inhabit. The U.S. Department of Education defines a Small Learning Community (SLC) as:

> An environment in which a core group of teachers and other adults within the school know the needs, interests, and aspirations of each student well, closely monitor his or her progress, and provide the academic and other support he or she needs to succeed. (p. 10)

Often the curriculum is structured around a theme to add relevance to the traditional academic subjects (English, Mathematics, Science, and Social Studies). The size of a Small Learning Community (SLC) may vary. Most researchers suggest that a size of 400 to 800 students is the appropriate range for a high school. However, research completed by Bernstein, Millsap, Schimmenti, and Page (2008), stated that "the most successful Small Learning Communities range from 200 to 400 students" (p. 9). According to Cotton (2001), "Many schools prefer their student population to be no larger than 400 or 500 students" (p. 9).

To help large high schools and school districts make schools smaller, Congress earmarked $45 million in the FY 2000 Appropriations Act for the Department of Education to fund Section 10105 of the Elementary and Secondary Education Act. This

section of the act, entitled the Smaller Learning Communities program, was designed to help Local Education Agencies (LEAs) plan, develop, implement, or expand smaller, more personalized learning communities in large high schools. Since 2000, the Bill and Melinda Gates Foundation has invested more than $600 million in small school initiatives Bernstein and et al., (2008). With higher accountability measures being implemented both at the national and state level, college and career readiness for students is no longer optional but a necessity (National Center for Educational Achievement, 2011).

Small Learning Community Structures

Just reducing the size of a high school is not enough. There must also be structural support for the students to succeed. Smaller school structures have a number of categories. Effective restructuring initiatives generally use multiple strategies to gain the full benefits of a small learning environment. Models have been identified, based on the degree of autonomy from the larger school in which they are located. Examples of smaller school structures include academies, house plans, schools-within-schools, and magnet schools.

One structure, known as an academy, is a subgroup within a school. They are organized around particular themes. There are a variety of academies within education. For example, career academies combine key principles of the school-to-career movement – integrating academic and vocational instruction, providing work-based learning opportunities for students, and preparing for postsecondary education and employment- with the personalized learning environment of a small focused learning community. According to the U.S. Department of Education's Smaller Learning Communities Award

Database, a total of 1,535 schools in 634 school districts received grants from 2000-2007, and approximately 60% of the schools that received a SLC grant in years 2000-2004 used their funding to create a career academy (Brand, 2009).

Career academies were first introduced in the 1970's with the aim of restructuring large high schools into small learning communities and creating better pathways from high school to further education and the workplace (Kemple, 2008; & Oxley, 2005). Career academies are organized around such themes as health science, law, business and finance, and engineering. Academy students take classes together, remain with the same teachers for several years, follow a curriculum that includes rigorous academic courses as well as career-oriented courses, and participate in work-based learning activities. Career academies develop partnerships with employers, the community, and colleges, which draw upon their resources and increase opportunities for students to engage in internships and work-based learning. Employers from all company sizes provide support by serving as curriculum advisors, providing internships and work-based learning opportunities for students, advising and mentoring youth, exposing them to career fields, and encouraging them to pursue postsecondary education.

Career academies also help students develop skills beyond academic achievement that are important to career and life success. Experiences in the workplace and with employers allow students to experience real work and see beyond the classroom. Students who are given opportunities to work in teams on real projects begin to understand the importance of professionalism, reliability, teamwork, and clear oral communication skills. Students see first-hand how their education is related to a career field and will press harder in their studies and set higher goals for college (Brand, 2009).

A second structure known as house plans divides students in a large school into groups of several hundred, either across grade levels or by grade levels. Students take some or all courses with their house members and from their house teachers. House arrangements may be year-long or multiyear arrangements. House plans personalize the high school experience but usually have limited effect on curriculum or instruction. Each house usually has its own discipline plan, student government, social activities, and other extracurricular activities, although students may also participate in activities of the larger school. Grouping ninth-graders into a separate house is one way to ease freshman transition to high school.

Another small learning community is a Freshman Academy, also called Ninth-Grade Academy. Freshman Academy is considered by some researchers to be a type of academy, while other research identifies Freshman Academy as a type of house plan structure. Some research even identifies Freshman Academy as a totally separate structure. This is a special academy or program designed to help ninth-grade students through their first year of high school by providing the students with special attention, a smaller learning environment, more interaction with teachers, and fewer outside distractions from upperclassmen (Fulco, 2009). Fulco (2009) also notes that nation-wide data displays a consistent yet disturbing trend in which ninth grade students who had solid or even exemplary academic records before high school become apathetic and disengaged in their schooling. Many students who had not faced school discipline problems before ninth grade develop attendance, truancy, or behavioral problems during their first year of high school. Freshman academies are designed to bridge middle and high school, making the transition to high school a friendlier and more productive place

for younger students. Freshman Academies are a relatively low-cost method of restructuring the traditional high school setting.

Another structure, schools-within-schools, was created, in part, due to the emergence of large and impersonalized school systems in which high number of students could potentially fall through the cracks (Zepeda & Langenbach, 1999; & Dukes & Lamar-Dukes, 2006). A school-within-a-school is a separate and autonomous unit formally authorized by the board of education and/or superintendent. It plans and runs its own program, has its own staff and students, and receives its own separate budget. Both its teachers and students are affiliated with the school-within-a-school as a matter of choice. According to Dewees (2007), the school-within-a-school model may be an effective and affordable way to capture the benefits of smaller-scale schooling within larger school buildings (Dewees, 2007).

Schools-within-schools can be implemented in various ways. They can be separate and autonomous units with their own separate budgets, or they can be structured as a Small Learning Community within a larger school. Raywid, as cited in Dewees (2007), explains the major challenge for schools-within-in-schools is obtaining sufficient separateness and autonomy to permit staff members to generate a distinctive environment and to carry out their own vision of schooling.

Magnet programs are a type of structure that encompasses a specialty core focus (such has Mathematics, Science, creative arts, or a career theme or cluster) to attract students from the entire school district. Some magnet programs have competitive admission requirements; others are open to any interested student. Students in a magnet

program stay together for their core classes and may take other courses with non-magnet students.

Smaller Learning Community Strategies

The restructuring of large, urban schools into Small Learning Community (SLC) schools must be accompanied by an emphasis on caring relationships (Mitra, 2009) and effective teaching and learning practices. Combining several smaller school reforms with each other, as well as with other comprehensive reforms, is more beneficial than implementing one smaller school strategy in isolation. According to Rothstein (2001), small school structures, implemented along with other complementary strategies that enhance student learning, are most likely to succeed. Specific strategies that take advantage of a restructured school can be implemented at the sub-school unit level, within an entire building, or district-wide. Most of these strategies have the advantage of making students feel more connected to each other, to adults, and to their school group. Strategies that are particularly effective in making schools feel smaller are best implemented in conjunction with one of the structural approaches.

Freshman transition activities is a type of strategy that can help ease the difficulties students often encounter as they move from middle to high school. Some schools place all first-year students in their own academy or house setting, sometimes in a separate wing or even separate building, with extra support from adults. In other cases, freshman transition includes mentoring from older students or special career exploration classes designed to set the context for high school as a pathway to college and careers.

Small Learning Community (SLC) personalization strategies include advisories, looping, student of the week, and tutoring (Wallach & Lear, 2005). All of these strategies are designed to give teachers additional time to get to know the students better. Teacher advisory systems may be structured differently, but the main goal is to support academic achievement by working with small groups of students. Some schools and districts establish advisory classes that meet weekly, while others meet for less formal one-on-one or group time with teachers. Advisory activities may include helping students develop personal learning plans, introducing students to career clusters, helping students select courses, and working with students on postsecondary plans and pre-employment skills. Looping involves several teachers staying with a group of students over a period of two or more years and fosters trust and intimacy between students and teachers. Students of the week are the students who teachers feel are struggling, and teachers focus on addressing their particular needs. When the learning environment is personalized, student engagement, academic self-concept and satisfaction with their academic progress, and social responsibility increase (American Institute for Research and SRI International, 2005).

A third type of strategy, alternative scheduling, allows teachers to develop lessons that are more compatible with learning objectives. Alternative scheduling is also conducive to arranging for work-based learning opportunities and integrating business and community volunteers into the curriculum. The length of the class period, the school day, and the school year can be changed to support academic achievement. This is more easily done in smaller schools. One of the more common alternatives, block scheduling, extends class time from 45- or 50-minute periods to blocks of 80 to 90 minutes. The

added time allows teachers to provide individual attention and work together in interdisciplinary fashion and permits a greater variety of learning activities. These arrangements permit more time for tutoring and intensive projects, allow enrichment activities, and afford time for lagging students to catch up and advanced students to delve into topics more deeply. They give schools the ability to set a schedule that best suits their needs.

Another strategy is an adult advocate or mentor system. This strategy ensures that at least one adult knows each student well. Teachers, counselors, other staff, and community volunteers who must be trained can fulfill this caring adult role. Adult advocates meet with 15 to 20 students individually or in small group on a regular basis over several years, providing support and academic and personal guidance. Training for adult advocates and administrative support for the advocate system are critical elements for success.

Research indicates a final strategy for a Small Learning Community is teacher teams. Academic teaming, also known as Interdisciplinary Teaming (IDT), organizes groups of teachers across departments so that teachers share the same students rather than the same subject. This strategy has much the same effect as a house structure. Teaming links teachers, who teach different subjects, in a team that shares responsibility for the curriculum, instruction, evaluation, and sometimes scheduling and discipline of a group of 100 to 150 students. Teams share the same planning time and sometimes share a specific area of the school building.

Though more commonly used in middle schools, academic teaming is showing up in restructuring high schools as a way to personalize the learning environment by

providing an integrated view of students' progress and creating a group of teachers who can focus together on the whole student. Teams can build a sense of community into the school, enabling students to learn more, so they meet higher standards (Rothstein, 2001). Effective IDT reduces the levels of developmental hazard in educational settings by creating contexts that are experimentally more navigable, coherent, and predictable for students. Adequate IDT structures and practices are strongly linked to creating capacity for teachers to more effectively engage parents and community organizations as well as for more effective decision making by teachers and administrators (Brand, Felner, Seitsinger, Shim, & Dumas, 2005; & Seitsinger, Felner, Brand, Burns, & Jung, 2007)

Regardless of the strategy used, effective Small Learning Communities (SLC's) offer a rigorous and relevant curriculum to all students. In high functioning SLCs, teachers design engaging and imaginative curriculum linked to learning standards, analyze results, and have easy access to best practices and learning opportunities (Rayyes & Barela, 2008). Many educators fail to link structural reforms to curriculum and instructional improvements (Oxley & Luers, 2010).

Advantages of Small Learning Communities

Existing research neither supports nor refutes the promise of Small Learning Communities (SLC's) to improve academic achievement; however, research does suggest that Small Learning Communities (SLC's) can improve attendance, graduation rates, and students' experience of high schools as supportive environments. Research suggests there are several advantages for Small Learning Communities (SLC's) within a large school. One advantage is with the low number of students and the smaller staffing ratio,

SLCs become more family like, providing support and nurture for students. Often times SLCs will loop the students with the same group of teachers for several years, which increases relationships, relevance, rigor of coursework, and teacher collaboration (David, 2008). Research also suggests SLCs help to keep students in high school, make it a more positive experience, and boost attendance grades and graduation rates (Cotton, 2001). Another advantage is smaller schools and smaller sub-school units have a disproportionately positive effect on economically disadvantaged students.

Research Findings on Small Learning Communities

The past two decades of research indicate that overall comprehensive school reform models generate small positive benefits over multiple years. Hewes, Overman, and Brown (as cited in Kuo, 2010), conducted a meta-analysis of comprehensive school reform studies and concluded that the overall effects of comprehensive school reforms are small and could be expected in merely 3 years' time. Stronger effects of comprehensive school reforms begin after the 5th year of implementation. Similar positive effects were documented by Quint et al. (as cited in Levine, 2010). These findings identified clear and sustained improvement in achievement data at middle and high school levels for the First Things First (FTF) schools that had been running up to 8 years in Kansas City.

Research also suggests that there is strong evidence that smaller schools can narrow the achievement gap between white/middle class/affluent students and ethnic minority and poor students (Cotton, 2001). Some findings also suggest that students who attend small schools or who participate in Small Learning Communities (SLC's) earn

higher scores on standardized tests than students who attend larger institutions (Wasley, Fine, King, Powell, Holland, Gladden, & Mosak, 2000). A national study commissioned by the Gates Foundation (Evan, Huberman, Means, Mitchell, Shear, Shkolnik, & Smerdon, 2006) looked at 50 schools, including both new schools and redesigned or conversion schools. Researchers found more positive climates in the new smaller schools, including more personalized relationships for students and collegiality among teachers, compared with traditional comprehensive high schools. This study also indicated that students' work in smaller schools was more rigorous and relevant to the real-world in English, but not in Mathematics.

Other research findings on the effects of smaller schools also reflected positive effects. The Chicago High School Redesign Initiative, begun in 2001, launched the conversion of five large high schools into small autonomous schools. Researchers again found a more personal and supportive climate for both students and teachers in the Small Learning Communities (SLC's), but this time there was no evidence that this climate produced changes in instruction or in student achievement scores. Evaluators also reported a slight evidence of reduced dropout rates with smaller learning communities than traditional high schools (Kahne, Sporte, & de la Torre, 2006). In addition, Allensworth and Easton (2007) concluded that a strong relationship with the teacher and a perception that the course is relevant results in higher student attendance and that 9th grade attendance and course grades are powerful predictors of high school graduation. Gtazek & Sarason (2007) believe the creation of a more personalized context alters the regularities of the complex social setting of school in ways that "unlock student energy

and motivation" (p. 14) and that gives students "a sense of growth, of personal agency, of competence, of being someone whose individuality is recognized and fertilized" (p. 15.

Some research even suggested the positive effects of Small Learning Communities (SLC's) extends beyond high school graduation. A 2008 Manpower Demonstration Researcher Corporation (MDRC) randomized controlled trial study of career academies found that students who attended career academies earned an average of 11% more per year in wages than students who attended traditional high schools (Kemple & Willner, 2008). The study also found that neither graduation rate nor postsecondary attendance rates were higher at career academies, but career academies produced higher rates of young people living independently with children and a spouse or partner. It also found that long-term earnings were associated with personalized support, a key component of SLCs (Kemple &Willner, 2008). A study completed by Kemple and Scott-Clayton (2004) also found that career academies had no impact (positive or negative) on standardized tests, high school completion rates, or postsecondary education enrollment and attainment rates.

Researchers have looked across a range of high schools of different sizes and asked whether size is associated with achievement and dropout rates. These studies produced mixed results. Schools with 600 – 900 students and those with 900 – 1200 students showed a slightly higher gain in reading and math achievement than either smaller or larger high schools (Lee & Smith, 1997). Rumberger and Palardy (2005) found that achievement gains averaged across four subjects were slightly higher in larger schools; however, larger schools also had higher dropout and transfer rates.

A study completed by the University of Miami on one of the largest school districts in Florida discovered out of the 13 freshman academies they looked at, none of them were considered to be successful. They found the freshman academies to be inconsistent and did not provide a personalized experience for ninth graders. The freshman academies ranged from 351 students to 877 students. One course was so large a microphone was needed to communicate. Only one school divided its freshman academy into separate teams to create the smaller learning experience, but these teams were not cohesive. The remaining 12 schools simply enrolled freshman into the freshman course and called it an academy. When asked, many of the students did not even know they were in a small learning community (Armstead, Bessell, Sembiante & Plaza, 2010).

Challenges with Small Learning Communities

Converting large high schools to Small Learning Communities (SLC's) also has its challenges. Research points to three key obstacles or challenges for SLCs (Levine, 2010). The first one is focusing on instructional improvement. Practical issues regarding space, staffing, students, and classes often overwhelm the intention to focus on curriculum and instruction during the first three years of SLC work (Shear, Means, Mitchell, House, Gorges, & Aasha, 2008). It is not just internal organizational issues that pull SLC's focus away from instruction, but SLC's must coexist with mandates or pressures from the district, state, or national level that also require their attention, such as the testing and accountability implications of No Child Left Behind (Shear et al., 2008). SLCs that fail to position teachers for ongoing improvement in instructional practice may

still produce some good outcomes. Simply changing students' experiences of support and connection is no trivial shift and may have some impact on learning as well as absenteeism, drop-out rates, and graduation. To the extent that teachers do not focus on improving their own and their colleagues' instruction, however, SLCs will not realize their full potential to improve student learning (Levine, 2010).

A second challenge for small learning communities is maintaining equity and rigor. One of the promises of Small Learning Communities (SLC's) is the creation of more diverse options that better match individual student's interest, learning styles, and career ambitions. However, Lee and Ready's (2007) study, looking carefully within and across five conversion high schools, concluded that SLCs featuring different themes, vocational foci, and expectations, resulted in unintentional stratification, relegating traditionally underserving groups of students to less rigorous academic experiences. This study found that students were picking certain SLCs based on other factors than their own interest. Students were choosing which SLC to join based on the reputation of the SLC, a reputation that had been established based on the required amount of academic effort and the type of students that were currently enrolled in that particular SLC. Along with students comes teacher preference. In order to ensure the rigor, schools should place teachers appropriately. Not all new teachers should be placed in the newly formed SLC. Most high schools try to honor teacher preference when assigning teachers to newly formed SLCs (Shear et al., 2008). According to Levine (2010), schools can ensure that SLCs do not recreate the stratification and segregation that occur within and across traditional high schools in school districts by creating forms of initial and ongoing review

to ensure that all SLCs maintain rigorous standards. Failing to address this challenge will limit improvements in academic achievement for all students.

Small Learning Communities (SLC's) face a third challenge; transcending the school's history. According to Raywid (as cited in Levine, 2010), Restructuring a school is almost always impossible; starting over holds far more promise. Restructuring carries challenges beyond those associated with the start-up of a small school, according to Raywid (as cited in Rothstein, 2001), because it requires teachers and administrators to do two jobs at once: operating the old system while initiating the new one. SLCs are usually formed from low preforming schools, using the same faculty. With so much continuity in the physical structure and school staff, it makes it hard for both staff and community members to significantly change their expectations, objectives, and patterns of behavior.

Lee and Ready's (2007) study of five conversion high schools showed how community expectations can make it more difficult for Small Learning Communities (SLC's) to leave the legacy of the comprehensive high school behind. The five conversion high schools they studied came into being in a wide variety of ways, but the authors documented how the transition into SLCs didn't constitute a significant break with the diverse extracurricular offerings that a large high school can offer. Most of the conversion high schools also appeared to face local political pressure to retain comprehensive curricular offerings, such as AP courses and electives. Offerings such courses required teachers or students to work across subunits, and therefore weakening the identity, cohesion, and focus of these units.

In schools, problems can arise from logistical issues, such as bell schedules, teachers without common planning time, or cafeteria space. A common misconception is the notation that school size alone will improve student outcomes. Reducing school size is worth the effort only when it is one element of comprehensive school reform, accompanied by strategies specifically designed to personalize the learning experience and take advantage of the flexibility small schools offer. New school structures can provide the opportunities for success, but structural changes must be accompanied by changes in school culture to take full advantage of those opportunities. Although small schools may offer more depth through integrated curricula, they may have fewer class choices than larger schools, therefore causing inequitable tracking if only one population is targeted for a sub-school (Dewees, 2007).

Wasley, Fine, King, Powell, Holland, Gladden, and Mosak, (2000) cited several other issues, including enrollment or student assignment procedures, principal support and turnover, and staff conflict and turnover. Bernstein, Millsap, Schimmenti, and Page, (2008) noted that Small Learning Communities may require increases in budget, planning time, or staff in order to be successful.

The Architecture Research Institute, Inc. (1999) stated that:

> Some schools are limited in their ability to fully implement the small-school concept, because of their relationship to the school district and other schools within it, or decisions and regulations imposed by the administrators of the building where they are located. (p. 1-2)

According to research, without full implementation, many of the benefits of small-scale schooling cannot be realized (Dewees, 1999).

Among the disadvantages, research suggested that a small learning community within a larger school can sometimes create divisiveness in schools because it tends to realign organizational structures and fracture preexisting relationships. Conflicts can arise concerning allegiances to the larger school versus the smaller school unit, thus creating rivalries. Research conducted by Abt Associates in the spring of 2002 and again in the fall of 2003 found that most small learning communities are freshman or career academies and that the student population demographics of freshman or career academies do not represent the demographics of the school as a whole (Bernstein et. al., 2008).

Not all evidence, however, supported the need for small learning communities. One critic of the need for small learning communities was Paul Barton (from Education Testing Service –ETS). Barton believed that even though educational reform was necessary for technological advancement and with helping the children who plan to attend college, some of the classical curriculum was still needed (Barton, 2006). In contrast to the majority of research conducted on small learning communities, which states that students need to increase their educational level to be more successful at the career level, Barton believed education was not a major factor of career achievement. Barton (2006) suggested that the main reason applicants are not hired by an employer is not based on education. Timeliness, attendance, and work ethics were listed as problems for 69% of rejected job applicants (Barton, 2006). Barton believed the education system seems to be pushing to change, such as the creation of Small Learning Communities, in order to make children more prepared for the work force. But Barton's projections convey that there is no need to panic at educational shortcomings because of the 13 million new jobs reviewed, half only needed on-the-job-training and an educational

competency of a 9th grader. Barton (2006) noted that employers who hired both college and non-college graduates were concerned with attitude and communications skills. He further implied that a secondary school's belief that it can adequately prepare a student for a meaningful position within the workforce may be unrealistic expectations.

Chapter III

METHODOLOGY

Introduction

The purpose of this field study was to evaluate the effects of a small learning community on ninth grade student academic achievement. The independent variables were the Health Science Career Academy English Group and the Health Science Career Academy Algebra Group. The dependent variables were the Algebra I and English I EOC (End-of-Course) scores, student discipline records, final grade point average, credits earned, and student absences.

Research Design

This was a quantitative study, which provided averages and distribution of data. Only archival data was utilized to determine the impact that small learning communities may have had on ninth grade student achievement. This study involved a match pair design. Since the Health Science Career Academy (HSA) was new this year, all students with previous Tennessee Value-Added Assessment System (TVAAS) data were selected as the treatment group (a total of 37 participants). Students from the control group (students not in the Health Science Academy) were matched with students in the treatment group (Health Science Academy students) according to their TVAAS prediction scores for English I. If more than one student had the exact TVAAS prediction score, then the students were matched according to gender and then ethnic group if needed. If more than one student still matched the treatment group participant after matching by gender and ethnicity, then a coin was flipped to determine which

student score to use. If no student in the control group had the exact same TVAAS prediction score as the student in the treatment group, then the gender and ethnicity of the students closest to that score were evaluated. Participants were chosen first by TVAAS prediction score for each subject, then by their gender, and then by their ethnicity. In the case of a tie-breaker, a coin was flipped to determine the final participant in the control group. This process was repeated the same way to determine the participants of the control group for Algebra 1.

First, a Multiple Analyses of Variance (MANOVA) test was used to determine if a Small Learning Community, the Health Science Academy, had an effect on ninth grade student achievement when looking at growth scores, GPA, discipline points, credits earned, and student absences. Because there were five dependent variables, using a MANOVA test would reduce the number of Type 1 errors. However, one of the data requirements for using a MANOVA test is the number of participants should equal 20 times the number of dependent variables (Juliano & Fader, n.d.). For this reason, a *t*-Test was utilized to determine whether the difference between means for the control group and the treatment group was statistically significant. The *t*-Test also determined whether to reject or retain the null hypotheses. The independent variables were the Health Science Career Academy English Group and the Health Science Career Academy Algebra I group. The dependent variables were the growth scores on the End-of-Course (EOC) test in Algebra I and English I, the students' final grade point average, discipline records, number of credits earned, and number of absences.

Population

The population for this study consisted of ninth grade students from a high school in Middle Tennessee. Both the Health Science Academy groups and non-Health Science groups consisted of 37 participants.

Instrumentation

The instrument that was used in this study to match the students in the control and treatment group was the Tennessee Value-Added Assessment System (TVAAS) and the students' demographics. The TVAAS prediction scores were identified for all freshman students for both Algebra I and English I. The students in the control group were matched as close as possible to the students in the treatment group within each subject area. The instruments used to evaluate the two groups at the end of their ninth grade year were the TVAAS End-of-Course (EOC) scores in Algebra I and English I, student discipline records, credits earned, overall grade point average, and absences.

Procedure

The data utilized for this study were obtained from the school district's accountability coordinator. The accountability coordinator began collecting the Algebra I and English I TVAAS prediction scores for all ninth grade students enrolled at this particular school in May of 2014. Students from the control group (students not in the HSA) were matched with students in the treatment group (HSA students) according to their TVAAS prediction scores for English I. If more than one student had the exact TVAAS prediction score, then the students were matched according to gender and then

ethnic group if needed. If more than one student still matched the treatment group participant after matching by gender and ethnicity, then a coin was flipped to determine which student score would be used. If no student in the control group had the exact same TVAAS prediction score as the student in the treatment group, then the gender and ethnicity of the students closest to that score were evaluated. Participants were chosen first by TVAAS prediction scores for each subject, then by their gender, and then by their ethnicity. In the case of a tie-breaker, a coin was flipped to determine the final participant in the control group. The accountability coordinator repeated the same process to determine the participants of the control group for Algebra 1. This type of design allowed for the two groups to be as close to equal as possible. The accountability coordinator then created a table for each of the two groups displaying the students growth score in Algebra I and English I from the 2013-2014 school year, the student's final grade point average (GPA) for their freshman year, the number of discipline points each student earned their freshman year, the number of credits earned their freshman year, and the student's number of absences their freshman year.

The researcher utilized the data displayed on both tables to generate the MANOVA and the five separate *t*-Tests. Since this was the first year for the career academies, enrollment numbers were low and did not meet the data requirements for a variable MANOVA test. Therefore, a *t*-Test was conducted to determine whether or not there was a statistical significance between the two groups when comparing the different dependent variables. The results of the *t*-Tests are reported in Chapter IV of this field study and were provided to the school district.

Null Hypotheses

1. There will be no statistically significant difference in student End-of-Course (EOC) English I test scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants.
2. There will be no statistically significant difference in student End-of-Course (EOC) Algebra I test scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants.
3. There will be no statistically significant difference in student final grade point average (GPA) scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants.
4. There will be no statistically significant difference in student discipline record between students who are participants in the HSA compared to the discipline record of those students who are not HSA participants.
5. There will be no statistically significant difference in the number of credits earned between students who are participants in the HSA compared to the those students who are not HSA participants.
6. There will be no statistically significant difference in the attendance record of those students who are participants in the HSA compared to the number of absences of those students who are not HSA participants.

Data Analysis Plan

Archival data gathered from the Tennessee Value Added Assessment System (TVAAS) website and Power School were utilized and entered in an EXCEL spread sheet. A number of statistical analyses were calculated to include the Mean scores for both the treatment group and the control group in the various categories, the Standard Deviation, and the *p*-Value on the five focus areas using multiple *t*-Tests. A Two-Tailed *t*-Test was used to compare the data from the dependent variables given in the two groups. The significance level (Alpha) for this study was set at $p < 0.05$ to determine whether the null hypotheses would be retained or rejected. The researcher evaluated the data to determine whether or not there was a statistically significant difference between the growth scores of Algebra I and English I students, GPAs, discipline points, credits earned, and number of absences between the two groups. Depending upon the findings, the researcher either rejected or retained each null hypothesis.

Chapter IV

DATA ANALYSIS AND RESULTS

Data Collection and Recording

The data collected within this study were based solely on archival data from 2013 -2014 school year. Data were collected from the Tennessee Value Added Assessment System (TVAAS) website under the student pattern report. Discipline points, final GPA, credits earned, and attendance records were retrieved from Power School Administrator.

Results

Table 1

Demographics of Participant Population

	HAS English I	Non-HSA English I	HSA Algebra I	Non-HSA Algebra I
Caucasian Females	19	12	19	9
Caucasian Males	3	11	3	11
African American Females	6	5	6	4
African American Males	3	4	3	4
Other Females	4	2	4	2
Other Males	2	3	2	7

Total: 37 participants in each group

Since the groups were paired by their TVAAS prediction score first, it became difficult to keep the gender and the ethnicity of the groups relatively the same. The Health Science students were predominately Caucasian females. The non-Health Science students were still predominately Caucasian but they were more equally dispersed among the genders.

Since there were two independent variables and five dependent variables, a Multivariate Analysis of Variance (MANOVA) was run first to see if small learning communities within the subject areas had any significant effect on the overall academic achievement of those students when focusing on EOC growth, discipline points, credits earned, and attendance record for their freshman year. The results were calculated using the fit model within the JMP software. Results are provided in the tables that follow in this chapter.

One of the data requirements for running a MANOVA test is for the participants to equal twenty times the number of dependent variables. In this study, the number of participants was less than 20 times 5. Therefore, the effect of Small Learning Communities (SLC's) or Health Science Academy on the various dependent variables were recalculated separately using formulas in Microsoft Excel. A *t*-Test was run in order to calculate the *p*-Value for each hypothesis analyzed in the study. The Mean, Standard Deviation, and the *p*-Value were calculated for each dependent variable. A *p*-Value of less than 0.05 was the level needed to reject the null hypothesis.

Null Hypothesis 1: There will be no statistically significant difference in student End-of-Course (EOC) English I test scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants.

Both the MANOVA (Table 2) and the *t*-Test (Table 3) indicated no statistically significant difference in student EOC English I test scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants. The *p*-Values were both 0.8548. Therefore, the null hypothesis was

retained because the *p*-Value (0.8548) exceeded the 0.05 confidence level of statistical significance. Table 3 shows the Means and Standard Deviations of the two groups were also very similar.

Table 2

MANOVA Results Comparing English I End-of-Course Growth Scores Between Health Science Academy Students and Non-Health Science Academy Students

	Growth	DF	Sum of Squares	Mean Squares	F Ratio
English	Model	1	5.903	5.903	0.0337
	Error	72	12593.137	174.905	Prob > F
	C. Total	73	12599.040		0.8548

$P < 0.05$

Table 3

t-Test Results Comparing English I End-of-Course Growth Scores Between Health Science Academy Students and Non-Health Science Academy Students

Growth	Mean HSA	SD HSA	Mean Non-HSA	SD Non-HAS	p-value
English I	3.9027	13.1026	3.378	13.3466	0.8548

$P < 0.05$

Null Hypothesis 2: There will be no statistically significant difference in student End-of-Course (EOC) Algebra I test scores between students who are participants in the Health Science Academy compared to the scores of those students who are not Health Science Academy participants.

Table 4

MANOVA Results Comparing Algebra I End-of-Course Growth Scores Between Health Science Academy Students and Non-Health Science Academy Students

	Growth	DF	Sum of Squares	Mean Squares	F Ratio
Algebra I	Model	1	893.253	893.253	0.9526
	Error	72	67516.868	937.734	Prob > F
	C. Total	73	68410.122		0.3323

$P < 0.05$

When comparing the growth scores in Algebra I between the two groups, both tests accepted the null hypothesis. The MANOVA test (Table 4) showed a *p*-Value of 0.3323 and the *t*-Test (Table 5) showed a *p*-Value of .2973. Therefore, there was no statistically significant difference in the Algebra I End of Course (EOC) growth scores between students who participated in the HSA compared to students who did not participate in HSA. Table 5 also shows the Means of the two groups were not as close to each other as they were in English 1.

Table 5

t-Test Results Comparing Algebra I End-of-Course Growth Scores Between Health Science Academy Students and Non-Health Science Academy Students

Growth	Mean HSA	SD HSA	Mean Non-HSA	SD Non-HSA	p-value
Algebra I	8.5135	32.2243	1.0486	28.8457	.2973

$p < 0.05$

Null Hypothesis 3: There will be no statistically significant difference in student final grade point average (GPA) scores between students who are participants in the HSA compared to the scores of those students who are not HSA participants.

Table 6

MANOVA Results Comparing Grade Point Average Between English and Algebra I Health Science Academy Participants and Non-Health Science Academy Participants

	GPA	DF	Sum of Squares	Mean Squares	F Ratio
English	Model	1	0.1993	0.1993	0.3703
	Error	72	38.7402	0.5381	Prob > F
	C. Total	73	38.9394		0.5447
Algebra	Model	1	7.6332	7.6332	19.2704
	Error	72	28.5120	0.3961	Prob > F
	C. Total	73	36.1532		< .0001

$P < 0.05$

Table 7

t-Test Results Comparing Grade Point Average Between English and Algebra I Health Science Academy Participants and Non-Health Science Academy Participants

GPA	Mean HSA	SD HSA	Mean Non-HSA	SD Non-HSA	p-value
English	3.1550	0.7227	3.0510	0.7435	0.5435
Algebra	3.1550	0.7227	2.7984	0.6455	0.0283

$p < 0.05$

Table 6 (MANOVA Test) and Table 7 (*t*-Test) indicates the results of the Health Science Academy on the students' final grade point average (GPA) at the end of their freshman year. There was no statistically significant difference between the students who were enrolled in the Health Science Academy and the non-Health Science Academy participants. The English MANOVA *p*-Value was 0.5447 and the English *p*-Value was 0.5435. Both the MANOVA (Table 6) and the *t*-Test (Table 7) had *p*-Values higher than the statistical level of confidence, $p < 0.05$. Therefore, the null hypothesis was retained when comparing the English group.

However, after examining the results of the test data for the Algebra I students' GPA, both the MANOVA (*p*-Value 0.0001) and the *t*-Test (*p*-Value 0.0283) indicated that there was a statistically significant difference between the students who were enrolled in the Health Science Academy and students who were not enrolled in Health Science Academy. Since the *p*-Values for both the MANOVA and the *t*-Test fell lower than the statistical level of confidence, alpha level $p < 0.05$, the null hypothesis was rejected.

Null Hypothesis 4: There will be no statistically significant difference in student discipline records between students who are participants in the Health Science Academy compared to the discipline records of those students who are non-Health Science Academy participants.

When comparing discipline points between the students enrolled in the HSA and students not enrolled in the HSA, this study found that there was no statistically significant difference when comparing the discipline points data for each group. Both the

MANOVA (Table 8) and the *t*-Test (Table 9) reported values over the 0.05 level of statistical significance level for both the English group and the Algebra group. The MANOVA reported a *p*-Value = 0.2792, and the *t*-Test indicated a *p*-Value of 0.2808 for the English group. The MANOVA reported a *p*-Value = 0.2437, and the *t*-Test indicated a *p*-Value of 0.3618 for the Algebra I group. Therefore, the null hypothesis was retained.

Table 8

MANOVA Results Comparing Discipline Points Between English and Algebra I Health Science Academy Participants and Non-Health Science Academy Participants

		DF	Sum of Squares	Mean Squares	F Ratio
English	Model	1	211.149	211.149	1.1888
	Error	72	12787.838	177.609	Prob > F
	C. Total	73	12998.986		0.2792
Algebra	Model	1	107.7206	107.721	138.15
	Error	72	5613.9010	77.971	Prob > F
	C. Total	73	5721.6216		.2437

$p < 0.05$

Null Hypothesis 5: There will be no statistically significant difference in the number of credits earned between students who are participants in the HSA compared to those students who are not HSA participants.

Table 9

t-Test Results Comparing Discipline Points Between Health Science Academy Students and Non-Health Science Academy Students

	Mean HSA	SD HSA	Mean Non-HAS	SD Non-HSA	p-value
English	2.2973	7.6915	5.6757	17.2064	0.2808
Algebra	2.2973	7.6915	4.1892	9.8962	0.3618

$p < 0.05$

Table 10

MANOVA Results Comparing Credits Earned Between English and Algebra I Health Science Academy Participants and Non-Health Science Academy Participants

		DF	Sum of Squares	Mean Squares	F Ratio
English	Model	1	0.054054	0.0541	0.1537
	Error	72	25.3243	0.3517	Prob > F
	C. Total	73	25.3784		0.6962
Algebra	Model	1	4.3462	4.3462	5.1190
	Error	72	61.1302	0.8490	Prob > F
	C. Total	73	65.4764		.0267

$p < 0.05$

Part of the new Tennessee graduation requirements establishes that students must earn an additional half credit in physical education. However, this credit can be earned outside of the typical school day hours. Students could earn this half credit in physical education by playing a high school sport and having their coach sign off on the proper documentation. Many students earn this additional credit their freshman year.

Table 11

t-Test Results Comparing Credits Earned Between Health Science Academy Students and Non-Health Science Academy Students

	Mean HSA	SD HSA	Mean Non-HSA	SD Non-HSA	p-value
English	7.0676	0.4589	7.0135	0.7020	0.6964
Math	7.0676	0.4589	6.8108	1.2547	0.2485

$p < 0.05$

The HSA groups had 12 out of the 37 students earn 7.5 credits their first year of high school. The Non-HSA English group had 13 out of the 37 students earn 7.5 credits and the Non-HSA algebra group had 11 out of the 37 students earn 7.5 credits their first year of high school. This plays a factor into why the averages are so high for both groups of students (see Table 11).

There was no statistically significant difference in the credits earned when comparing the English students who participated in the Health Science Academy and the English students who were non-participants. Since the MANOVA ($p = 0.6962$) and the *t*-Test ($p = 0.6964$) both produced values above the alpha level $p < 0.05$ level of statistical significance, the null hypothesis was accepted when comparing the English Health Science Academy participants to the English Non-Health Science Academy participants.

The Algebra I groups, on the other hand, were a little more interesting. The MANOVA test produced a *p*-Value of 0.0267, which indicated that the null hypothesis was rejected and there was a statistically significant difference between the two groups when considering credits earned. However, the *t*-Test did not support the MANOVA

results. The *t*-Test produced a *p*-Value of 0.2485. With this value being greater than the Alpha level statistically significance, $p < 0.05$, the null hypothesis would be retained instead of being rejected. Since there are less than 100 participants, the MANOVA results may not be completely accurate. Based on the *t*-Test results, the null hypothesis would be accepted, and there will be no statistically significant difference in the number of credits earned between students who are participants in the Health Science Academy compared to those students who were non-Health Science Academy participants for either subject area.

Table 12

MANOVA Results Comparing the Number of Days Absent Between English and Algebra I Health Science Academy Participants and Non-Health Science Academy Participants

		DF	Sum of Squares	Mean Squares	F Ratio
English	Model	1	53.6351	53.6351	2.2382
	Error	72	1725.4054	23.9640	Prob > F
	C. Total	73	1779.0405		0.1390
Algebra	Model	1	58.4406	58.4406	2.1349
	Error	72	1970.9243	27.3739	Prob > F
	C. Total	73	2029.3649		0.1483

$p < 0.05$

Null Hypothesis 6: There will be no statistically significant difference in the attendance records of those students who are participants in the Health Science Academy compared to the number of absences of those students who were non-Health Science Academy participants.

When comparing the number of days missed between students who were enrolled in the Health Science Academy and those who were not enrolled, the data indicated that there was no statistically significant difference for either group of HSA students. The MANOVA test (Table 12) showed $p = 0.1390$ for the English group and $p = 0.1483$ for the Algebra 1 group. The *t*-Test (Table 13) also produced similar results. The *p*-value for the English group was 0.1396 and for Algebra 1, $p = 0.2454$. Since all values exceed the alpha level of $p < 0.05$ significance level, the null hypothesis was retained. There was no statistically significant difference in the attendance record of those students who are participants in the Health Science Academy compared to the number of absences of those students who were non-Health Science Academy participants.

Table 13

t-Test Results Comparing the Number of Days Absent Between Health Science Academy Students and Non-Health Science Academy Students

	Mean HSA	SD HSA	Mean Non-HAS	SD Non-HSA	p-value
English	6.5676	5.7327	4.8649	3.8813	0.1396
Algebra	6.5676	5.7327	5.1351	4.7385	0.2454

$p < 0.05$

The data also indicated the attendance average for students who were not enrolled in the Health Science Academy were lower than the attendance average of students who were enrolled in the Health Science Academy. This indicates that students who were not in the Small Learning Community actually missed fewer days than the students in the

Small Learning Community, contradicting previous research conducted on Small Learning Communities SLC's). This data occurred in both the English and the Algebra I groups.

CHAPTER V

DISCUSSION

Summary of Study

The purpose of this field study was to explore the impact of Small Learning Communities (SLC's) on student academic achievement. This study used a match pair design. All of the students enrolled in the Health Science Academy during the 2013-2014 school year were matched to other students not enrolled in the Health Science Academy according to their freshman year Tennessee Value Added Assessment System (TVAAS) prediction scores for English I and Algebra I. The data for this study were collected after the school year ended.

This study determined that, overall, there was no statistically significant difference when comparing students enrolled in Small Learning Communities (SLC's) to those who were not enrolled in a Small Learning Community (SLC) in the areas of End-Of-Course growth for English I and Algebra I, final grade point average, discipline records, credits earned, and attendance. However, although, overall there was no statistically significant difference, there were times when the data results for the two subject areas differed. The participants enrolled in the Health Science Academy had significantly higher GPAs than the participants in the Algebra I non-Health Science Academy group but showed no significant difference in GPA when compared to the non-Health Science Academy English I group. Sometimes there was also a difference in test results for the same subject area. When deciding if there was a statistically significant difference in the number of credits earned between participants enrolled in Small Learning Communities and those not enrolled in a small learning community, the

MANOVA test indicated there to be a significant difference for the Algebra I group, but the *t*-Test did not support those results. Since the subject areas were split and sometimes the test results were split on the effects of Small Learning Communities on student achievement, the null hypotheses must be retained. There is no statistically significant difference on overall academic achievement between students who participate in small learning communities, such as the Health Science Academy, and students who did not participate in Small Learning Communities (SLC's).

Although the data indicated no statistically significant difference for Small Learning Communities when looking at Algebra I and English I students together, there appears to be a small correlation with the Algebra group and the Health Science Academy. When looking at the Algebra groups alone, Small Learning Communities (SLC's) reflected a statistical significance in GPA and the number of credits earned. One has to wonder if this is because students who are interested in the medical field must be good at Mathematics and Science.

Conclusions

Research on Small Learning Communities (SLC's) suggests numerous possibilities for education. In spite of multiple obstacles, SLCs may create different conditions that nurture a learning environment and students' sense of being cared for in schools. Challenges to academic achievement through Small Learning Communities include sustaining focus on instructional improvement, maintain academic rigor and relevance while promoting distinctive SLCs within one school, moving beyond the patterns of behavior and expectations established by a school's history, and overcoming

practices that hinder teachers from taking responsibility for improving instructional practice.

It is unreasonable to expect any one reform to succeed in creating effective education for all students; nevertheless, Small Learning Communities (SLC's) are showing promise, even though at this time the results may not be statistically significant. If policy-makers and stakeholders were to remain focused on the theories of action underlying SLCs, and if research could further illuminate the possibilities, pitfalls, and pathways to improve on the emerging results from the first round of evaluation studies the long term effects from using SLC's might greater match the results from the research and yield some statistically significant gains in the areas tested. It is not yet known whether – or how high – Small Learning Communities can lift academic achievement.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. It would be beneficial to broaden the study to include more participating schools and a variety of Small Learning Communities.
2. It may also prove beneficial to evaluate the effects of Small Learning Communities over an extended time period.
3. This study measured only the effects of one specific type of Small Learning Community on academic achievement. Researchers may also want to investigate the correlation between other learning academies, such as Science, Technology, Engineering, and Mathematics (STEM), Computer and Gaming, Media Arts and Technology, Criminal Justice

and Homeland Security and academic achievement. To determine if our level of Small Learning Community impacts academic achievement more than other SLC structures, the study could be expanded to compare and evaluate the effects of multiple Small Learning Communities on academic achievement.

REFERENCES

ACT Resource Manual (2010). *Crisis at the Core: Preparing all students for college work.* College and Career Readiness Workshops: Data-Driven Actions for Student Success. *p. 195 –198.*

Allensworth, E. M., & Easton, J. Q. (2007). *What matters for staying on-track and graduating in Chicago public high schools?* Chicago: Consortium on Chicago School Research at the University of Chicago. [PDF]. Retrieved from http://ccsr.uchicago.edu/sites/default/files/publications/07%20What%20Matters%20Final.pdf

Allensworth, E. M., & Easton, J.Q. (2005). *The on-track indicator as a predictor of high school graduation.* Chicago: Consortium on Chicago School Research.

American Institute for Research and SRI International (2005). *Getting to results: Student outcomes in new and redesigned high schools.* Retrieved from: http://www.air.org/publications/pubs_ehd_school_reform.aspx

Architecture Research Institute, Inc. (1999). *Small schools information center.* Retrieved from http://208.55.38.242/ari/info/programs/smallschool/index.html

Armstead, C. L., Bessell, A. G., Sembiante, S., & Plaza M. P. (2010). What students need, what students say they want: Student perspective on the promise of smaller learning communities. *Peabody Journal of Education., 83*, 365-374.

Barton, P. (2006). *High school reform and work: Facing labor market realities.* [PDF]. Retrieved from www.ets.org/Media/Research/pdf/PICHWORK.pdf

Bernstein, L., Millsap, M., Schimmenti, J., & Page, L. (2008). *Implementation study of smaller learning communities final report.* [PDF]. Retrieved from http://www2.ed.gov/rschstat/eval/other/small-communities/final-report.pdf

Brand, B. (2009, November). *High school career academies: A 40-year proven model for improving college and career readiness.* [PDF]. Retrieved from http://www.aypf.org/documents/092409CareerAcademiesPolicyPaper.pdf

Brand, S., Felner, R.D., Seitsinger, A., Shim, M., & Dumas, T. (2005, April). Implementation, maintenance, and impact of organizational change in middle schools. In R. D. Felner (Chair), *Middle grades and middles schools that work: Research-based lessons from experimental and quasi-experimental trials.* Symposium conducted at the annual meeting of the American Education Research Association, Chicago, IL.

Clark, P., Dayton, C., Tidyman, S., & Hanna, T. (2006). Scheduling guide for career academies. *College and Career Academy Support Network.* Retrieved from http://casn.berkeley.edu/resources.php?r=221

Cotton, K. (2001, December). *New small learning communities: Findings from recent literature.* [PDF]. Retrieved from http://www.mountbensonschool.ca/pac/upload/nlsc.pdf

David, J. (2008, May). What Research Says About…/Small Learning Communities. *Educational Leadership, 65(8). 84-85.*

Dewees, S. (1999). *The School-within-a-School Model.* ERIC Digest. Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools, 1999 (ED 438 147). Retrieved from www.ed.gov/databases/ERIC_Digests/ed438147.html

Dewees, S. (2007). *The school-within-a-school model.* Retrieved from www.education.com/reference/article/reference_school_within_school

Domaleski, C. (2011). *State end-of-course testing programs: A policy brief.* [pdf]. Retrieved from http://www.ccsso.org/Documents/2011/State_End-of-Course_Testing_Programs_2011.pdf

Dukes, C., & Lamar-Dukes, P. (2006). Special education: An integral part of small schools in high schools. *High School Journal, 89(3),* 1-9.

Evan, A., Huberman, M., Means, B., Mitchell, K., Shear, L., Shkolnik, J., Smerdon, B. (2006). *Evaluation of Bill and Melinda Gates Foundation's High School Grants Initiative*: 2001 – 2005 Final Report. Washington, DC: American Institutes for Research and SRI International.

Felner, R. D., Seitsinger, A. M., Brand, S., Burns, A., & Bolton, N. (2007). Creating small learning communities: Lessons from the project on high-preforming learning communities about "what works" in creative productive, developmentally enhancing, learning contexts. *Educational Psychologist, 42(4),* 209-221.

Fleishman, S., & Heppen, J. (2009). Improving low-performing high schools: Searching for evidence of promise. *Future of Children, 19(1),* 105-133.

Fulco, C. (2009). *The impact of a freshman academy small learning community on student achievement and engagement.* Dissertations and Theses. Paper 1580. Retrieved from http://scholarship.shu.edu/dissertations/1580/

Gewertz, C. (2009). Beyond a focus on graduation. *Education Week, 28(34),* 6-9.

Gtazek, S.D., & Sarason, S. B. (2007). *Productive learning: Science, art, and Einstein's relativity in educational reform.* Thousand Oaks, CA: Corwin.

Holzer, H., & Lerman, R. (2009, February). *The Future of Middle-Skill Jobs.* Washington, DC: Brookings Intuition. Retrieved from http://www.brookings.edu/research/papers/2009/02/middle-skill-jobs-holzer

Ingels, S., Pratt, D., Wilson, D., Burns, L., Currivan, D., Rogers, J., & Hubbard-Bednasz, S. (2007, October). Educational longitudinal study 2002 (ELS: 2002) based-year to second follow-up data file documentation. [pdf]. Retrived from *http://nces.ed.gov/pubs2008/2008347.pdf*

John's Macintosh Program (JMP) (n.d.). Retrieved from http://www.jmp.com/about/

Juliano, S. A. & Fader, J. E. (n.d). *Hypothesis testing in MANOVA.* School of Biological Sciences: Illinois State University. [PDF]. Retrieved from http://www.entsoc.org/PDF/MUVE/5_MANOVA_Presentation_Stats.pdf

Kahne, J. E., Sporte, S., & de la Torre, M. (2006). *Small schools on a larger scale: The first three years of the Chicago High School Redesign Initiative.* Chicago: Consortium on Chicago School Research at the University of Chicago. [PDF]. Retrieved from https://ccsr.uchicago.edu/sites/default/files/publications/p85.pdf

Kemple, J. (2008, June). Career Academies: Long-term impacts on work, education, and transition to adulthood. Retrieved from http://www.mdrc.org/publication/career-academies-long-term-impacts-work-education-and-transitions-adulthood

Kemple, J. J., & Scott-Clayton, J. (2004). *Career academies: Impacts on labor market outcomes and educational attainment.* New York: MDRC.

Kemple, J. & Willner, C. (2008). *Career Academies: Long-term impacts on labor market outcomes, educational achievement, and transitions to adulthood.* Washington, DC: MDRC. Retrieved from http://www.mdrc.org/publications/482/full.pdf

Kuo, V. (2010). Transforming American high schools: Possibilities for the next phase of high school reform. *Peabody Journal of Education, 85(3),* 389-401.

Lee, V. E., & Smith, J. B. (1997). High school size: Which works best and for whom? *Educational Evaluation and Policy Analysis, 19(3),* 205-227.

Lee, V.E., & Ready, D. D. (2007). *Schools within schools: Possibilities and pitfalls of high school reform.* New York: Teachers College Press.

Levine, T. H. (2010). What research tells us about the impact and challenges of smaller learning communities. *Peabody Journal of Education, 85(3),* 276-289.

Miner, B. (2005). The Gates Foundation and small schools. *Rethinking Schools, 19(4),* 21-26.

Mitra, D. (2009). Collaborating with students: Building youth-adult partnerships in schools. *American Journal of Education, 115(3),* 407-436.

National Center for Educational Achievement (NCEA) (2011, April). *The 20 Non-Negotiable Characteristics of Higher Performing School Systems.* [PDF]. Retrieved from http://www.act.org/research/policymakers/pdf/Non-Negotiable-Characteristics.pdf

Olson, L. (2006, May 24). Ambiguity about preparation for workforce clouds efforts to equip students for future. *Education Week, 25(38),* 1-20. Retrieved from http://www.edweek.org/ew/articles/2006/05/24/38work.h25.html

Oxley, D. (2005, November). *Small learning communities: Extending and improving practice.* [PDF]. Retrieved from http://www.principals.org/portals/0/content/52982.pdf

Oxley, D. (2008). *Smaller learning communities: Implementing and deepening practice.* [PDF]. Retrieved from: http://nwrel.org/csde/ss/products/SLCBooklet.pdf

Oxley, D., & Luers, K. (2010). How small schools grew up and got serious (but didn't lose their spunk). *Phi Delta Kappan, 94(4),* 62 - 66.

Rayyes, N., & Barela, E. (2008). *Going small, thinking big: Implementing small learning communities in a large urban school district.* [PDF]. Retrieved from: http://notebook.lausd.net/pls/ptl/docs/PAGE/CA_LAUSD/FLDR_ORGANIZATIONS/FLDR_PLCY_RES_DEV/PAR_DIVISION_MAIN/RESEARCH_UNIT/PUBLICATIONS/CONFERENCE_PRESENTATIONS/AERA%202008-RAYYES%20%26%20BARELA.PDF

Rothstein, F. (2001, November). An overview of smaller learning communities in high schools. *U.S. Department of Education, Office of Elementary and Secondary Education and Office of Vocational and Adult Education.* Washington, DC. Retrieved from www.ed.gov/programs/slcp/index.html

Rumberger, R. & Palardy G. (2005). Test scores, dropout rates, and transfer rates as alternative indicators of high school performance. *American Research Journal, 42(1),* 3-42.

Seitsinger, A., Felner, R. D., Brand, S., Burns, A., & Jung, E. (2007, April). Middle schools that work: Engaging families in the education of their children. In R.D. Felner (Chair), *Lessons learned from foundation-based efforts to create comprehensive transformation of middle level schools.* Symposium conducted at the annual meeting of the American Education Research Association, Montreal, QC.

Shear, L., Means, B., Mitchell, K., House, A., Gorges, T., Aasha, J. (2008). Contrasting paths to small-school reform: Results of a 5-year evaluation of the Bill & Melinda Gates Foundation's National High Schools Initiative. *Teachers College Record, 110,* 1986-2039.

Steinberg, L. (2014, February). What's holding back american teenagers? *Education.* Retrieved from http://www.slate.com/articles/life/education/2014/02/high_school_in_america_a_complete_disaster.html

Strauss, V. (2010, April). What does being "College and Career Ready" mean? *Washington Post.* Retrieved from http://voices.washingtonpost.com/answer-sheet/no-child-left-behind/what-is-being-college-and-care.html

Tennessee Value-Added Assessment System (TVAAS) (n.d). Retrieved from http://www.tn.gov/education/data/doc/Three_Facts_about_TVAAS.pdf

US Department of Education (n.d.). Expanding career academies. Retrieved from http://www2.ed.gov/about/overview/budget/budget13/crosscuttingissues/careerac ademies.pdf

Wallach, C. A., & Lear, R. (2005). *A foot in two worlds: The second report on comprehensive high school conversions.* Seattle, WA: Small Schools Project.

Wasley, P., Fine, M., King, S., Powell, L., Holland, N., Gladden, R., & Mosak, E. (2000). *Small schools: Great strides. A study of new small schools in Chicago.* New York: The Bank Street College of Education. Retrieved from http://www.bankstreet.edu/news/SmallSchools.pdf

Willens, M. (2013, November). Ninth grade: The most important year in high school. *The Atlantic.* Retrieved from http://www.theatlantic.com/education/archive/2013/11/ninth-grade-the-most-important-year-in-high-school/281056/

Zepeda, S. J., & Langenbach, M. (1999). *Special programs in regular schools: Historical foundations, standards, and contemporary issues.* Boston: Allyn and Bacon.

APPENDICES

APPENDIX A

Letter from the Clarksville-Montgomery County School System Granting Permission to Conduct the Study

Stewart, Gary

To: Mandy Frost
Subject: RE: research request (Sallie Armstrong)

From: Sallie Armstrong <sallie.armstrong@cmcss.net>
Date: Friday, March 7, 2014 8:18 AM
To: CMCSS CMCSS <mandy.frost@cmcss.net>
Subject: research request

The Research Committee approved your request to conduct research in the District.

Sallie Armstrong, Ed.D.
Director of Curriculum and Instruction,
Curriculum and Instruction Department
Clarksville-Montgomery County School System
Office: 931-920-7819
Cell: 931-980-2637
Email: sallie.armstrong@cmcss.net

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APPENDIX B

Approval Letter from the Austin Peay State University Institutional Review Board Granting Permission to Conduct the Study

AUSTIN PEAY STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD

Date: 6/2/2014

RE: 14-030- The Effects of a Small Learning Community on Ninth Grade Student Academic Achievement

Dear Mandy J. Frost,

We appreciate your cooperation with the human research review process at Austin Peay State University.

This is to confirm that your research proposal has been reviewed and approved for exemption from further review. Exemption is granted under the Common Rule 45 CFR 46.101 (b) (4); the research involves only the study of existing data, the data is recorded in such a manner that the subjects cannot be identified directly or through identifiers.

You may conduct your study as described in your application, effective immediately. Please note that any changes to the study have the potential for changing the exempt status of your study, and must be promptly reported and approved by APIRB before continuing. Some changes may be approved by expedited review; others require full board review. If you have any questions or require further information, you can contact me by phone (931-221-6106) or email (shepherdo@apsu.edu).

Again, thank you for your cooperation with the APSU IRB and the human research review process.

Sincerely,

Omie Shepherd

Omie Shepherd, Chair
Austin Peay Institutional Review Board

Cc: Dr. Gary Stewart