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Virtual High Schools Versus Brick and Mortar High Schools: An Analysis of Graduation Rates for Low Socio-Economic Students in South Carolina

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VIRTUAL HIGH SCHOOLS VERSUS BRICK AND MORTAR HIGH SCHOOLS: AN ANALYSIS OF GRADUATION RATES FOR LOW SOCIO-ECONOMIC STUDENTS IN SOUTH CAROLINA

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DEDICATION

This dissertation is dedicated to my one true love, Billy Jones. He stood strong, never giving up on me when I thought I had reached a point that I wouldn't make it to the end of this journey successfully. He is my rock and I thank God for him every day.

To my parents for instilling such a strong belief in education in me – for raising me with the drive to work hard for what I believe in – for teaching me that "an education is the one thing no one can ever take from you."

To my sister who has traveled with me through most of my education journey. When we graduated with our Bachelor of Science in Elementary Education, I never dreamed either of us would be where we are now. I am thankful for her support and am proud of her accomplishments.

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ABSTRACT

The No Child Left Behind Act (NCLB) in 2001 was designed to ensure that all students are receiving an appropriate education. All states were mandated to implement state-wide assessments to monitor student achievement. With the identification of student needs that came from the results of state-wide assessments, leaders at both the state and district levels began to develop programs to address these needs. The virtual high school is one of the alternative settings for education that came out of this movement.

Full-time virtual high schools have a growing enrollment every year. However, the progress these schools are making in the area of student achievement has not been researched in depth to determine the impact these schools have on reaching the goals set forth by NCLB. This study examines the high school graduation rate for low socio-economic students in full-time virtual schools in South Carolina as compared to the graduation rate for low socio-economic students in South Carolina brick and mortar settings.

The data in this studywas used to conduct descriptive research by making make the comparison between the graduation rates of low socio-economic students attending full-time virtual schools and low socio-economic students attending brick and mortar schools. Data were collected from the district level and school level report cards for South Carolina State Department of Education. It was found that there is a significant

difference between the graduation rate for low socio-economic students attending full-time virtual high schools versus low socio-economic students attending brick and mortar high schools. According to the data in this study, virtual high schools are performing at asignificantly lower rate in the area of high school graduation rate in comparison to low socio-economic students attending brick and mortar high schools.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1: NATURE AND SCOPE OF THE STUDY

INTRODUCTION

America is in the 'Age of Accountability' in education. With the adoption of the No Child Left Behind Act (NCLB) in 2001, the federal government holds states, districts, and schools accountable for what and how much students are learning in public schools. This legislation requires each state to be responsible for implementing a plan that will result in all public schools, at all grade levels, to reach a set of annual goals. These set of goals are referred to as "Adequate Yearly Progress (AYP)." Each state is tasked with designing specific goals for AYP in order to measure student achievement as related to state-wide standards-based academic assessments, high school graduation rates, and one other academic indicator to their choosing. Taxpayers want to know if tax dollars are being spent efficiently, ensuring all students are given the quality education needed to become successful and productive citizens in today's society. AYP is a tool designed to give the data needed to make the determinations whether or not schools are providing an appropriate education to all children and can be considered as effective.

Given the renewed public accountability measures coming from NCLB, schools are held accountable for producing successful and productive citizens, as measured by specific criteria aligned with standardized tests, graduation rates, discipline rates, and attendance rates. States and districts have begun developing alternative programs to address deficiencies. Virtual schools are a product of this reformation. Virtual schools

provide students with alternative school settings, flexible scheduling, and extended opportunities that fill the gaps many students need.

In my career, I have had the opportunity to experience the virtual school concept in a principal's role. I was hired to help start and lead a virtual high school in 2009. I saw students enroll in virtual schools as an alternative to regular brick and mortar schools for many reasons. There have always been students for whom the traditional brick and mortar setting do not meet their needs. Historically, states and districts have been challenged in offering these students a setting that is right for them. Virtual schools provide a setting that does help some students reach success in high school. However, based on my personal experiences, there are also students who enroll in virtual school as an escape from brick and mortar school. They see virtual schooling as a way of obtaining their high school diploma with the luxuries of not having to attend school during regular hours. Many times these students believe that the work will be much easier and glorify the fact they will not have a teacher monitoring what they do in a face to face environment. Like brick and mortar schools, virtual schools are a good alternative for some students, but not for all students.

Virtual schools are measured by the same criteria as brick and mortar schools by the state of South Carolina as reported on the South Carolina State Department of Education's Report Card. However, there are many differences between the two that should be taken into account. During my time as principal of a virtual school, virtual schools were fighting during the issue of required of seat time and the pace at which students earn specific credits. In order to receive credit for a class, a student is to be in

attendance for a certain number of days. This was a difficult requirement for the students attending virtual schools to reach. Many virtual schools do not require students to attend virtual classes on a set schedule. Students may work anytime, anywhere, and at their own pace. There may be days when they do not even log into a class. Some students are able to stay on pace with the state's recommended timeline, but many students who lack the self discipline may find themselves falling behind to the point where it effects their graduating on time (four years from the first time they enter ninth grade). The question of the digital divide also arose during my tenure as a virtual high school principal. There were concerns with students of older parents or parents who did not have the opportunity to keep up with the all of the technological advances in our country having adequate support and financial assistance to provide all students with equal opportunities in a virtual setting. Virtual schools provide students with differing levels of support – there is no mandate by federal or state government to what type of support these schools offer to students and families. Being that virtual schooling is still such a new concept and there is little research on the effectiveness of these schools, I am interested in how the students are performing in this type of setting. Knowing that differences such as the examples discussed still have not been addressed, it strikes my curiosity to see how the success rates of students compare between virtual schools and brick and mortar schools.

Students from a variety of backgrounds, with different needs, have enrolled in virtual schools. Virtual schools currently serve students of all academic levels and offer a variety of programs and services, including gifted and talented programs, arts programs, and special education services. They accommodate athletes and performers who need flexible scheduling as well as students with special family needs, such as teen mothers.

Some students who have medical, emotional, or social problems that interfere with their success in a traditional brick and mortar setting also see virtual schooling as an option to address their needs. Virtual schools have also enrolled students who have been retained and may have academic problems. Virtual schools also have diverse populations, serving students of differing race and socio-economic levels as reported on state school report cards.

Littlefield (2014) lists the following as reasons some students enroll in virtual schools:

- Online schooling provides students the opportunity to catch up on missing credits or advance so that they can graduate on time or early,
- Online schooling gives students with alternative schedules due to personal, medical, athletic, or professional schedules flexibility when having to attend classes,
- Online schooling helps students steer away from negative peer groups in a brick and mortar school,
- Online schooling allows students to work at their own pace,
- Online schooling takes away the distractions that students are often faced within the regular classroom,
- Online schooling takes away from the stress and pressure of being bullied by other students, and
- Online schooling gives students accessibility to programs that may not be available to them locally.

Although South Carolina schools that offer an alternative route to obtaining a high school diploma are growing in popularity, there is a lack of valid and reliable research that has been published to ascertain whether or not these schools are providing an appropriate education in relation to the nation's accountability standards (Barbour, 2014).

STATEMENT OF PROBLEM

South Carolina ranks below the national average in respect to the high school graduation rate. The dropout rate for students in South Carolina is higher than many other states. Strategies have been identified to address the needs of student dropouts. One such strategy is giving students the opportunity to attend public virtual schools, giving them more flexibility. However, there is a lack of credible research available to determine the effectiveness of these types of schools in relation to South Carolina's graduation rates. Data regarding the graduation rates of virtual high schools compared to brick and mortar high schools need to be analyzed in order to measure the effectiveness of virtual high schools on the graduation rate of low socio-economic students in South Carolina.

PURPOSE OF STUDY

The purpose of the study was to determine if there was a difference between the graduation rates for low socio-economic students who attend brick and mortar high schools and the graduation rates for low socio-economic students who attend virtual high schools in South Carolina, as reported by the South Carolina State Department of Education School Report Card. This study compared and analyzed graduation rates to measure the effect virtual high schools have on the graduation rates of low socio-economic students in South Carolina.

RESEARCH QUESTIONS

1. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?
2. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?
3. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the graduation rate of all students attending virtual high schools in South Carolina?
4. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the graduation rate of all students attending brick and mortar high schools in South Carolina?
5. Is there a difference between the graduation rate of low socio-economic students who attend virtual high schools in South Carolina as compared to low socio-economic students who attend brick and mortar high schools in South Carolina?

IMPORTANCE OF STUDY

Given the national and state statistics on the low graduation rate of low socio-economic students, South Carolina is in a situation where effective strategies need to be identified and implemented in order to improve the graduation rate for these students. Virtual public high schools in South Carolina continue to show an increase in student enrollment. It is important that data for virtual high schools be closely examined and analyzed by state and district leaders in order to measure the programs' effectiveness in

relation to the graduation rates of low socio-economic students. It is the duty of the legislatures to ensure that students are receiving a quality education and that taxpayers' dollars are being expended on cost-worthy programs. If programs are not proving to be effective, then they are not only a waste of money, but the children are being provided with a disservice.

This study will examine the average graduation rates of brick and mortar high schools and virtual high schools as reported on the South Carolina State Department of Education Report Card for students who fall in the low socio-economic status group. It will be determined whether or not there is a difference between the graduation rates of these two types of schools and of what significance any identified difference is.

DEFINITION OF TERMS

Virtual High Schools: High schools where students attend online via a computer. Students are not required report to a physical school building for lessons, but may attend from wherever they are via the internet with no schedule limitations.

Brick and Mortar High Schools: High schools where children are required to report to a physical building and attend classes full time in a face-to-face setting with a teacher.

Low Socio-Economic Students: Students who qualify for free or reduced lunch based on their families' household income.

Dropout Rate: The percentage of students who drop out of high school before obtaining a high school diploma.

Graduation Rate: The percentage of students who complete high school successfully, earning a high school diploma, in four years or less from the time they began ninth grade in their first year in high school.

Supplemental Programs: Programs added to the regular curricular programs in schools to address identified deficiencies and needs of students.

Blended Programs: Programs that provide students with both online learning opportunities as well as face-to-face instruction with a teacher in a brick and mortar setting.

Full-Time Programs: Programs in which the students are enrolled full time and obtain all credits required to earn a high school diploma.

SCOPE AND DELIMITATIONS OF STUDY

1. The study includes data from brick and mortar high schools and virtual high schools as reported from 2011 to 2013.
2. Although there was data for the 2010 school year, it was not used. There was a change in the formula for calculating school report card data in 2011. Therefore, the data for 2010 was used again to represent the year 2011. Due to the data being repeated, the data for 2010 were eliminated from this study.

CONCLUSION

The first chapter of this study provides the foundation for the research conducted explaining that the graduation rates of low socio-economic students attending full-time virtual schools in South Carolina compared to low socio-economic students attending high school full-time in brick and mortar settings. The purpose of the study along with the importance of the study are included. Chapter one also listed the research questions related to this study. A list of terms frequently used in this dissertation are defined for clarity for the reader.

Chapter two will provide a review of literature related to high school dropout rates as well as providing an overview of the virtual school concept. Chapter three will follow with a clear explanation of the methodology used for this study. This chapter includes details on the research design, research methodology, participants, data collection, and data analysis, as well as providing a list of the research questions that drove this study. The data gathered will be presented in chapter four. Chapter four also gives the researcher's interpretation of the meaning of the data results. Chapter five will follow with a summary and conclusion of the reported findings. A list of recommendations for future studies is provided in chapter five also.

CHAPTER 2: LITERATURE REVIEW

HIGH SCHOOL DROPOUT RATES

"High dropout rates are a silent epidemic afflicting our nation's high schools," causing close to 2,000 schools in the United States to suffer from low graduation rates (Bridgeland, Dulio, Jr., & Morison, 2006, p. 1). Approximately 1.3 million students drop out of high school every year. "Nationwide, about seven thousand students drop out of school every day" (Alliance for Excellent Education, 2010, p. 1). Murnane and Hoffman (2013) reported that from 1970-2000, the United States did not show any remarkable changes in the high school graduation rate overall. In 1970, 19 countries were a part of the Organization for Economic Co-operation and Development study that compared the high school graduation rates for each country. Even though the United States had an 80% high school graduation rate, they still only ranked 13th of the 19 countries involved in the study. By the year 2000, the graduation rate had decreased to 77.6% for the United States. Although the graduation rate for the United States showed an improvement with an 84% graduation rate for the years 2000-2010 with a significant increase in the graduation rates of black and Hispanic students, the United States still ranked poorly among the other countries involved with the Organization for Economic Co-operation and Development study.

High school graduation and dropout rates have a direct effect on the economy in the United States. This is directly correlated with society placing a strong emphasis on education as a driving force to a strong economy - believing that those individuals who

do not earn a high school diploma will suffer significantly more financially than those who do earn at least a high school diploma, (Michael & Roy, 2006). Bridgeland, et al., (2006), found that "dropouts are much more likely than their peers who graduate to be unemployed, living in poverty, receiving public assistance, in prison, on death row, unhealthy, divorced, and single parents with children who drop out from high school themselves." (p. 2) According to Kena, et al., (2014), the unemployment rate between 2000 and 2013 for adults who had not obtained a bachelor's degree or higher was much higher than those who had earned some level of higher education. The unemployment rate in 2013 for individuals between the ages of 20 and 24 who did not have a high school diploma was 29.2 percent. However, for the same age group of individuals who had earned a high school diploma, the unemployment rate was only at 17.5 percent. The average rate for those who had earned some college credit was 12.2 percent and those who had actually earned a bachelor's degree was 7.0 percent. This same pattern was consistent for the age groups of 25 to 34 and 25 to 65. Figure 2.1 illustrates the trends for each of these age groups, showing the similarity between each. It shows that the lower the education level a person attains, no matter what age group, the more likely he will be unemployed.

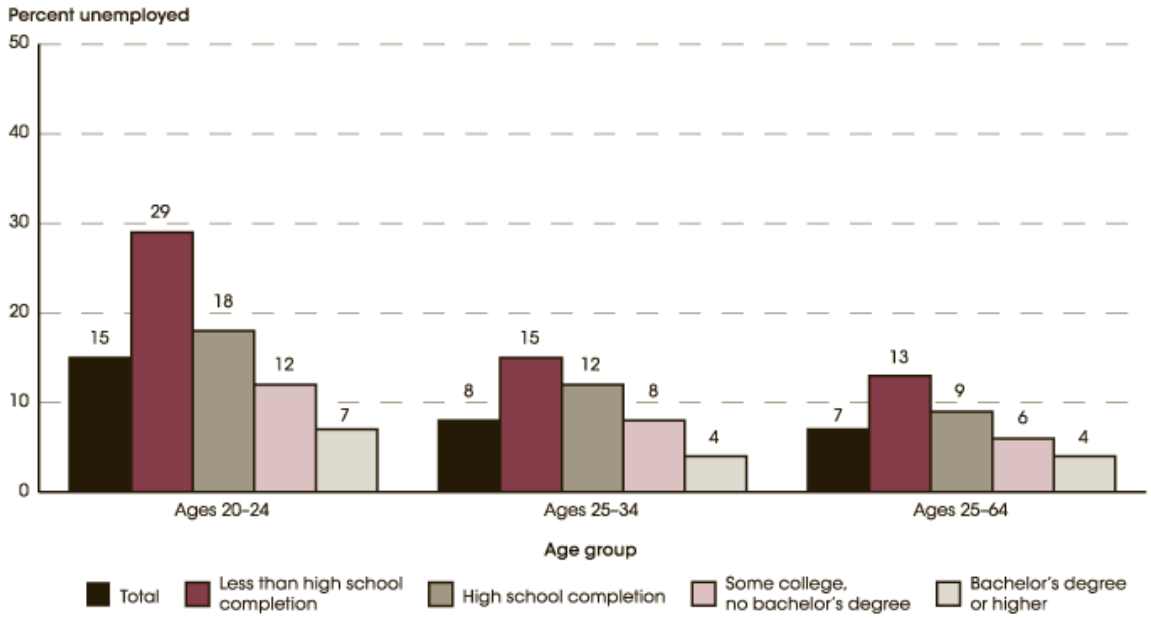

Figure 2.1 Unemployment rates, by age group and educational attainment: 2013

NOTE: The unemployment rate is the percentage of persons in the civilian labor force who are not working and who made specific efforts to find employment sometime during the prior 4 weeks. The civilian labor force consists of all civilians who are employed or seeking employment. Data for 20- to 24-year-olds exclude persons enrolled in school. High school completion includes equivalency credentials, such as the General Educational Development (GED) credential.
SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, Office of Employment and Unemployment Statistics, unpublished annual average data from the Current Population Survey (CPS), 2013. See *Digest of Education Statistics 2013*, table 501.80.

Those who earn a high school diploma will earn approximately $260,000 more than those who do not graduate high school over a lifetime and the nation will eventually spend $337 billion to financially support all of the high school dropouts in 2013 over their lifetime (Alliance for Excellent Education, 2010). In 2009, 30.8 percent of all males who were incarcerated were high school dropouts who never received their high school diplomas, making this the largest group of incarcerated males in relation to educational attainment (Ewert&Wildhagen, 2011).

Bridgeland, et al., (2006) found that four out of every ten young adults (ages 16-24) lacking a high school diploma received some type of government assistance in 2001,

and a dropout is more than eight times as likely to be in jail or prison as a person with at least a high school diploma. Studies show that the lifetime cost to the nation for each youth who drops out of school and later moves into a life of crime and drugs ranges from $1.7 to $2.3 million. (p. 2) Figure 2.2 illustrates the difference in salaries earned for 25-34 year olds based on their educationlevels for the years 1995-2012 as reported by the National Center for Education Statistics (2014). This figure demonstrates the trend from 1995-2012 of the comparison between the level of education a person attains and the average yearly salary they earn. The higher the education level, the more likely the person is to earn an average yearly salary than those who have an education level lower than his.

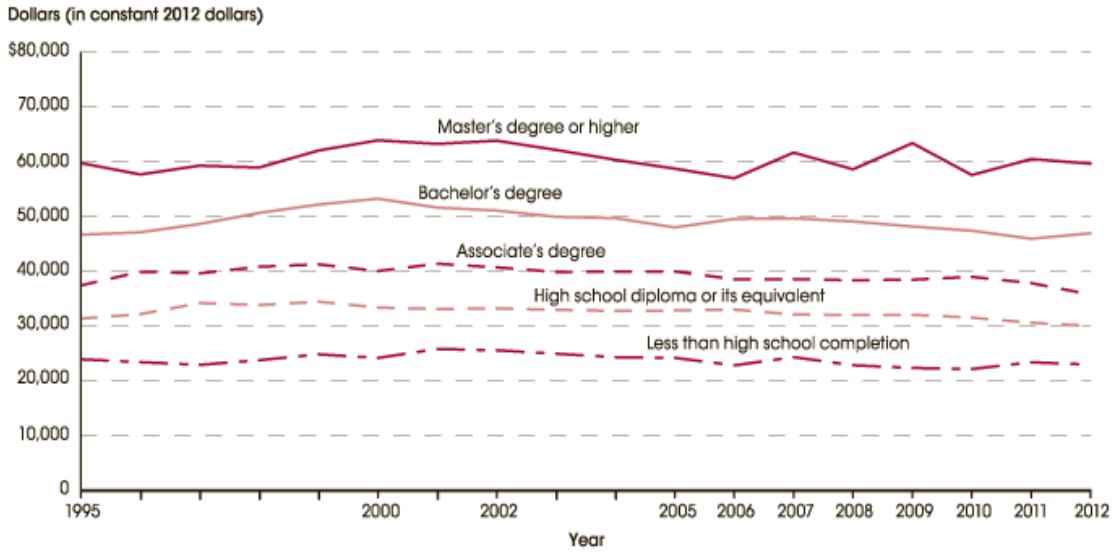

Figure 2.2 Median annual earnings of full-time year-round wage and salary workers ages 25–34, by educational attainment: 1995–2012

NOTE: Earnings are presented in constant dollars, based on the Consumer Price Index (CPI), to eliminate inflationary factors and to allow for direct comparison across years. *Full-time year-round workers* are those who worked 35 or more hours per week for 50 or more weeks per year.
SOURCE: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), "Annual Social and Economic Supplement," selected years,1996–2013; and previously unpublished tabulations. See *Digest of Education Statistics 2013*, table 502.30.

Research shows that students drop out of high school for many different reasons. Some of these reasons include students not being motivated or feeling a personal connection at school; academic challenges; and real world challenges that students face today (Blue & Cook, 2004; Bridgeland, et al., 2006). Other factors, such as ethnicity, the family's socio-economic status, and grade retention have also shown to influence the graduation rate of students (Blue & Cook, 2004; Bridgeland, et al., 2006). Blue and Cook (2004) support this with the following data results collected at the 2000 CPS event, illustrating the significant effect of these factors:

- Students from families who fall into the lowest 20% income bracket are six times more likely to drop out of school as compared to the students who are from families that are in the top 20% income bracket.
- Students who have repeated a grade level, no matter the grade level, are eleven times more likely than those children who were never retained to drop out of school before obtaining a high school diploma.
- African Americans and Hispanic students account for approximately 70% of all students retained in the United States.

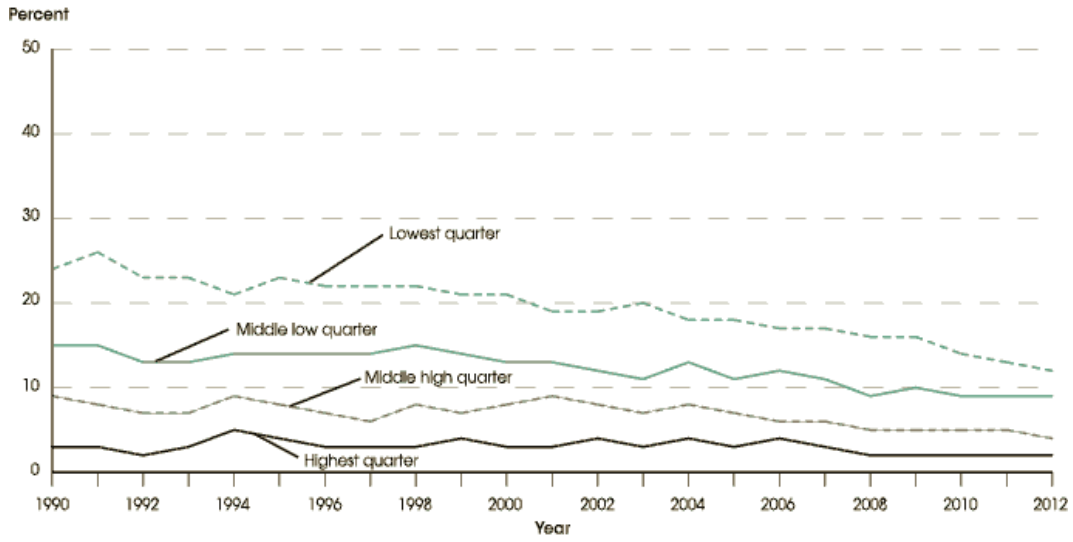

Figure 2.3 Status dropout rates of 16- through 24-year-olds, by income level: 1990 through 2012

NOTE: The "status dropout rate" represents the percentage of 16- through 24-year-olds who are not enrolled in school and have not earned a high school credential (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate). The "lowest" quarter represents the bottom 25 percent of family incomes. The "middle low" quarter represents families between the 25th percentile and the median. The "middle high" quarter represents families with incomes between the median and the 75th percentile. The "highest" quarter represents the top 25 percent of all family incomes. Data are based on sample surveys of the civilian noninstitutionalized population, which excludes persons in prisons, persons in the military, and other persons not living in households.
SOURCE: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October 1990 through 2012. See *Digest of Education Statistics 2013*, table 219.75.

The National Center for Education Statistics shows the differences in high school completion rates for students of different socio-economic levels in Figure 2.3. This graph demonstrates the notion that the higher the socio-economic status of a family, the more likely that family's student is to stay in school and earn a high school diploma.

The 2000 census data reflects noteworthy data in terms of ethnicity and graduation rates. It showed that individuals aged 25 to 29, blacks as compared to whites

had 15 percent lower graduation rate and Hispanics compared to whites had a 23 percent lower graduation rate (Michael & Roy, 2006). "Exit exam requirements reduced high school graduation rates by about two percentage points, with larger effects in states with more difficult examinations, and with effects concentrated among black students and among students in districts with large percentages of students of color," (Murnane & Hoffman, 2013). Figure 2.4 represents data to support the findings of Michael and Roy (2006) as reported by the National Center for Education Statistics (2014). This figure illustrates that black and Hispanic students are more likely to drop out of high school before successfully earning a high school diploma than students of white descent.

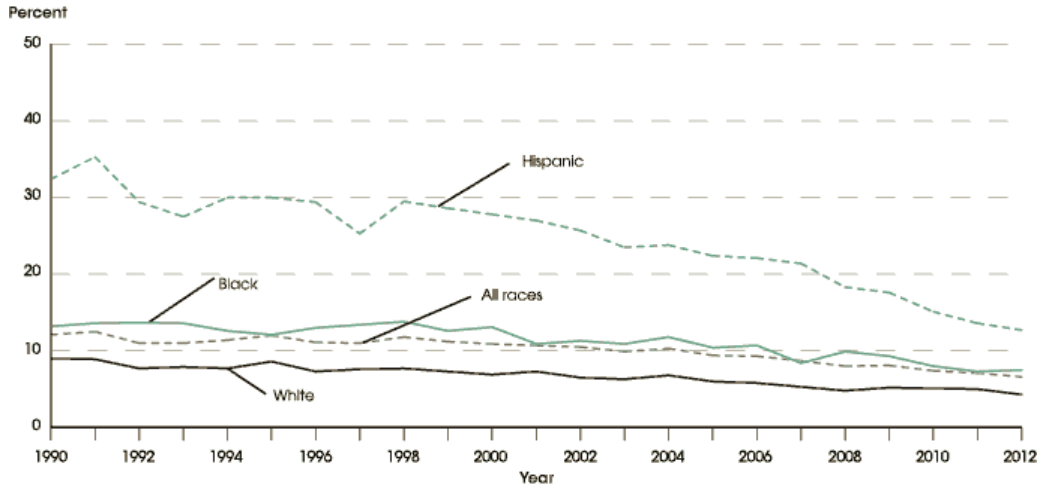

Figure 2.4 Status dropout rates of 16- through 24-year-olds, by race/ethnicity: 1990 through 2012

NOTE: The "status dropout rate" represents the percentage of 16- through 24-year-olds who are not enrolled in school and have not earned a high school credential (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate). Data are based on sample surveys of the civilian noninstitutionalized population, which excludes persons in prisons, persons in the military, and other persons not living in households. Data for all races include other racial/ethnic categories not separately shown. Race categories exclude persons of Hispanic ethnicity. SOURCE: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October 1990 through 2012. See *Digest of Education Statistics 2013*, table 219.70.

Over the past twenty years, there has been a shift towards providing all students with an academic-based curriculum in the United States in order for equity in education to be established. However, there is still a great divide in the performance of low socio-economic and minority students as compared to middle- and upper-class white students (Editorial Projects in Education Research, 2004). Chen and Kaufman's study (as cited in Barbour & Siko, 2012) support the data other researchers have published regarding the negative impact family structure, socio-economic status, ethnicity, and grade retention can have on the nation's graduation rate:Students who live in a single-parent home; whose family lives at a low socio-economic status; have a family history of siblings dropping out of high school; have not attained better than a "C" average in grades six through eight; and have been retained in a grade at least one year are considered to be "at-risk" students and are likely to drop out of school before earning a high school diploma. (pp. 1-2)These four factors, with socio-economic status being the most affluent, have been proven to impact the graduation rate for students across the nation.

THE EMERGENCEOF VIRTUAL SCHOOLS

A virtual school, in this study, is defined as "an educational organization that offers K-12 courses through Internet- or Web-based methods," (Clark, 2001). Students are provided with online computer-based instruction outside of a traditional brick and mortar school building. Virtual schools give students the opportunity to attend school and learn anytime and anywhere.

Halverson and Smith (2009) found that the models for classroom instruction in schools in the United States have remained stagnate for the past fifty years. Although schools have attempted to integrate technology into the classrooms,

there has been a lack of real school transformation in this area (Halverson and Smith, 2009). It was also reported that although there was an expectation of instructional reformation with the integration of technology in the classroom, technology became more of a tool for teachers to collect data on student performance and use that data to drive instruction (Halverson and Smith, 2009). Districts and schools have purchased many programs to assist teachers in tracking student mastery based on state standards so that they can alter their instruction as needed to address the weaknesses students have in certain content areas.

Some researchers date the emergence of virtual schools back to 1920 when the vocational training students received at home was integrated with the public school curriculum (Clark and Berge, 2005). Anderson and Simpson (2012) identify three generations of distance education evolution in their research:Correspondence, broadcast, and computer mediated. The correspondence era is a result of the development of the printing press and the postal services. Students (primarily adult learners) were able to participate in distance learning through corresponding with the schools through written communication. The second generation is referred to as the broadcast era. This generation developed from when the means of communication spread through the inventions of radio and television. Both of these generations were teacher-driven and required the student to work independently with little interaction with others during the learning process. Computer-based technologies encompass the subsequent generations referred to by Anderson and Simpson as the computer

mediated era. This generation started with implementation of video and audio teleconferencing and has expanded to the concept of virtual education. (p.2)

The opening of the first virtual school in 1991, which was a private schoolin the state of California, led to the trend of public virtual education. States across the country began to look into the implementation of virtual programs, eventually leading to the first offering of virtual classes for students in public education settings in 1994 (Barbour, 2013).

Since the opening of the first full-time public virtual high school in 2000-2001, the full-time virtual school has shown to have the most significant growth among all other types of virtual schooling (Barbour & Siko, 2012). Research shows that full-time virtual schools in the United States have increased student enrollment in grades K-12 approximately 50% from the 2008-2009 school year to 2013-2014 as displayed by in figure 2.2 (Evergreen Education Group, 2014).

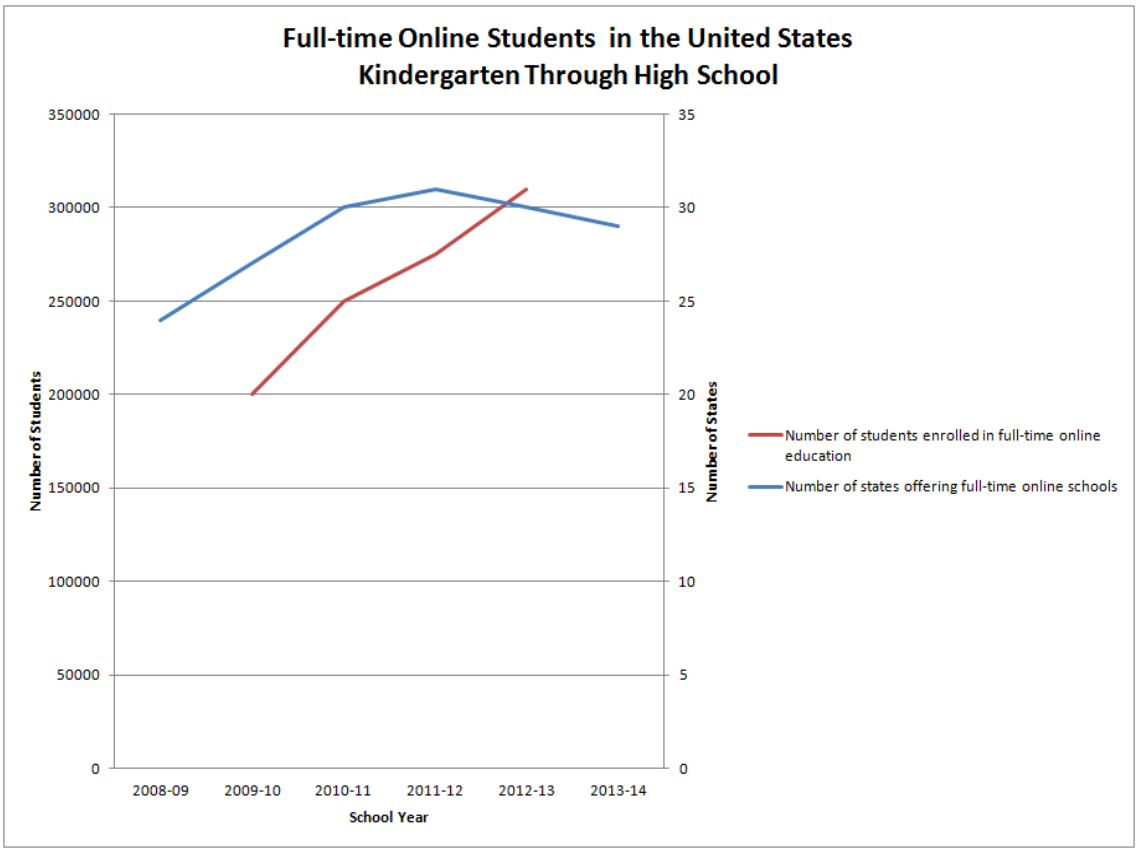

Figure 2.5 Full-time Online Students in the United States Kindergarten through High School

Evergreen Education Group. 2014. *Keeping Pace with K-12 Online & Blended Learning.* Retrieved March 13, 2014, from: http://kpk12.com/states/south-carolina/.

This trend could be related to the public's seeking of "school choice, concurrently advancing privatization, entrepreneurism and private financial investment" (Miron, Horvitz and Gulosino, 2013).

VIRTUAL SCHOOLS

Research conducted by Blue and Cook "advocates for the adaptation of schooling institutions to better respond to the needs of all learners, including discipline and attendance policies that maintain high standards without alienating students from schools,

scheduling adaptations that accommodate student needs, smaller school communities, and more challenging and engaging coursework," (Blue & Cook, 2004). Murnane and Hoffman (2013) believe that in order to raise graduation rates, funding will have to be redistributed to focus more on economically disadvantaged students to better prepare them academically and behaviorally for success in high school by the time the enter ninth grade by offering alternative options for high school (Murnane & Hoffman, 2013). Today's students are more interested in attending schools that offer student-driven and student-engaged classes over the "traditional lecture-style classrooms" (Stanley &Plucker, 2008).

Virtual high schools have become a popular alternative that provides a "different high school option for students" as recommended by Murnane and Hoffman (2013). There are two types of instructional delivery models that are often implemented in the full-time virtual school setting; asynchronous and synchronous (Barbour, 2009). With the asynchronous model, students are given more opportunities to choose the resources they will use to learn the content and how they will demonstrate mastery of that content. There is no direct instruction from the teacher. The student works through assigned modules or other assignments and submits work to the teacher. The teacher, in turn, provides feedback to the student on the submitted assignment (Barbour, 2009). This model requires students to work independently and usually with little or no interaction with others during the learning process.

The second model that Barbour (2009) identifies as a common practice for full-time virtual schools is the synchronous model of instruction. This model provides students with direct instruction. The students actually enter a virtual classroom that is taking place

in real time. The students can interact with the teacher and other students during a teacher-guided lesson. Many synchronous classrooms give the students the ability to use raise their hands to participate or ask questions and to do so either by typing or speaking into a microphone to speak(Barbour, 2009). Some virtual school programs let students choose avatars to represent themselves. The students and the teacher can view the avatars as if they students in the classroom. The avatars will raise its hand and speak when called on from the control of the student it represents. Some schools provide students with electronic notepads that they can write on and the teacher can see. This gives the teacher the opportunity to see what the student is doing and help the student identify his mistakes if needed. Although it is a virtual setting, it can look similar to a traditional classroom (Barbour, 2009).

Virtual schools not only provide students with the opportunity to master 21st century skills at their own pace, aligned to their individual needs, but these schools also give students from rural communities the same learning opportunities as those from urban and suburban communities (Parents for Choice in Education, 2014). There are also programs designed for 'Credit Recovery.' Credit Recovery allows students to re-take high school classes they have failed or are in danger of failing, but need the credit to graduate. These programs often give the students an additional opportunity to graduate on time. Barbour and Ferdig (2011) categorize the different types of virtual schools into three categories: Supplemental Programs, Full-Time Programs, and Blended Programs. Programs that are provided to students on a part-time basis in order to earn credits towards the high school diploma they are working toward in a brick and mortar school are

considered Supplemental Programs. Virtual schools that students attend full time and receive a high school diploma make up the Full-Time Programs. Thirdly, Blended Programs are those programs where schools use a combination of brick and mortar settings and virtual settings to teach the required content to students. (p. 55)

DEMOGRAPHICS OF VIRTUAL SCHOOLS

The number of students enrolling in online high schools is increasing every year. Students who do not find that brick and mortar schools fit their individual needs and desires of a high school setting are turning to virtual schooling as an alternative. According to Littlefield (2014):

> Some of the reasons students for the vast increases in enrollment include, but are not limited to:
>
> - Online schooling provides students the opportunity to catch up on missing credits or advance so that they can graduate on time or early,
> - Online schooling gives students with alternative schedules due to personal, medical, athletic, or professional schedules flexibility when having to attend classes,
> - Online schooling helps students steer away from negative peer groups in a neighborhood school,
> - Online schooling allows students to work at their own pace,
> - Online schooling takes away the distractions that students are often faced with in the regular classroom,

- Online schooling takes away from the stress and pressure of being bullied by other students, and
- Online schooling gives students accessibility to programs that may not be available to them locally.

Miron, Horvitz, and Gulosino (2013) conducted a study on the demographics of students attending virtual schools and reported significant discrepancies when comparing the different races of students enrolled in full-time virtual schools to the national average. They found that 75% of students enrolled in full-time virtual schools were white/non-Hispanic as compared to the national average of students overall measuring at 54% of the population. Although 16.5% of public school enrollees are black, only 10.3% are represented in the full-time virtual school population. There is a 12.7 percentage point difference between the number of Hispanic students attending full-time virtual schools and all public schools students – with virtual schools having the fewer number of Hispanic students enrolled.Although there were discrepancies noted with the equity of representation of different races for virtual schools as compared to all public schools, there was no significant difference between the numbers of males versus females. However, the number of students who received subsidized meals attending full-time virtual schools was disproportional with the number of students receiving subsidized meals representing all public schools, virtual schools reporting ten percentage points lower. The same was reported for students who receive special services and have an Individualized Education Plan. Full-time virtual schools have a rate of 7.2% of their students receiving these

services as compared to all public schools' rate of 13.1%. (pp. 6-8)This data shows that virtual school are primarily comprised of "average, white/non-Hispanic" students that are not likely to qualify for special services such as subsidized meals or special education.

There are varying opinions from the public regarding virtual schooling. Those who support virtual schools are proponents for what they say is increased effective communication between the student and the teachers from the use of technology (Miron and Urschel, 2012). Advocates for virtual education state that virtual schools "increase the availability of learning experiences for learners who cannot or choose not to attend traditional face-to-face offerings, assemble and disassemble instructional content more cost-effectively, and enable instructors to handle more students while maintaining learning outcome quality that is equivalent to face-to-face instruction" (U.S. Department of Education, 2010). (p. 1) Cavanaugh, Barbour and Clark (2009) state that virtual education addresses many problems that brick-and-mortar schools face such as overcrowding, access to high school courses in small schools or districts, lack of highly qualified teachers, and students needing an alternative placement other than the classroom where they can work at their own pace. Virtual schools give parents who are interested in their students being home-schooled another option.

While there are advantages to implementing the concept of virtual education, there are drawbacks as well. Being that the virtual education is still at the beginning stages of implementation, there is a challenge in identifying the most effective practices for these types of settings (Cavanaugh, Barbour and

Clark, 2009). It is very discerning that there is "little peer-reviewed research into the effectiveness of full-time k-12 online learning" (Barbour, 2014). Glass (2009) identified the following concerns with the quality of virtual education: school accreditation, certification of teachers, the quality of the curriculum, and the reliability of student assessment. Staker (2012) argues that 'disadvantaged youth' need the attention brick-and-mortar schools provide such as meals and health care to prosper. These are the kinds of services that virtual schools have a challenge with in providing them for students. Barbour (2009) found in his research that it is recommended that students who enroll in virtual schooling be "highly-motivated, self-directed, self-disciplined, independent reader who could read and write well, and who also had a strong interest in or ability with technology." However, these are not the typical characteristics of all students attending virtual schools. According to the data reported by Miron, Hortvitz and Gulosino (2013), this is not apparently the situation. These researchers found that the AYP State School Performance Ratings for the 2011-2012 school year showed only 28.1% of virtual schools performed at an "academically acceptable rate." The graduation rate for virtual schools in the United States for the same school year was recorded at 37.6%. The overall graduation rate for all schools in the United States measured 79.4%. (pp. 11-12)Although the enrollment for virtual schools continues to increase yearly, there are still questions regarding the effectiveness of these schools.

COSTS AND FUNDING OF VIRTUAL SCHOOLS

Many questions arise when considering the amount of funding that is going to support public virtual schools. According to Miron and Urschel (2012), although virtual schools spend less on budget items such as teacher salaries/benefits, they spend more than brick and mortar schools on overall instructional costs. This may be due to having to purchase online curriculum from outside vendors. Virtual schools spend less on administrator salaries/benefits, but spend more on administration. This, again,being a result of fees paid for contracted services with outside companies. There are several other cost advantages that virtual schools have over other schools such as low facility and maintenance costs, low transportation costs, low food services costs, and low costs for student support services. (p. iv) Miron and Urschel (2012) emphasize that there is a need for additional research regarding the expenditures of virtual schools due to the fact that the supporting outside companies related to some virtual schools are not always transparent when reporting their costs of educating students. Clark (2001) points out that it is also important to consider the startup for virtual schools. The figures given for per pupil expenditures are associated with the maintenance of established virtual programs and do not include what is needed for startup costs. Glass (2009) stated that it is another key point to keep in mind is that "the cost of providing virtual education at the k-12 level differs substantially from place to place." Glass reports that some states provide virtual schools with the same funding as they do brick-and mortar schools. Some state virtual schools have to take alternative means to support themselves such as embracing the charter school concept.

There have been many discussions regarding equity of funding for virtual schools as compared to the funding of brick and mortar schools (Barbour, 2014). For the fiscal year 2010-2011, virtual charter schools in South Carolina received a budget of $1,700 per student as compared to the $3,250 per student budget for South Carolina brick and mortar schools (Nielsen, 2011). These per pupil funding amounts awarded to schools are "funded primarily through local property taxes, along with a variety of federal and state-level funding" (Barbour, 2012).Huerta, Rice, and Shafer (2014) reported that no state has developed a comprehensive formula to determine how much funding virtual schools should receive. These researchers also found that a study conducted by Baker and Bathon titled *Financing Online Education and Virtual Schooling: A Guide for Policymakers and Advocates,* reported that an investigation into expenditures from a "top-down" approach where costs to operate a general education setting for virtual schools as compared to a general education setting for a brick and mortar school showed a 30% lower cost to operate a virtual school. However, Baker and Bathon noted that the savings are not impressive if the outcome of student achievement is not impressive. (pp. 8-9)

The full-time public virtual schools in South Carolina are all charter schools that fall under the South Carolina Public Charter School District. Currently, virtual charter schools in South Carolina are funded the same as all other charter schools in South Carolina. Although they do not receive any local funds, the funding is reported to be comparable to brick and mortar schools based on the federal, state, and sustainability funding they receive (Carmichael, 2014).

Barbour's research (2012) reports that there is minimal published research regarding how virtual schools are funded. However, the research that Barbour (2012) did find supports equal funding between virtual and brick-and-mortar schools. He notes that this research did tend to show bias towards virtual schooling.

SOUTH CAROLINA VIRTUAL SCHOOLS

South Carolina continues to struggle with the low graduation rate. Trends reported by Education Week (2012) show that the graduation rate for South Carolina has risen 14.3 percentage points from 1999 to 2009, almost double the nation's average of 7.3 percentage points. However, South Carolina's graduation rate was 61.7 percent in 2009; South Carolina is ranked fourth from the bottom and well below the national graduation rate of 73.4 percent (Education Week, 2012). As displayed by The National Center for Education Statistics (2014) in figure 2.3, South Carolina is one of only seven states in the United States that has a graduation rate lower than 70 percent.

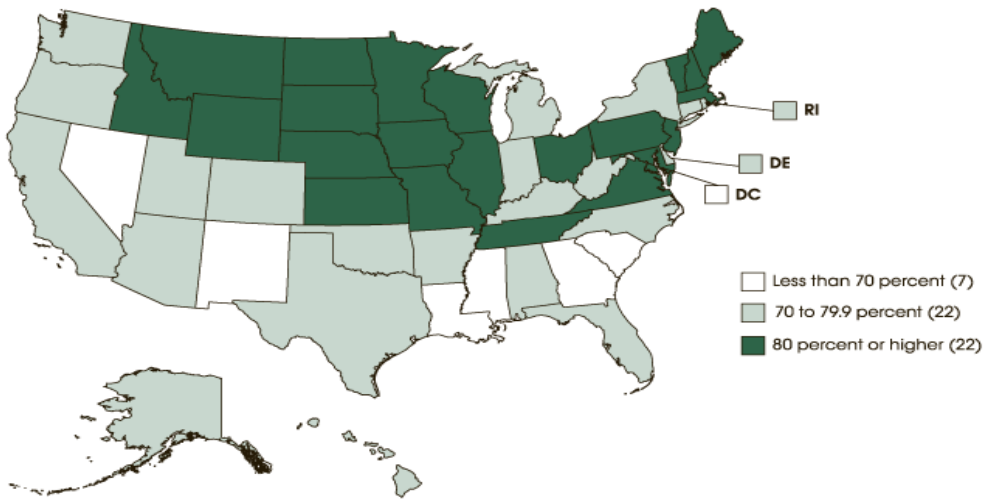

Figure 2.6 Average Freshman Graduation Rate (AFGR) for public high school students, by state or jurisdiction: School year 2009–10

NOTE: The Averaged Freshman Graduation Rate is the number of graduates divided by the estimated freshman enrollment count 4 years earlier. This enrollment count is the sum of the number of 8th-graders 5 years earlier, the number of 9th-graders 4 years earlier, and the number of 10th-graders 3 years earlier, divided by 3. Ungraded students are allocated to individual grades proportional to each state's enrollment in those grades. Graduates include only those who earned regular diplomas or diplomas for advanced academic achievement (e.g., honors diploma) as defined by the state or jurisdiction. Race categories exclude persons of Hispanic ethnicity. Total includes students for whom race/ethnicity was not reported or whose race/ethnicity is not represented in the five racial/ethnic categories presented in this figure.
SOURCE: U.S. Department of Education, National Center for Education Statistics, Common Core of Data (CCD), "State Dropout and Completion Data File," 2009–10.
See *Digest of Education Statistics 2012*, table 124.

One of the latest trends in American education today is virtual schooling. It serves as an option for high school students in South Carolina as an alternative to the traditional education setting. "Online learning can help address South Carolina's dropout rate…by giving them [students] access to innovative educational techniques tailored to their specific needs," (SC Policy Council Education Foundation, 2011).

Evergreen Education Group (2014) stated in their study *Keeping Pace with K-12 Online & Blended Learning* that in 2007, the South Carolina Legislature passed the "Act

26" bill that established the South Carolina Virtual School Program as an allowable program for public, private, and homeschool students to earn up to three high school credits per year with a maximum of twelve throughout high school. Act 26 requires that online charter schools incorporate no more than 75% of classroom instruction in the core subject areasonline. The other 25% of instruction can be accomplished through regular instructional opportunities, in real time, that are directly related to the school curricular objectives. The State Department of Education defines activities such as web conferencing, field trips, face-to-face group meetings, and student clubs in academic areas as activities that meet the real time requirements. (p. 1)

Currently, South Carolina is now home to six online virtual charter schools that operate under the South Carolina Public Charter School District. (Evergreen Education Group, 2014) These schools include Palmetto State E-cademy, South Carolina Connections Academy, South Carolina Virtual Charter School, South Carolina Calvert Academy, South Carolina Whitmore School and Provost Academy South Carolina. They cover a variety of grades k-12(South Carolina Public Charter School District, 2014). These schools have received authorization to operate under the conditions listed in an approved charter application. The South Carolina Public Charter School District serves as the overseer to ensure all accountability standards outlined in the charter are implemented (South Carolina Public Charter School District, 2014).

The South Carolina Public Charter School District, like many othersacross the United States, as noted earlier, suggest that only students who are self-motivated and self-driven should consider virtual schooling as an option. This leads to a discrepancy in the equity of enrollment of virtual schools as far as race and gender are considered. Nielsen

(2011) illustrates this issue in figure 2.4, showing the disparity among whites, blacks, other races, males, and females that were enrolled in virtual charter schools during the 2010-2011 school year in South Carolina.

Table 2.1 Graduation Rates for Low Socio-Economic Students

Race	Palmetto State E-cademy	Connections	SC Virtual Charter	Provost	Calvert	TOTALS	%
White	285	1,808	2,400	1,250	202	5,945	77%
Black	65	289	458	334	86	1,232	16%
Other[a]	33	244	158	62	16	513	7%

[a]From the data received, the Other category was found by subtracting the total of White and Black from the January 2011 school total data. Thus, data is approximate.

Sex	Palmetto State E-cademy	Connections	SC Virtual Charter	Provost	Calvert	TOTALS	%
Male	150	1,129	1,479	667	146	3,571[b]	46%
Female	233	1,206	1,536	979	158	4,112[b]	54%

[b]The total of Male and Female data are seven students less than the total student count in January 2011. Since data were collected at different points in time, the data in January 2011 and Male and Female student counts will not necessarily be the same.

Nielsen, Dennis. (2011). Online learning: Connecting with S.C. students. Retrieved March 3, 2014, from http://www.scpolicycouncil.org/wpconent/uploads/2012/02/0801onlnelearninglpdf.

Although virtual schooling expands learning opportunities for many students, there is not enough reliable research to say how effective it is in ensuring students are well educated. According to Barbour (2014), "…despite considerable enthusiasm for full-time virtual education in some quarters, there is little high-quality research to support the

practice or call for expanding this form of virtual schools." The question still remains if virtual schooling in South Carolina is proving to be effective in improving the graduation rates for low socio-economic students.

CHAPTER 3: METHODOLOGY

INTRODUCTION

Chapter three explains the research design and methodology used in this study. It includes a description of the participants used in the study and an explanation to why and how these participants were chosen. The process of data collection and data analysis is also outlined here with a review of the research questions posed in previous chapters.

OVERVIEW

There is a rapid increase in the number of students enrolling in virtual schools today even though there is little reliable research to support the effectiveness Gulosino, & Horvitz, 2014). Due to the lack of research on the effectiveness of virtual schools, it is imperative that educators and researchers begin taking a closer look into how these schools are performing in South Carolina. Low socio-economic students are the most likely of students to drop out of high school before receiving a diploma. This study examines how low socio-economic studentsattending virtual schools are performing in relation to graduation rates as compared to students who are attending brick and mortar schools. To make a fair and just comparison of the two types of schools, the poverty index rates will also be examined to ensure that there is equity in the percentage of low socio-economic students represent between virtual schools and brick and mortar schools.

RESEARCH METHODOLOGY

This study used quantitative data in order to conduct descriptive research, comparing the relationship between the graduation rates of low socio-economic students attending virtual schools to those attending brick and mortar schools in South Carolina. The goal of the study was to compare the graduation rates between two different types of schools - virtual high schools and brick and mortar high schools – to determine if there were any statistical significant differences. No experiment was conducted with this study.

Data were collected for the graduation rates of high school students for each high school in South Carolina from the South Carolina State Department of Education's Report Cards. The data gathered spanned from the 2010-2011school yearto 2012-2013 school year. These specific years were chosen because these were the only years where recorded graduation rate data for virtual high schools was recorded. The data were then disaggregated in order to focus on the investigation of students who qualify for free or reduced lunch, putting them in the category of "Low Socio-Economic Status" as defined by federal guidelines.

PARTICIPANTS

The schools involved in this study include four virtual schools in South Carolina that have graduation rate data reported from 2011 to 2013. The graduation rates from all brick and mortar high schools during this time span were also collected. The students in this study were reported as receiving free or reduced on the South Carolina State Department of Education Report Card, placing them within the parameters of the federal parameters of families who are living in poverty.

INSTRUMENTATION

The data on graduation rates for South Carolina High Schools from 2011-2013 were recorded from the South Carolina's State Department of Education Report Card and organized by the graduation rate for all students and the graduation rates for low socio-economic students for each year covered in the study. In South Carolina, the yearly graduation rate reflects the percentage of students who graduated within four years from the first year they entered ninth grade.

The data was then disaggregated further in order to have data for virtual high schools only and brick and mortar high schools only, making three groups of data total with the data for all schools combined. The graduation rates were averaged for all three groups for each year from 2011-2013. For each group, the mean of the average graduation rate of all three years was calculated. This data was used to determine if there was any statistical significant difference between the graduation rates of the three groups of schools. The graduation rate for all schools in South Carolina was included in the study to compare how virtual schools and brick and mortar schools were performing in relation to graduation rates to South Carolina schools as a whole. The data for all students was also gathered for comparison purposes. The graduation rate for all students versus low socio-economic students for virtual schools and brick and mortar schools was included to determine if any differences that may affect the study were evident.

The *t Test* was used to determine if there was a significant statistical difference for the data and the *Cohen's d Effect Size* was calculated to determine how significant the difference was when appropriate. The *t Test* tool was chosen because it can be used to identify any differences in the means of two groups of data and to determine if the data

supports the null hypothesis. The two-tailed method of the *t Test* was used to determine any statistical significant difference in either direction.

The sets of data that displayed that showed a statistical significant difference based on a 95% effect rate, were analyzed using *Cohen's d Effect Size.* This tool used the standard deviation, or measure of variation between the data, along with the mean of the data to determine how significant the difference was. If the effect size measured at 0.2, it was noted that the statistical significant difference between the two sets of data was small. An effect size of 0.5 referred to a medium sized difference and one of 0.8 indicated that the statistical significant difference was large.

RESEARCH QUESTIONS

1. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

   Null Hypothesis: There is no significant difference between the average graduation rates of low socio-economic students attending virtual high schools as compared to South Carolina's overall graduation rate for low socio-economic students.

2. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

   Null Hypothesis: There is no significant difference between the average graduation rates of low socio-economic students attending brick and mortar high

schools as compared to South Carolina's overall graduation rate for low socio-economic students.

3. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the graduation rate of all students attending virtual high schools in South Carolina?

   Null Hypothesis: There is no significant difference between the average graduation rates of low socio-economic students and all students attending virtualhigh schools in South Carolina.

4. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the graduation rate of all students attending brick and mortar high schools in South Carolina?

   Null Hypothesis: There is no significant difference between the average graduation rates of low socio-economic students and all students attending brick and mortar high schools in South Carolina.

5. Is there a difference between the graduation rate of low socio-economic students who attend virtual high schools in South Carolina as compared to low socio-economic students who attend brick and mortar high schools in South Carolina?

   Null Hypothesis: There is no significant difference between the graduation rate for low socio-economic students enrolled in virtual high schools in South Carolina as compared to the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina.

CHAPTER 4: FINDINGS

INTRODUCTION

Chapter four provides an analytical summary of the data collected for this study. The data used were collected from the South Carolina Department of Education School Report Card data base for the years 2012 to 2014. The data reflect the graduation rates for South Carolina high schools for the years 2011 to 2013. Microsoft Excel was used to calculate the data using the *t Test* statistical data analysis method. The *Cohen's d* model was used to determine the effect size for the data that had significant statistical differences.

GRADUATION RATE DATA

The graduation rate for South Carolina high schools for the years 2011-2013 were collected and organized into a spreadsheet. The data were then grouped by year for students attending all South Carolina high schools, students attending full-time virtual high school in South Carolina, and students attending full-time brick and mortar high schools in South Carolina. The mean of the data for each group was determined as the graduation rate for each year studied. The graduation rate for all students for all South Carolina high schools was 73.03 percent in 2011, 74.61 percent in 2012, and 77 percent in 2013. The graduation rate for all students for virtual South Carolina high schools was 23.83 percent in 2011, 27.24 percent in 2012, and 31 percent in 2013. The graduation rate for all students attending brick and mortar South Carolina high schools was 73.96 percent in 2011, 75.5 percent in 2012, and 77.88 percent in 2013. These percentages take

all students into account. There was no disaggregation for special subgroups such as special education, race, gender, or socio-economic level at this point in the study. Figure 4.1 illustrates the differences in graduation rates for the three different groupings of schools. The largest discrepancy appears to between the graduation rate of students attending virtual high schools in South Carolina as compared to students attending both brick and mortar high schools and the overall graduation rate average for all students attending South Carolina high schools.

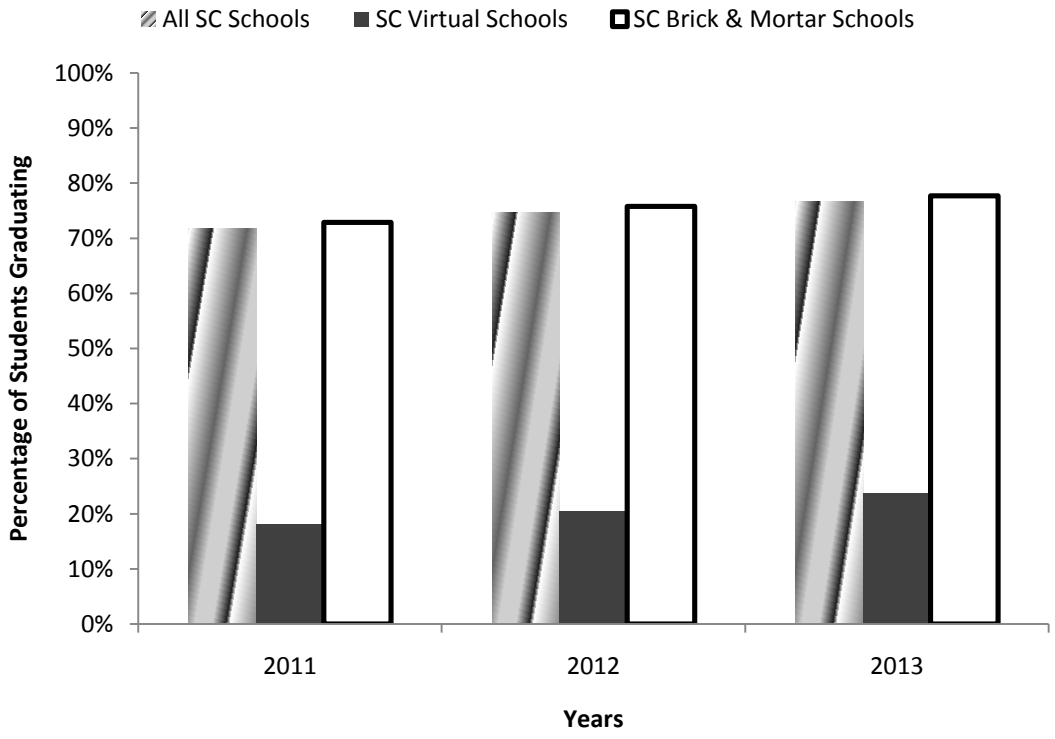

Figure 4.1 Graduation Rate Percentages for All Students Attending South Carolina High Schools from 2011-2013

This study also analyzed the data for graduation rates for students who fall into the low socio-economic subgroup based on their free/reduced lunch status as calculated on the South Carolina Department of Education's school report cards. The data were

collected for all South Carolina high schools, all South Carolina virtual high schools and all South Carolina brick and mortar high schools. The data were then grouped by all students attending South Carolina high schools, students attending virtual high school in South Carolina, and students attending brick andmortar high schools. The mean of the data for each group was determined as thegraduation rate. The graduation rate for students of low socio-economic status in all South Carolina high schools was 73.03 percent in 2011, 74.61 percent in 2012, and 77 percent in 2013. The low socio-economic subgroup for full-time South Carolina virtual high schools was 23.83 percent in 2011, 27.24 percent in 2012, and 31 percent in 2013. The graduation rate for low socio-economic students attending full-time South Carolina brick and mortar schools was 73.96 percent in 2011, 75.5 percent in 2012, and 77.88 percent in 2013. This data is represented in Figure 4.2.

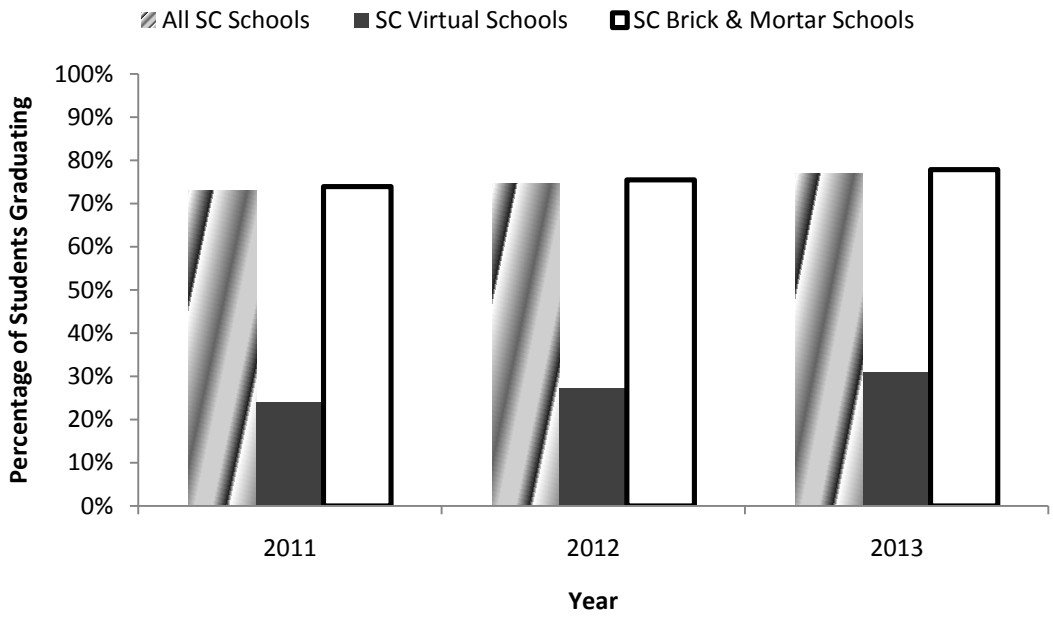

Figure 4.2 Graduation Rate Percentages for Low Socio-Economic Status Students Attending South Carolina Schools from 2011-2013

POVERTY INDEX DATA

The graduation rates for low socio-economic students from the three different groupings of schools wasdetermined, but it was also necessary to consider the poverty index level for each of these groups of schools in order to determine whether or not these data may have an influence on the outcome of the data. The data were collected for all South Carolina high schools, all South Carolina virtual high schools and all South Carolina brick and mortar high schools. The data were then grouped by low socio-economic students attending South Carolina high schools, low socio-economic students attending virtual high schools in South Carolina, and low socio-economic students attending brick and mortar high schools in South Carolina. The mean of the data for each group was determined as the Poverty Index Rate percentage. The overall poverty rate average for all South Carolina high schools in 2011 was 73.92 percent, 74.77 percent in 2012 and 76.72 percent in 2013. The poverty rates for virtual high schools in South Carolina were reported at 68.7 percent in 2011, 70.25 percent in 2012, and 68.57 percent in 2013. The poverty rates for brick and mortar high schools in South Carolina ranked closely to the overall poverty rate average for all South Carolina high schools with a rate of 73.93 percent in 2011, 74.63 percent in 2012, and 74.93 percent in 2013.Figure 4.3 illustrates that the poverty rate for all three types of schools is comparative – no one group shows any alarming difference in the percentage of low socio-economic students attending that particular type of school as compared to the other two.

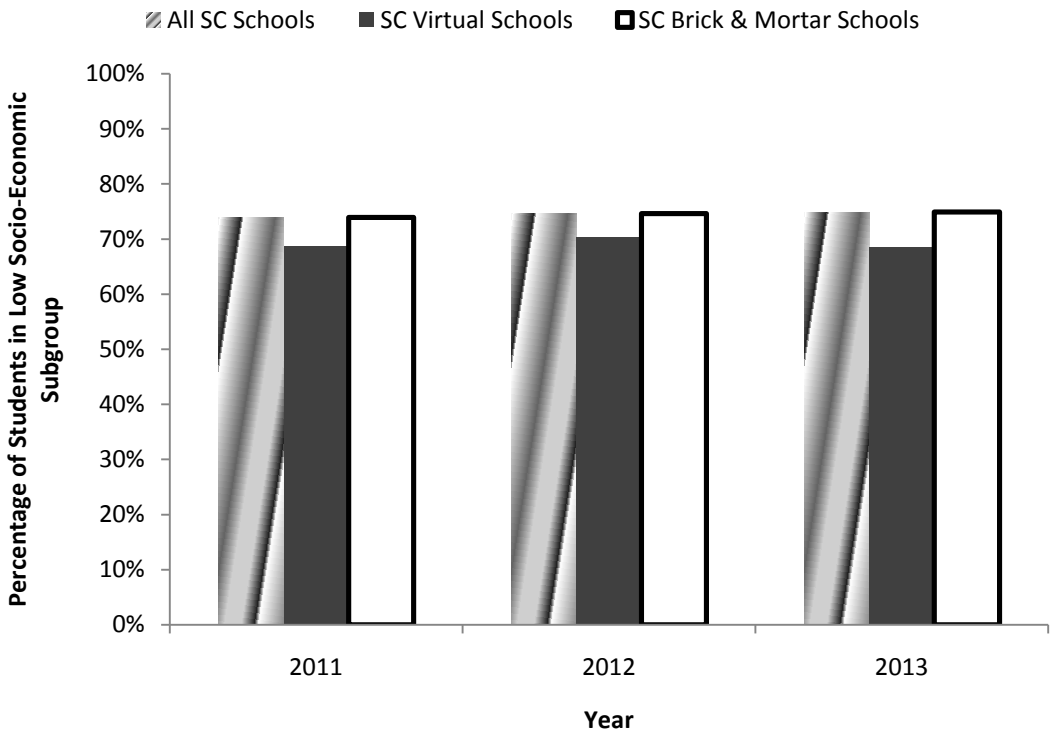

Figure 4.3 Poverty Index Rate Percentages for All South Carolina High Schools, Virtual South Carolina High Schools, and Brick and Mortar High Schools from 2011-2013

STATISTICAL ANALYSIS OF DATA

The goal of this study was to determine if there was a significant statistical difference between the graduation rates of low socio-economic students in South Carolina attending virtual high schools as compared to their counterparts attending South Carolina brick and mortar high schools. In order to do this, the average graduation rates for the years 2011, 2012, and 2013 were calculated and compared usingthe *t*-test Statistical Significance method with a 95% effect rate. The two-tail method of the *t test* was implemented to determine if $P(T \leq t)$. For the areas where a statistical significant difference was noted, the *Cohen's d* and effect size methods were used to determine

whether the effect size was small with a measure of 0.2 or less, medium with a measure of 0.5, or large with a measure of 0.8 or higher.

The researcher first examined the data collected for the graduation rates of low socio-economic students attending virtual high schools in South Carolina, brick and mortar high schools in South Carolina, and for all high schools in South Carolina. Next a comparison of graduation rates for low socio-economic students versus all students attending virtual high schools and brick and mortar high schools, separately, was completed and recorded. The poverty index rates for these groups of schools were also analyzed. For the areas that resulted in havingstatistical significant differences, the effect size was determined.

Table 4.1 Graduation Rates for Low Socio-Economic Students

School Groupings	Mean	Difference of Means	*t* Value	Significance $p<.05$
1. SC Virtual High Schools	29.12	-47.57	.001	Yes
SC Brick & Mortar High Schools	76.69			
2. All SC High Schools	75.81	46.69	.002	Yes
SC Virtual High Schools	29.12			
3. All SC High Schools	75.81	-.88	.65	No
SC Brick & Mortar High Schools	76.69			

As demonstrated by Table 4.1, the mean of the graduation rates for virtual high schools in South Carolina from 2011-2013 were compared to the mean of the graduation rates for brick and mortar high schools in South Carolina for students who fall into the

low socio-economic subgroup. To get a better understanding of the difference between the two groups of schools, a comparison was also made between low socio-economic students from all high schools in South Carolina to low socio-economic students attending South Carolina virtual high schools and low socio-economic students attending South Carolina brick and mortar schools. The data concluded that the graduation rate for low-socio economic students attending virtual high schools in South Carolina from 2010-2013 was significantly lower than low socio-economic from South Carolina brick and mortar high schools. There was also a significant difference when the South Carolina virtual high school graduation rates for low socio-economic students were compared to the graduation rates for the low socio-economic group of students from all South Carolina high schools, the virtual high school graduation rate being significantly lower. However, when comparing the graduation rates for low-socio economic subgroup of students attending South Carolina brick and mortar high schools to that for low socio-economic students from all South Carolina high schools, no significant difference was displayed.

Table 4.2 Graduation Rates for Low Socio-Economic Students versus All Students

School Groupings	Mean	Difference of Means	*t* Value	Significance $p<.05$
1. SC Virtual High Schools Low SES Students	27.36	6.59	.06	No
SC Virtual High Schools All Students	20.77			
2. SC Brick & Mortar High Schools Low SES Students	75.78	.32	.87	No
SC Brick & Mortar High Schools All Students	75.46			

To get a better understanding of what the graduation rates of low socio-economic status were representing, a comparison was made to see if there was any significant difference between the graduation rates for the low socio-economic group as compared to

the graduation rates for all students for both the virtual high schools and the brick and mortar high schools. This data were collected for the years 2011-2013 and a *t Test* was performed. Both tests resulted in no statistical significant difference between the graduation rates of low socio-economic students and the graduation rates of all students for schools of both the virtual setting and the brick and mortar setting. Therefore it can be deduced that the socio-economic levels of students in both virtual and brick and mortar schools did not have any effect on the graduation rate. The low socio-economic groups of students are performing as well as students who are not classified as low socio-economic for both the virtual schools and the brick and mortar schools.

Table 4.3 Poverty Index Rates

School Groupings	Mean	Difference of Means	*t*Value	Significance $p<.05$
1. SC Virtual High Schools	70.07	.44	.67	No
SC Brick & Mortar High Schools	69.63			
2. SC Virtual High Schools	70.07	.44	.66	No
All SC High Schools	69.63			
3. All SC High Schools	69.63	0	1.0	No
SC Brick & Mortar High Schools	69.63			

When comparing the three groupings of schools to determine if there were any significant differences of graduation rates for the low socio-economic subgroups, the researcher also examined the poverty levels of the schools. There proved to be no

significant difference between the poverty level index rates for virtual high schools in South Carolina, brick and mortar high schools in South Carolina, and all high schools in South Carolina from 2011-2013. This data shows that students of low socio-economic backgrounds were equally represented for each group of schools. In turn, it is evident that the number of low socio-economic students is not a factor in any discrepancies reported when examining graduation rates for the three groups of schools.

Table 4.4 Cohen's d and Effect Size for Graduation Rates for Low Socio-Economic Students

School Groupings	Mean	Standard Deviation	Cohen's d	Effect Size
1. SC Virtual High Schools	27.36	3.59	16.66	1.0
SC Brick & Mortar High Schools	75.78	2.0		
2. All SC High Schools	79.97	3.39	15.06	1.0
SC Virtual High Schools	27.36			

The *Cohen's d*Effect Size was calculated to determinethe implication of the statistically significant differences noted with the data in Table 4.4.The effect size isconsidered to be small if measured at 0.2, medium if measured at 0.5, and large if measured at 0.8. The statistical significant difference between the graduation rate of low socio-economic students attending virtual high schools in South Carolina as compared tothose attending brick and mortar high schools in South Carolina was shown to have a large effect size of 1.0. This held true for the comparison of the graduation rates of virtual schools versus all South Carolina high schools as well, also having an effect size of 1.0.

INTERPRETATION

Research Question #1: How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

Based on the data represented in Table 4.1,there is a statistical significant difference between the performances of low socio-economic students attending virtual high schools as compared to students in the low socio-economic subgroup for all South Carolina high schools in terms of graduation rate. Using the *Cohen's d* instrument to measure the actual effect size, it was shown that students in the low socio-economic subgroup attending virtual high schools have an average graduation rate from 2011-2013 that is substantially lower than the same subgroup of students that represents all South Carolina high schools.

Research Question #2: How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

When examining the performance of low socio-economic students attending brick and mortar schools compared to low socio-economic students representing all high schools in South Carolina, Table 4.1 displayed no statistical significant difference between the two. The low socio-economic subgroup of students attending brick and mortar schools displayed a performance rate in terms of graduation rates from 2011-2013 that are comparable to that of the overall graduation rate average for all high schools in South Carolina for the same time period. Considering that the poverty index rates for brick and mortar schools are similar to the overall state poverty index rate, it is to be expected that the graduation rates for the same subgroup of students be comparable as well.

Research Question #3: How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the graduation rate ofall students attending virtual high schools in South Carolina?

Table 4.2 represented the data collected and analyzed to determine if there was a significant statistical difference between the graduation rate of the low socio-economic subgroup of students compared to all students attending South Carolina virtual high schools. The test concluded that there was no significant statistical difference between the graduation rates of these two groups of students for the years 2011-2013. The low socio-economic subgroup of students attending South Carolina virtual high schools performed at a comparable performance level in terms of graduation rate compared to the graduation rate for all students. This data show that no matter what socio-economic level of students is examined, they are all displaying inadequate performance in terms of graduation rates.

Research Question #4: How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the graduation rate of all students attending brick and mortar high schools in South Carolina?

As represented in Table 4.2, the graduation rate for low socio-economic students attending South Carolina brick and mortar high schools was comparable to the graduation rate for all students attending South Carolina brick and mortar high schools. The two groups were performing at comparable levels in terms of graduation rate showing no statistical significant difference for the years 2011-2013. In terms of graduation rate, students representing all levels of socio-economic status are performing at a satisfactory level when compared to the state's average graduation rate.

Research Question #5: Is there a difference between the graduation rate of low socio-economic students who attend virtual high schools in South Carolina as compared to low socio-economic students who attend brick and mortar high schools in South Carolina?

According to the data in Table 4.1, low socio-economic students attending South Carolina virtual high schools performed at a significantly lower level than low socio-economic students attending brick and mortar schools in South Carolina from 2011-2013. Given that there was no statistical significant difference between the percentages of the number of low socio-economic students attending both types of schools, the data should have reported no statistical significant difference between the graduation rates of this subgroup between the two types of schools. Not only was there a statistical significant difference between the two, but it was a largesignificant difference according to the 1.0 size effect that was calculated using the *Cohen's d* instrument.

The data clearly showed that in comparison to both brick and mortar high schools in South Carolina and all high schools in South Carolina, virtual high schools failed to perform at an acceptable level in terms of high school graduation rate for the years 2011-2013. It also demonstrated that although the percentage of students who received free or reduced lunch and categorized as "low socio-economic" are similar across the three different groups of schools, the graduation rate is not comparable. The graduation rate for low socio-economic students should show no significant statistical difference if the all students are receiving appropriate instruction aligned to the same state-mandated standards. This leads to question the effectiveness of virtual high schools in terms of performance related to graduation rates.

CHAPTER 5: SUMMARY AND CONCLUSIONS

SUMMARY

The goal of this study was to determine if there was a significant difference between the graduation rates for low socio-economic students attending virtual high schools in South Carolina compared to low socio-economic students attending brick and mortar high schools in South Carolina.

South Carolina has a dismal history in the area of state-reported graduation rates. Since the inception of the No Child Left Behind Act in 2001, states and districts have been held responsible for implementing strategies to improve overall state graduation rates. As noted in the literature review, research shows that today's students tend not to respond well overall to the traditional method of teaching. Students want more interactive-based lessons in school. The 'sit and get' method is no longer an effective strategy when implemented on a consistent basis.

Students drop out of high school for many different reasons. Some of the reasons students drop out of high school are a lack of interest in school, family issues, social issues, and being over-aged. Being that research states that students who come from a family that falls in the lower 20% income range for the United States are the most likely to drop out of high school, this study focused on this group of students.

The literature review stated that South Carolina has implemented the virtual school concept to help address the needs of students in order to improve their NCLB ranking. However, there has been little research to support the effectiveness of virtual

schools in terms of graduation rates. Since students of low socio-economic status are the most likely to drop out of high school, this study focused on this group comparing the graduation rates for those attending virtual schools and those attending brick and mortar schools. Although the enrollment for virtual schools continues to increase, there is still a lack of strong data supporting or discrediting the effectiveness of this type of school.

This study was designed to answer the following research questions:

1. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?
2. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?
3. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the graduation rate of all students attending virtual high schools in South Carolina?
4. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the graduation rate of all students attending brick and mortar high schools in South Carolina?
5. Is there a difference between the graduation rate of low socio-economic students who attend virtual high schools in South Carolina as compared to low socio-economic students who attend brick and mortar high schools in South Carolina?

The data collected for this study were manipulated using the *t Test* to determine if there were any significant statistical differences between the groups. The *Cohen's d* and

effectsizewere also used in order to determine how significant any difference found in the data actually was. The data were collected from the South Carolina Department of Education State Report Cardsfor the years of 2012 through 2014, reflecting high school graduation rates for the years 2011-2013.

This study indicated that there were no significant statistical differences between the poverty index rates of students attending virtual high school versus brick and mortar high schools as well as compared to all high schools in South Carolina. There was also no statistical significant difference between the graduation rates of the low socio-economic group of students as compared to all students attending virtual high schools. This holds consistent in the comparison of low socio-economic students' graduation rates who attend brick and mortar high schools and all students who attend brick and mortar high schools in South Carolina. However, there is a statistical significant difference between the graduation rate of low socio-economic students attending South Carolina virtual high schools as compared to the graduation rate of low socio-economic students attending South Carolina brick and mortar high schools.

CONCLUSIONS

This study was designed to determine whether or not virtual high schools in South Carolina are proving to be effective in terms of graduation rate as compared to the graduation rate of brick and mortar high schools in South Carolina. In order to get a clear understanding of the data, the comparison of graduation rates for low-economic students attending virtual high schools was compared to that for all high schools in South Carolina. The graduation rate for low socio-economic students versus all students attending virtual high schools and brick and mortar high schools was also examined. The

data collected were also compared to data collected for all South Carolina high schools for comparison.

To get a better understanding of the number of low socio-economic students attending virtual and brick and mortar high schools in South Carolina, a *t test* was also conducted on this data showing that there was a comparable percentage of low socio-economic students enrolled in virtual schools as compared to the percentage of low socio-economic students enrolled in brick and mortar schools. The percentage of low socio-economic students represented in each group of schools had no statistical significant meaning to the study.

The conclusions that were derived from examination of the recorded data for this study are as follows as aligned with the research questions designed for this study:

1. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

   Conclusion: The graduation rates for low socio-economic students attending virtual high schools in South Carolina were significantly lower than the graduation rates reported for the same group of students for all high schools in South Carolina. If the virtual high schools were proving to be effective in terms of graduation rates for low socio-economic students, the graduation rates for virtual high schools would be comparable to the state's overall graduation rate for the same group of students. Virtual high schools were not effective in terms of graduating students on time for the years 2011-2013.
2. How does the graduation rate of low socio-economic students attending brick and

mortar high schools in South Carolina compare to the state's overall graduation rate for low socio-economic students?

Conclusion: The graduation rate for low socio-economic students attending South Carolina brick and mortar high schools was comparable to the graduation rate for all South Carolina high schools overall. The brick and mortar schools were performing close to the same level as the state's average. It was expected that schools perform at the state's average performance level or better to be considered effective.

3. How does the graduation rate of low socio-economic students attending virtual high schools in South Carolina compare to the graduation rate of all students attending virtual high schools in South Carolina?

   Conclusion: There was no statistical significant difference between the graduation rates for low socio-economic students compared to all students attending virtual high schools in South Carolina. Although the data showed that low socio-economic students were not dropping out of virtual schools at as high of rates that have been recorded in the past, the graduation rates were still at a dismally low percentage. The graduation rates for all students attending virtual high schools were also at staggering low percentages. This would suggest that the virtual high schools in South Carolina were not performing at an acceptable level in terms of graduation rates between the years 2011 and 2013, no matter what the socio-economic status of the students are.

4. How does the graduation rate of low socio-economic students attending brick and mortar high schools in South Carolina compare to the graduation rate of all students attending brick and mortar high schools in South Carolina?

   Conclusion: The graduation rate for low socio-economic students attending brick and mortar high schools in South Carolina were comparable to the graduation rate for all students attending brick and mortar high schools in South Carolina. This was a good indicator that low socio-economic students who attend brick and mortar schools in South Carolina are performing at comparable performance levels as compared to all students attending brick and mortar schools in South Carolina. When compared to the state's overall graduation rate, students of all socio-economic levels attending brick and mortar high schools are performing satisfactorily compared to the state's performance level.

5. Is there a difference between the graduation rate of low socio-economic students who attend virtual high schools in South Carolina as compared to low socio-economic students who attend brick and mortar high schools in South Carolina?

   Conclusion: The data in this study displayed a large discrepancy between the graduation rates of low socio-economic students attending virtual high schools in South Carolina as compared to low socio-economic students attending brick and mortar high schools in South Carolina. Being that the brick and mortar high school graduation rates were comparable to the state's averages, one would expect the virtual high school graduation rate to also be comparable to the state's average and the brick and mortar high schools' average.The data clearly indicated that virtual high schools in South Carolina did not perform at the same level as brick

and mortar high schools in South Carolina in terms of graduation rate between 2011 and 2013 for low socio-economic students.

South Carolina instituted the virtual school concept to help improve student performance in alignment with the No Child Left Behind Act. However, little research has been conducted to measure the effectiveness of the virtual schools. Cavanaugh, Barbour, and Clark (2009) imply that much of the research regarding the challenges of virtual education focuses on administrative issues and little focuses on the challenges of student performance. This study examined whether or not virtual high schools in South Carolina are effective in terms of graduation rates for students of low socio-economic status as compared to the low socio-economic students attending South Carolina brick and mortar high schools. The results indicated that the virtual high schools in South Carolina were ineffective in terms of graduating low socio-economic students on time for during the 2010-2011 school year through the 2012-2013 school year.

RECOMMENDATIONS

Based on the findings of this study, the discrepancy between the graduationrates of virtual schools in South Carolina compared to other schools is quite substantial. Being that there is little reliable research that has been conducted to measure the effectiveness of full-time virtual schools, it is recommended that further studies be conducted. The following are recommendations for future studies as related to this research.

1. Is the criteria which virtual schools' progress being measured take into account the differences between the way virtual schools and brick and mortar schools conduct classes? Could this be impacting the graduation rate for virtual schools?
2. Is there a difference between the graduation rates of students who attend virtual schools that provide synchronous instruction versus asynchronous instruction?

3. Does the lack of face-to-face interaction with teachers and other students have any impact on graduation rate of students attending virtual schools?
4. Is there any relation between the graduation rate of sub-groups other than low socio-economic students attending virtual schools as compared to those attending brick and mortar schools?
5. Are students with high needs such as those who are sub-grouped as low socio-economic, special education, ESOL, etc., provided with the services and assistance needed beyond classroom instruction to be successful in a virtual setting?
6. Are the discrepancies in the funding of virtual schools as compared to brick and mortar schools affecting the performance level of students attending virtual schools?
7. What types of interventions are being implemented to address the weaknesses of all students?
8. Are virtual schools hiring high quality teachers who can effectively deliver education via the computer to all students? By what criteria are the teachers being judged?
9. Are there identified best teaching strategies for both the synchronous and asynchronous virtual learning environments? How are they impacting student achievement?

This study is one of few studies that have been conducted in attempt to measure the effectiveness of virtual high schools not only in South Carolina, but in the United States. Given that the graduation rates continue to be low for South Carolina, even

though it has shown improvement, it is imperative that programs being implemented are closely monitored for effectiveness in terms of student achievement. If students are not performing at the level expected and the state is not showing any significant improvement in terms of student achievement, the question of the program being worth the time and money being used to implement it is a valid and critical one. It is recommended that studies similar to this be conducted to include a broader scope of data. There is a great amount of data in addition to the graduation rate of low socio-economic students that needs to be examined.

REFERENCES

Alliance for Excellent Education. (2010). High school dropouts in America. *Fact Sheet.* Washington, D.C. Retrieved March 13, 2014, from http://www.all4ed.org.

Anderson, Bill and Simpson, Mary. (2012). History and heritage in open, flexible, and distance education. *Journal of Open, Flexible, and Distance Learning,* 16 (2), 1-10.

Barbour, Michael K. (2013). The landscape of k-12 online learning: Examining what is known.In M. G. Moore (Eds.), *Handbook of Distance Education (3rd ed.).* New York: Routledge.

Barbour, Michael K. (2013). Are virtual schools more cost-effective compared to traditional,brick-and-mortar schools? In K. P. Bradley (Ed.), *Technology in Schools: Debating Issues in American Education.* Thousand Oaks, CA: Sage.

Barbour, Michael K. and Ferdig, Richard E. (2011). Online learning (virtual schools). In S. McLeod & C. Lehmann (Eds.), *What school leaders need to know about k-12 virtual schools.* San Francisco, CA: Jossey-Bass.

Barbour, Michael K. and Siko, John P. (2012). Virtual schooling through the eyes of an at-risk student: a case study. *Instructional Technology:* 365 Education.

Barbour, Michael K. (2009). Today's student and virtual schooling: The reality, the challenges,the promise. *Journal of Distance Learning:* 13 (1): 5-25.

Blue, Debbie and Cook, Jennifer E. (2004). High school dropouts: can we reverse the Stagnation in school graduation? *Study of High School Restructuring:* 1 (2).

Carmichael, M. (2014). *Charter Starter – March 4 FAQ's* [Powerpoint slides]. Retrieved from http://www.sccharterschools.org.

Cavanaugh, Cathy, Barbour, Michael K. and Clark, Tom. (2009). Research and practice in k-12 online learning: A review of open access literature. *The International Review ofResearch in Open and Distance Learning:* 10 (1).

Chingos, Matthew M. 2013. Questioning the quality of virtual schools. *President & Fellows of Harvard College.* Retrieved March 15, 2014, from http://educationnext.org/questioning-the-quality-of-virtual-schools/

Civic Enterprises in association with Peter D. Hart Research Associates. (2006). *The Silent Epidemic Perspectives of High School Dropouts.* Washington, D.C.: Bridgeland, John M., Dilulio, Jr, John J., and Morison, Karen Burke.

Clark, Tom. 2008. Online learning: Pure potential. *Educational Leadership: Reshaping High Schools:* 65 (8).

Clark, Tom. 2001. Virtual schools: status and trends. *WestEd/Distance Learning Resource Network.* Retrieved March 5, 2014, from http://www.wested.org/online_pubs/virtualschools.pdf.

Clark, Tom and Berge, Zane. 2005. Virtual schools and eLearning: Planning for success. Retrieved October 24, 2014, from http://www.uwex.edu/disted/conference/.

Clayton Christensen Institute for Disruptive Innovation. (2012). Family support defines lowest tier of the k-12 school market. Heather Staker. Retrieved October 24, 2014, fromhttp://www.christenseninstitute.org/family-support-defines-lowest-tier-of-the-k-12-school-market/.

Davis, Michelle R. 2012. Virtual education seen as understudied. *Education Week:* 5 (2): 24-28.

Editorial Projects in Education Research. (2004). Issues A-Z: High school reform. *EducationWeek.* Retrieved October 14, 2014, from http://www.edweek.org/ew/issues/high-school-reform/.

Evergreen Education Group. 2014. *Keeping Pace with K-12 Online & Blended Learning.* Retrieved March 13, 2014, from: http://kpk12.com/states/south-carolina/.

Glass, Gene. (2009). The realities of k-12 virtual education.The Great Lakes Center for Education Research & Practice. Lansing, MI. Retrieved October 24, 2014, from http://greatlakescenter.org/docs/Policy_Briefs/Glass_Virtual.pdf.

Halverson, Richard and Smith, Annette. (2009). How new technologies have (and have not) Changed teaching and learning in schools. *Journal of Computing in Teacher Education.*23 (2): 49-54.

Kena, G., Aud, S., Johnson, F., Wang, X., Zhang, J., Rathbun, A., et al. (2014). The Condition of Education 2014 (NCES 2014-083).U.S. Department of Education, National Center for Education Statistics. Washington, DC. Retrieved March 5, 2014, from http://nces.ed.gov/pubsearch.

Littlefield, Jamie. 2014. Why do teens enroll in online high schools? 8 reasons teens and their parents choose online high schools. *About.com Education Distance Learning.* Retrieved March 15, 2014, from: http://distancelearn.about.com/od/virtualhighschools/tp/Why-Do-Teens-Enroll-In-Online-High-Schools/.

Miron, Gary and Urschel, Jennifer. (2013). Understanding and improving full-time virtual schools: A study of student characteristics, school finance, and school performance in schools operated by k12 Inc. National Education Policy Center. Boulder, CO. Retrieved March 13, 2014, from http://nepc.colorado.edu/publication/understanding-improving-virtual.

Miron, Gary, Horvitz, Brian, and Gulosino, Charisse. (2013). Full-time virtual schools: Enrollment, student characteristics, and performance.*Virtual Schools in the U.S. 2013: Politics, Performance, Policy, and Research Evidence.* Retrieved October 24, 2014 from http://nepc.colorado.edu.

Murnane, Richard J. and Hoffman, Stephen. (2013). Graduations on the rise. *Education Next:* 13 (4). Retrieved March 13, 2014, from http://educationnext.org.

National Center for Education Statistics. (2014). The condition of education.Retrieved onMarch 13, 2014 from http://nces.ed.gov/programs/coe/indicator_coj.asp.

National Education Policy Center. (2014). Full-time virtual schools: Enrollment, student characteristics, and performance. *Virtual Schools in the U.S. 2014: Politics, Performance, Policy, and Research Evidence.* Boulder, CO: Luis Huerta, Jennifer King Rice, and Sheryl Rankin Schafer.

National Education Policy Center. (2014). Full-time virtual schools: Enrollment, student characteristics, and performance. *Virtual Schools in the U.S. 2014: Politics, Performance, Policy, and Research Evidence.* Boulder, CO: Gary Miron, CharisseGulosino, and Brian Horvitz.

National Education Policy Center. (2014). The disconnect between policy and research: Examining the research into virtual schooling. *Virtual Schools in the U.S. 2014: Politics, Performance, Policy, and Research Evidence.* Boulder, CO: Michael K. Barbour.

Nielsen, Dennis. (2011). Online learning: Connecting with S.C. students. Retrieved March 3, 2014, from http://www.scpolicycouncil.org/wpconent/uploads/2012/02/0801onlinelearninglpdf.

Parents for Choice in Education. (2014). Virtual Online Schools. Retrieved March 15, 2014, from http://choiceineducation.org.

South Carolina Public Charter School District. (n.d.) *Our Schools.* Retrieved March 15, 2014, from: http://www.sccharter.com.

South Carolina Legislature. (2013). *South Carolina Code of Laws Unannotated Current through the end of the 2013 Session.* Retrieved March 3, 2014, from http://www.scstatehouse.gov/code/t59c016.php.

Stanley, Kylie R. and Plucker, Jonathan A. (2008). Improving high school graduation rates. *Center for Evaluation & Education Policy Education Policy Brief:* 6 (7): 1-12.

The Hechinger Report. (n.d.). Student participation in k-12 online education grows but fewer states run virtual schools and classes. Retrieved March 5, 2014, from http://educationbythenumbers.org/content/k-12-online-education-grows_621/.

Tucker, Bill. 2007. Laboratories of reform: Virtual high schools and innovation in public education. *Education Sector Reports.* Retrieved from: http://www.educationsector.org.

U.S. Census Bureau Housing and Household Economic Status Division. (2011). Educational characteristics of prisoners: data from the ACS. Washington, DC: Stephanie Ewert and Tara Wildhagen.

U.S. Department of Education, Office of Planning, Evaluation, and Policy Development. (2010). Evaluation of Evidence-Based Practices in online Learning: A Meta-Analysis and Review of Online Learning Studies. Washington, DC.

APPENDIX A

GRADUATION RATES FOR SOUTH CAROLINA HIGH SCHOOLS FOR 2011-2013

SCHOOL	2011 All St	2011 LSES St	2012 All St	2012 LSES St	2013 All St	2013 LSES St
ABBEVILLE HIGH	84.51	92.86	77.78	92.11	83.80	96.55
DIXIE HIGH	81.40	84.00	75.29	84.21	83.33	87.18
SILVER BLUFF HIGH	74.23	88.16	76.40	88.52	73.02	93.10
AIKEN HIGH	72.07	84.98	73.23	88.40	78.40	91.19
SOUTH AIKEN HIGH	79.43	88.64	75.00	85.96	85.00	92.89
MIDLAND VALLEY HIGH	70.48	83.33	76.34	82.11	83.33	91.84
NORTH AUGUSTA HIGH	74.66	82.02	80.35	87.06	79.37	85.66
RIDGE SPRING-MONETTA HIGH	61.33	91.30	62.20	64.00	75.00	-1.00
WAGENER-SALLEY HIGH	68.60	79.31	76.14	82.14	72.22	73.91
AIKEN PERFORMING ARTS CHARTER	64.29	-1.00	61.54	-1.00	75.00	-1.00
ALLENDALE-FAIRFAX HIGH	65.89	73.08	71.20	66.67	76.47	81.82
PALMETTO HIGH	75.11	85.37	80.17	87.59	81.38	86.89
WREN HIGH	86.50	89.94	88.11	92.88	90.25	92.60
BELTON-HONEA PATH HIGH	78.95	87.41	85.20	86.13	81.85	86.88
CRESCENT HIGH	76.09	87.34	72.34	85.00	83.33	97.14
PENDLETON HIGH	77.06	88.60	77.99	85.37	81.47	87.10
T L HANNA HIGH	75.82	87.54	77.51	89.86	82.52	93.28
WESTSIDE HIGH	66.32	68.58	70.13	77.04	73.18	81.22
BAMBERG-EHRHARDT HIGH	74.64	76.56	79.20	82.54	75.00	86.36
DENMARK-OLAR HIGH	69.70	-1.00	72.13	-1.00	74.63	-1.00
BLACKVILLE-HILDA HIGH	87.14	100.00	76.92	75.00	88.24	100.00
WILLISTON-ELKO HIGH	83.51	87.80	88.61	90.32	74.68	95.24
BARNWELL HIGH	70.83	88.31	65.97	81.18	74.85	89.47
BEAUFORT HIGH	71.13	77.35	75.62	80.00	79.73	89.50
HILTON HEAD HIGH	73.67	75.29	81.75	84.82	83.50	89.45
BATTERY CREEK HIGH	64.05	68.97	71.16	73.40	77.01	77.78
BLUFFTON HIGH	70.37	74.29	70.12	77.18	71.18	77.23
WHALE BRANCH EARLY	0.00	-1.00	80.95	85.71	74.17	67.74

COLLEGE						
STRATFORD HIGH	77.05	78.87	76.80	82.18	76.99	82.35
BERKELEY HIGH	70.51	76.22	67.60	74.29	73.95	79.14
CROSS HIGH	67.86	61.54	72.73	-1.00	75.56	-1.00
GOOSE CREEK HIGH	69.12	69.07	74.09	74.42	73.21	77.38
HANAHAN HIGH	80.59	85.82	77.87	83.55	82.72	86.63
TIMBERLAND HIGH	75.36	79.07	66.96	75.47	72.38	84.62
CANE BAY HIGH	78.31	79.58	77.09	82.98	81.42	86.67
BERKELEY COUNTY MIDDLE COLLEGE	100.00	100.00	92.54	92.31	97.73	100.00
CALHOUN COUNTY HIGH	85.19	70.00	85.37	83.33	84.09	75.00
BAPTIST HILL HIGH	68.89	84.62	67.68	-1.00	60.00	-1.00
NORTH CHARLESTON HIGH	43.53	35.38	45.28	38.71	47.33	26.09
GARRETT ACADEMY OF TECHNOLOGY	93.37	86.54	92.59	86.21	91.61	95.35
BURKE HIGH	55.63	50.00	54.26	47.37	70.27	63.16
LINCOLN HIGH	76.92	72.73	65.38	-1.00	62.96	-1.00
WANDO HIGH	85.91	88.47	85.30	88.42	85.42	87.77
MILITARY MAGNET ACADEMY	94.55	100.00	92.42	91.67	88.24	-1.00
ST JOHN'S HIGH	59.05	45.95	67.09	52.94	72.37	80.00
R B STALL HIGH	47.29	34.72	54.33	45.45	56.62	48.21
CHARLESTON SCHOOL OF THE ARTS	96.90	99.10	98.39	98.18	98.44	99.03
ACADEMIC MAGNET HIGH	99.26	99.18	100.00	100.00	98.59	98.52
WEST ASHLEY HIGH	64.75	70.52	69.47	74.80	68.88	71.98
GREG MATHIS CHARTER	21.67	9.52	4.00	0.00	2.70	-1.00
JAMES ISLAND CHARTER HIGH	88.68	89.96	90.12	91.87	90.43	94.09
CHARLESTON CHARTER MATH& SCIENCE	0.00	-1.00	93.33	96.30	83.33	84.85
BLACKSBURG HIGH	85.50	91.67	82.35	93.62	84.62	94.34
GAFFNEY SENIOR HIGH	78.84	85.13	79.25	88.41	73.87	78.42
CHESTER SENIOR HIGH	67.84	77.00	69.26	71.95	66.93	78.10
GREAT FALLS HIGH	83.12	85.71	70.27	85.71	77.22	75.76
LEWISVILLE HIGH	80.00	80.77	75.86	75.00	86.14	92.16
CHERAW HIGH	75.11	76.52	75.13	86.96	87.57	96.05
CHESTERFIELD HIGH	79.08	88.10	84.67	89.55	88.10	96.77
MCBEE HIGH	63.11	71.70	85.14	93.18	71.25	81.40
CENTRAL HIGH	67.25	68.24	73.81	75.41	77.99	82.76
SCOTTS BRANCH HIGH	82.89	92.31	86.15	-1.00	77.19	90.00
MANNING HIGH	71.88	76.47	77.72	83.78	76.50	85.71
PHOENIX CHARTER HIGH SCHOOL	82.93	-1.00	45.45	-1.00	57.89	-1.00

EAST CLARENDON MIDDLE/HIGH	87.95	89.13	84.31	92.00	73.77	82.61
COLLETON COUNTY HIGH	75.81	86.32	76.28	87.90	74.36	82.35
HARTSVILLE HIGH	88.00	92.76	90.49	94.02	91.82	97.83
LAMAR HIGH	94.52	100.00	100.00	100.00	93.85	100.00
DARLINGTON HIGH	84.41	91.30	92.24	92.00	92.34	96.23
MAYO HIGH SCHOOL FOR MATH SCIEN	100.00	100.00	100.00	100.00	100.00	100.00
LAKE VIEW HIGH	78.05	92.31	79.25	70.59	79.69	82.35
DILLON HIGH	57.20	36.36	57.14	45.83	79.53	68.57
LATTA HIGH	76.86	74.47	75.73	84.44	81.58	89.80
SUMMERVILLE HIGH	70.82	74.85	72.06	78.75	77.79	83.66
FORT DORCHESTER HIGH	72.98	77.86	78.62	82.93	82.85	88.27
ASHLEY RIDGE HIGH	85.37	87.76	81.56	86.71	83.33	88.85
WOODLAND HIGH	76.97	76.60	71.51	82.22	78.02	90.00
STROM THURMOND HIGH	80.34	86.46	73.76	83.56	78.95	86.81
FAIRFIELD CENTRAL HIGH	69.26	67.12	76.92	71.11	80.84	80.39
SOUTH FLORENCE HIGH	75.57	81.11	76.89	82.21	77.59	90.80
WILSON SENIOR HIGH	75.81	86.32	76.49	88.30	79.58	87.78
WEST FLORENCE HIGH	83.29	88.01	86.51	92.83	83.83	92.02
HANNAH-PAMPLICO HIGH	80.52	82.86	84.29	90.00	74.70	82.14
LAKE CITY HIGH	88.14	90.24	85.63	88.00	73.55	73.47
TIMMONSVILLE HIGH	80.33	-1.00	68.57	61.11	70.77	70.59
JOHNSONVILLE HIGH	84.91	97.92	83.49	90.00	86.51	90.91
ANDREWS HIGH	74.15	82.35	82.39	90.32	79.25	93.02
GEORGETOWN HIGH	87.33	93.75	86.27	95.24	87.55	92.55
WACCAMAW HIGH	85.56	88.06	91.24	93.23	89.54	94.69
CARVERS BAY HIGH	86.61	88.46	81.82	84.00	90.11	95.83
BEREA HIGH	63.11	55.88	64.46	48.00	71.43	69.84
BLUE RIDGE HIGH	80.00	83.49	75.00	77.11	82.73	87.23
CAROLINA HIGH ACADEMY	55.81	38.57	58.72	41.43	62.35	57.50
EASTSIDE HIGH	75.37	79.84	80.18	82.45	82.61	87.71
GREENVILLE SENIOR HIGH ACADEMY	69.97	75.81	69.81	76.44	81.51	87.43
GREER HIGH	72.34	74.41	68.04	70.95	68.84	71.60
WADE HAMPTON HIGH	84.11	87.79	86.84	87.80	86.48	89.89
HILLCREST SENIOR HIGH	71.28	71.67	73.90	73.16	79.44	80.27
J L MANN HIGH ACADEMY	70.28	74.17	75.74	80.56	80.04	82.98
MAULDIN HIGH	83.65	83.70	83.72	84.47	89.06	91.56
RIVERSIDE HIGH	85.65	90.54	82.03	85.49	82.28	83.71
SOUTHSIDE HIGH	65.41	63.38	57.37	49.21	69.30	75.00
TRAVELERS REST HIGH	72.55	76.11	65.50	68.93	67.81	69.06
WOODMONT HIGH	61.45	62.13	64.65	64.71	65.31	68.34

GREENVILLE TECHNICAL CHARTER	100.00	100.00	100.00	100.00	98.04	98.73
BRASHIER MIDDLE COLLEGE CHARTER	97.14	96.83	98.90	98.75	96.12	95.56
GREER MIDDLE COLLEGE CHARTER	0.00	-1.00	95.71	98.48	92.41	94.59
WASHINGTON CENTER SPECIAL	0.00	-1.00	0.00	-1.00	0.00	-1.00
EMERALD HIGH	73.08	91.34	74.91	89.60	75.73	85.47
GREENWOOD HIGH	81.84	83.90	79.74	90.31	76.91	87.32
WARE SHOALS HIGH	67.39	86.96	68.75	81.82	76.71	79.31
NINETY SIX HIGH	83.51	94.55	84.55	91.53	86.46	93.10
WADE HAMPTON HIGH	74.13	82.05	70.10	78.67	85.63	89.06
ESTILL HIGH	70.16	-1.00	76.60	-1.00	77.92	90.91
AYNOR HIGH	80.73	96.20	81.92	93.15	76.80	93.75
NORTH MYRTLE BEACH HIGH	78.25	87.01	79.88	87.14	79.52	88.00
CONWAY HIGH	66.83	76.61	68.03	80.43	67.92	73.21
GREEN SEA FLOYDS HIGH	71.13	84.00	78.26	86.67	66.35	66.67
LORIS HIGH	75.88	72.86	83.84	90.91	84.58	88.46
MYRTLE BEACH HIGH	76.56	84.05	80.19	91.15	76.49	90.07
SOCASTEE HIGH	75.61	83.73	84.03	90.63	80.70	90.83
CAROLINA FOREST HIGH	73.52	81.85	72.39	84.13	77.67	82.27
ST. JAMES HIGH	78.07	82.20	79.31	85.38	84.95	91.98
RIDGELAND HIGH	76.47	75.61	62.38	60.29	70.10	65.45
HARDEEVILLE MIDDLE/HIGH	69.51	64.52	72.73	83.87	70.10	65.45
NORTH CENTRAL HIGH	76.00	89.74	82.61	92.11	84.31	88.46
CAMDEN HIGH	73.48	80.28	71.54	81.38	81.43	94.05
LUGOFF-ELGIN HIGH	72.65	80.93	85.03	88.51	84.07	90.04
BUFORD HIGH	69.68	81.71	78.00	88.41	91.22	95.06
INDIAN LAND HIGH	78.79	83.48	89.81	91.30	91.01	92.37
ANDREW JACKSON HIGH	73.25	88.89	84.66	92.93	74.13	84.93
LANCASTER HIGH	74.16	83.93	74.44	85.23	75.69	84.03
LAURENS DISTRICT 55 HIGH	68.85	70.68	71.54	80.24	73.83	82.61
CLINTON HIGH	65.16	65.38	70.20	65.91	76.89	76.09
LEE CENTRAL HIGH	70.73	77.78	79.04	78.57	76.33	73.17
GILBERT HIGH	80.57	86.42	80.99	91.78	82.87	93.16
LEXINGTON HIGH	87.46	90.19	85.64	91.12	87.65	91.11
PELION HIGH	79.09	87.50	79.58	88.71	77.53	82.19
WHITE KNOLL HIGH	83.44	88.79	84.01	88.96	80.92	86.21
AIRPORT HIGH	65.28	72.73	69.78	76.05	70.70	75.50
BROOKLAND CAYCE SENIOR HIGH	65.43	73.71	71.95	76.28	81.30	89.71

BATESBURG-LEESVILLE HIGH	82.96	89.66	78.72	98.21	76.97	92.86
SWANSEA HIGH	66.93	65.56	69.66	59.74	69.47	75.00
CHAPIN HIGH	94.50	96.53	92.71	94.62	92.13	95.55
IRMO HIGH	82.21	87.38	83.04	87.00	82.67	90.46
DUTCH FORK HIGH	87.69	90.60	87.43	91.01	89.06	92.39
MCCORMICK HIGH	76.12	80.00	74.70	66.67	87.50	87.50
MARION HIGH	65.24	66.67	74.76	83.64	64.36	69.57
MULLINS HIGH	62.41	67.65	64.06	66.00	80.45	75.86
CREEK BRIDGE HIGH	82.98	-1.00	88.89	-1.00	89.39	-1.00
MARLBORO COUNTY HIGH	61.52	72.06	64.78	78.13	75.27	83.13
NEWBERRY HIGH	73.50	83.61	67.16	82.00	78.43	86.79
MID CAROLINA HIGH	80.40	87.96	83.82	88.89	85.11	95.05
WHITMIRE HIGH	60.00	85.71	81.58	83.33	66.67	81.82
TAMASSEE-SALEM MIDDLE/HIGH	70.27	71.43	82.05	88.24	82.35	90.00
SENECA SENIOR HIGH	73.59	82.39	80.17	91.96	81.04	89.78
WALHALLA SENIOR HIGH	84.10	94.97	82.27	88.64	86.78	92.06
WEST-OAK SENIOR HIGH	73.03	90.08	82.61	87.70	70.71	83.58
LAKE MARION HIGH	72.00	68.33	77.38	75.56	75.25	76.09
EDISTO HIGH	72.27	88.16	78.89	84.38	77.50	86.27
BRANCHVILLE LOCKETT SCHOOL	77.36	89.29	79.17	92.00	79.59	78.26
HUNTER-KINARD-TYLER SCHOOL	58.93	70.00	66.67	-1.00	85.71	81.82
BETHUNE-BOWMAN MIDDLE HIGH	90.38	100.00	75.00	-1.00	69.57	-1.00
ORANGEBURG-WILKINSON SENIOR HIGH	67.61	60.00	71.87	74.26	70.92	83.87
NORTH MIDDLE HIGH	73.91	-1.00	85.42	100.00	82.93	-1.00
D W DANIEL HIGH	85.94	89.36	83.33	89.56	84.38	93.41
EASLEY HIGH	71.82	74.36	72.15	77.99	75.44	85.61
LIBERTY HIGH	62.29	72.16	71.05	83.95	74.30	79.01
PICKENS SENIOR HIGH	69.76	74.72	74.09	84.14	74.60	83.63
COLUMBIA HIGH	71.08	72.50	71.95	70.77	71.28	79.03
DREHER HIGH	79.02	84.98	79.70	85.80	84.09	90.24
EAU CLAIRE HIGH	69.64	65.08	65.79	62.79	65.95	65.22
A C FLORA HIGH	73.74	80.99	73.21	80.75	82.08	89.35
C A JOHNSON PREPARATORY ACADEMY	44.90	36.36	52.55	38.10	57.27	50.00
W J KEENAN HIGH	74.05	79.03	74.73	66.67	74.09	67.53
LOWER RICHLAND HIGH	68.17	75.66	64.58	66.37	71.88	75.79
RICHLAND 1 CHARTER MIDDLE COLLEGE	85.39	80.85	87.14	80.00	78.95	78.05

HALL INSTITUTE	0.00	0.00	0.00	0.00	0.00	0.00
PENDERGRASS FAIRWOLD SCHOOL	0.00	-1.00	0.00	-1.00	0.00	-1.00
SPRING VALLEY HIGH	73.38	79.23	82.13	91.14	84.09	87.97
RICHLAND NORTHEAST HIGH	62.32	62.98	70.49	76.57	63.76	67.72
RIDGE VIEW HIGH	82.66	86.05	82.49	83.19	87.10	91.21
BLYTHEWOOD HIGH	84.67	89.09	83.04	89.07	87.03	91.25
RICHLAND TWO CHARTER HIGH	12.90	10.00	29.17	28.57	45.00	48.39
SALUDA HIGH	77.70	90.91	81.41	89.47	80.00	89.47
CHAPMAN HIGH	83.19	87.07	83.64	93.75	85.41	89.76
LANDRUM HIGH	79.07	85.37	85.61	89.58	87.41	91.76
BOILING SPRINGS HIGH	80.00	84.85	80.80	83.88	79.93	83.11
CHESNEE HIGH	77.27	85.33	80.27	88.14	81.01	92.86
BROOME HIGH	77.33	85.25	76.86	93.40	78.26	91.75
WOODRUFF HIGH	75.11	80.31	77.55	87.27	81.50	90.32
JAMES F BYRNES HIGH	78.36	81.90	81.82	86.29	81.61	88.35
DORMAN HIGH	81.24	85.42	83.33	86.89	85.68	90.36
SPARTANBURG SENIOR HIGH	71.05	84.06	73.36	86.16	80.69	91.19
CRESTWOOD HIGH	84.57	87.50	84.11	88.50	77.92	81.30
LAKEWOOD HIGH	79.25	82.00	80.07	89.55	81.82	88.51
SUMTER HIGH	79.33	91.46	80.66	88.14	81.02	91.12
UNION COUNTY HIGH	72.84	77.78	79.32	84.28	82.17	91.96
HEMINGWAY HIGH	76.92	69.23	83.18	60.00	84.31	71.43
KINGSTREE SENIOR HIGH	69.46	77.27	70.18	65.00	79.17	90.00
C E MURRAY HIGH	76.34	-1.00	84.42	92.31	87.34	81.25
YOUTH ACADEMY CHARTER	0.00	-1.00	40.00	-1.00	57.14	-1.00
YORK COMPREHENSIVE HIGH	80.65	83.89	76.27	89.66	82.32	86.39
CLOVER HIGH	77.33	85.28	84.35	90.60	87.11	92.22
NORTHWESTERN HIGH	76.39	85.56	82.26	90.94	82.98	89.68
ROCK HILL HIGH	73.27	80.90	73.67	81.36	75.48	81.13
SOUTH POINTE HIGH	70.39	76.24	76.40	80.63	80.81	88.78
FORT MILL HIGH	92.16	92.60	92.57	92.96	92.47	94.04
NATION FORD HIGH	90.26	91.81	94.08	95.27	90.74	91.00
CALHOUN FALLS CHARTER	79.17	-1.00	77.27	-1.00	84.00	-1.00
SC CONNECTIONS ACADEMY	38.12	51.89	34.45	46.54	30.91	41.98
SC VIRTUAL CHARTER SCHOOL	7.39	14.00	17.77	27.83	23.99	37.96
PALMETTO STATE E-CADEMY	18.77	19.42	16.58	17.84	16.58	16.81

PROVOST ACADEMY SOUTH CAROLINA	8.10	10.00	13.24	16.75	23.34	27.24
FOX CREEK HIGH	74.19	79.71	73.12	77.46	76.00	82.09

From South Carolina State Department of Education

APPENDIX B

POVERTY INDEX RATES FOR SOUTH CAROLINA HIGH SCHOOLS FOR 2011

School	Poverty Index Rate
ABBEVILLE HIGH	74.35
DIXIE HIGH	69.12
SILVER BLUFF HIGH	69.36
AIKEN HIGH	61.87
SOUTH AIKEN HIGH	46.31
MIDLAND VALLEY HIGH	68.79
NORTH AUGUSTA HIGH	50.06
RIDGE SPRING-MONETTA HIGH	81.41
WAGENER-SALLEY HIGH	84.92
AIKEN PERFORMING ARTS CHARTER	76.27
ALLENDALE-FAIRFAX HIGH	96.18
PALMETTO HIGH	60.95
WREN HIGH	36.38
BELTON-HONEA PATH HIGH	60.21
CRESCENT HIGH	68.16
PENDLETON HIGH	56.96
T L HANNA HIGH	45.81
WESTSIDE HIGH	71.32
BAMBERG-EHRHARDT HIGH	70.97
DENMARK-OLAR HIGH	98.15
BLACKVILLE-HILDA HIGH	90.35
WILLISTON-ELKO HIGH	72.98
BARNWELL HIGH	67.79
BEAUFORT HIGH	54.72
HILTON HEAD HIGH	42.75
BATTERY CREEK HIGH	75
BLUFFTON HIGH	49.77
WHALE BRANCH EARLY COLLEGE	80.85
STRATFORD HIGH	49.76
BERKELEY HIGH	68.02
CROSS HIGH	92
GOOSE CREEK HIGH	70.55
HANAHAN HIGH	54.23
TIMBERLAND HIGH	85.35

CANE BAY HIGH	61.52
BERKELEY COUNTY MIDDLE COLLEGE	78.38
CALHOUN COUNTY HIGH	92.74
BAPTIST HILL HIGH	96.72
NORTH CHARLESTON HIGH	93.89
GARRETT ACADEMY OF TECHNOLOGY	89.26
BURKE HIGH	95.63
LINCOLN HIGH	95.03
WANDO HIGH	28.38
MILITARY MAGNET ACADEMY	92.42
ST JOHN'S HIGH	90.27
R B STALL HIGH	91.16
CHARLESTON SCHOOL OF THE ARTS	21.78
ACADEMIC MAGNET HIGH	13.16
WEST ASHLEY HIGH	66.68
GREG MATHIS CHARTER	98.94
JAMES ISLAND CHARTER HIGH	47.22
CHARLESTON CHARTER SCHOOL FOR MATH AND SCIENCE	57.91
BLACKSBURG HIGH	77.86
GAFFNEY SENIOR HIGH	72.24
CHESTER SENIOR HIGH	79.11
GREAT FALLS HIGH	75.84
LEWISVILLE HIGH	58.82
CHERAW HIGH	71.56
CHESTERFIELD HIGH	63.07
MCBEE HIGH	66.39
CENTRAL HIGH	75.93
SCOTTS BRANCH HIGH	93.49
MANNING HIGH	88.13
PHOENIX CHARTER HIGH SCHOOL	87.5
EAST CLARENDON MIDDLE/HIGH	67.42
COLLETON COUNTY HIGH	82.76
HARTSVILLE HIGH	69.8
LAMAR HIGH	86.69
DARLINGTON HIGH	86.18
MAYO HIGH SCHOOL FOR MATH SCIEN	46.02
CHOICES	92.73
LAKE VIEW HIGH	78.06
DILLON HIGH	89.85
LATTA HIGH	77.56
SUMMERVILLE HIGH	54.18
FORT DORCHESTER HIGH	48.69

ASHLEY RIDGE HIGH	43.69
WOODLAND HIGH	85.2
STROM THURMOND HIGH	71.86
FOX CREEK HIGH	45.07
FAIRFIELD CENTRAL HIGH	88.58
SOUTH FLORENCE HIGH	69.56
WILSON SENIOR HIGH	78.6
WEST FLORENCE HIGH	53.93
HANNAH-PAMPLICO HIGH	75.23
LAKE CITY HIGH	89.51
TIMMONSVILLE HIGH	91.9
JOHNSONVILLE HIGH	66.89
ANDREWS HIGH	86.24
GEORGETOWN HIGH	72.69
WACCAMAW HIGH	40.72
CARVERS BAY HIGH	83.73
BEREA HIGH	86.19
BLUE RIDGE HIGH	47.84
CAROLINA HIGH ACADEMY	89.94
EASTSIDE HIGH	39.36
GREENVILLE SENIOR HIGH ACADEMY	63.04
GREER HIGH	61.34
WADE HAMPTON HIGH	47.07
HILLCREST SENIOR HIGH	51.37
J L MANN HIGH ACADEMY	38.26
MAULDIN HIGH	35.53
RIVERSIDE HIGH	27.68
SOUTHSIDE HIGH	71.73
TRAVELERS REST HIGH	61.28
WOODMONT HIGH	60.05
GREENVILLE TECHNICAL CHARTER	27.49
BRASHIER MIDDLE COLLEGE CHARTER	18.86
GREER MIDDLE COLLEGE CHARTER SCHOOL	21.48
WASHINGTON CENTER SPECIAL	96.5
EMERALD HIGH	62.81
GREENWOOD HIGH	64.19
WARE SHOALS HIGH	76.27
NINETY SIX HIGH	59.35
WADE HAMPTON HIGH	74.55
ESTILL HIGH	95.42
AYNOR HIGH	65.42
NORTH MYRTLE BEACH HIGH	67.96
CONWAY HIGH	79.25

GREEN SEA FLOYDS HIGH	85.34
LORIS HIGH	82.62
MYRTLE BEACH HIGH	67.64
SOCASTEE HIGH	59.18
CAROLINA FOREST HIGH	58.81
ST. JAMES HIGH	55.75
EARLY COLLEGE HIGH SCHOOL	71.12
RIDGELAND HIGH	89.39
HARDEEVILLE MIDDLE/HIGH	84.49
NORTH CENTRAL HIGH	78.14
CAMDEN HIGH	66.6
LUGOFF-ELGIN HIGH	51.98
BUFORD HIGH	59.51
INDIAN LAND HIGH	36.53
ANDREW JACKSON HIGH	56.33
LANCASTER HIGH	72.67
LAURENS DISTRICT 55 HIGH	72.48
CLINTON HIGH	76.5
LEE CENTRAL HIGH	94.7
GILBERT HIGH	49.45
LEXINGTON HIGH	28.07
PELION HIGH	74.69
WHITE KNOLL HIGH	51.91
AIRPORT HIGH	68.73
BROOKLAND CAYCE SENIOR HIGH	62.24
BATESBURG-LEESVILLE HIGH	66.55
SWANSEA HIGH	82.79
NOW SWANSEA HIGH FRESHMAN ACADEMY	83.2
CHAPIN HIGH	19.82
IRMO HIGH	50.87
DUTCH FORK HIGH	35.15
MCCORMICK HIGH	92.48
MARION HIGH	86.23
MULLINS HIGH	92.39
CREEK BRIDGE HIGH	97.29
MARLBORO COUNTY HIGH	89.92
NEWBERRY HIGH	83.01
MID CAROLINA HIGH	53.92
WHITMIRE HIGH	75.57
TAMASSEE-SALEM MIDDLE/HIGH	73.29
SENECA SENIOR HIGH	61.53
WALHALLA SENIOR HIGH	55.82
WEST-OAK SENIOR HIGH	63.74

LAKE MARION HIGH	91.3
EDISTO HIGH	78.99
BRANCHVILLE LOCKETT SCHOOL	71.02
HUNTER-KINARD-TYLER SCHOOL	93.67
BETHUNE-BOWMAN MIDDLE HIGH	94.05
ORANGEBURG-WILKINSON SENIOR HIGH	87.37
NORTH MIDDLE HIGH	87.65
D W DANIEL HIGH	42.48
EASLEY HIGH	52.61
LIBERTY HIGH	64.54
PICKENS SENIOR HIGH	54.55
COLUMBIA HIGH	85.07
DREHER HIGH	56.26
EAU CLAIRE HIGH	94.06
A C FLORA HIGH	45.64
C A JOHNSON PREPARATORY ACADEMY	96.95
W J KEENAN HIGH	87.06
LOWER RICHLAND HIGH	81.93
RICHLAND 1 CHARTER MIDDLE COLLEGE	78.87
HALL INSTITUTE	90.91
PENDERGRASS FAIRWOLD SCHOOL	94.07
SPRING VALLEY HIGH	47.73
RICHLAND NORTHEAST HIGH	63.37
RIDGE VIEW HIGH	43.35
BLYTHEWOOD HIGH	45.63
SALUDA HIGH	70.36
CHAPMAN HIGH	60.98
LANDRUM HIGH	50.36
BOILING SPRINGS HIGH	49.91
CHESNEE HIGH	70.32
BOILING SPRINGS 9TH GRADE CAMPUS	56.84
BROOME HIGH	64.92
WOODRUFF HIGH	59.53
JAMES F BYRNES HIGH	55.36
JAMES F BYRNES FRESHMAN ACADEMY	61.25
DORMAN HIGH	57.87
DORMAN HIGH FRESHMAN CAMPUS	61.44
SPARTANBURG SENIOR HIGH	71.62
MCCARTHY/TESZLER LEARNING CENTER	96.41
CRESTWOOD HIGH	75.02
LAKEWOOD HIGH	85.13
SUMTER HIGH	67.37
UNION COUNTY HIGH	72.6

HEMINGWAY HIGH	93.42
KINGSTREE SENIOR HIGH	95.53
C E MURRAY HIGH	94.41
YOUTH ACADEMY CHARTER	100
YORK COMPREHENSIVE HIGH	64.57
CLOVER HIGH	40.23
NORTHWESTERN HIGH	51.14
ROCK HILL HIGH	60.42
SOUTH POINTE HIGH	56.73
FORT MILL HIGH	19.25
NATION FORD HIGH	28.92
CALHOUN FALLS CHARTER	89.34
MARY L DINKINS CHARTER	100

From South Carolina State Department of Education

APPENDIX C

POVERTY INDEX RATES FOR SOUTH CAROLINA HIGH SCHOOLS FOR 2012

School	Poverty Index Rate
ABBEVILLE HIGH	76.45
DIXIE HIGH	69.58
SILVER BLUFF HIGH	73.53
AIKEN HIGH	65.58
SOUTH AIKEN HIGH	49.32
MIDLAND VALLEY HIGH	70.90
NORTH AUGUSTA HIGH	51.07
RIDGE SPRING-MONETTA HIGH	86.12
WAGENER-SALLEY HIGH	85.29
AIKEN PERFORMING ARTS CHARTER	64.91
ALLENDALE-FAIRFAX HIGH	95.86
PALMETTO HIGH	61.15
POWDERSVILLE HIGH	44.57
WREN HIGH	38.73
BELTON-HONEA PATH HIGH	61.10
CRESCENT HIGH	71.53
PENDLETON HIGH	59.05
T L HANNA HIGH	46.48
WESTSIDE HIGH	74.03
BAMBERG-EHRHARDT HIGH	72.58
DENMARK-OLAR HIGH	96.68
BLACKVILLE-HILDA HIGH	91.27
WILLISTON-ELKO HIGH	77.27
BARNWELL HIGH	69.82
BEAUFORT HIGH	57.39
HILTON HEAD HIGH	41.68
BATTERY CREEK HIGH	74.77
BLUFFTON HIGH	47.80
WHALE BRANCH EARLY COLLEGE	82.75
STRATFORD HIGH	53.44
BERKELEY HIGH	69.85
CROSS HIGH	95.75

GOOSE CREEK HIGH	71.64
HANAHAN HIGH	52.85
TIMBERLAND HIGH	84.73
CANE BAY HIGH	64.65
BERKELEY COUNTY MIDDLE COLLEGE	73.63
CALHOUN COUNTY HIGH	92.53
BAPTIST HILL HIGH	99.50
NORTH CHARLESTON HIGH	94.57
GARRETT ACADEMY OF TECHNOLOGY	92.91
BURKE HIGH	95.68
LINCOLN HIGH	95.71
WANDO HIGH	28.62
MILITARY MAGNET ACADEMY	94.12
ST JOHN'S HIGH	92.75
R B STALL HIGH	91.67
CHARLESTON SCHOOL OF THE ARTS	22.68
ACADEMIC MAGNET HIGH	10.93
WEST ASHLEY HIGH	69.36
GREG MATHIS CHARTER	100.00
JAMES ISLAND CHARTER HIGH	48.29
CHARLESTON CHARTER SCHOOL FOR MATH AND SCIENCE	58.02
BLACKSBURG HIGH	73.49
GAFFNEY SENIOR HIGH	71.14
CHESTER SENIOR HIGH	79.17
GREAT FALLS COMPLEX SCHOOL	79.50
LEWISVILLE HIGH	59.33
CHERAW HIGH	73.07
CHESTERFIELD HIGH	68.60
MCBEE HIGH	68.15
CENTRAL HIGH	79.85
SCOTTS BRANCH HIGH	93.57
MANNING HIGH	88.10
PHOENIX CHARTER HIGH SCHOOL	92.42
EAST CLARENDON MIDDLE/HIGH	67.75
COLLETON COUNTY HIGH	83.76
HARTSVILLE HIGH	71.89
LAMAR HIGH	84.03
DARLINGTON HIGH	85.77
MAYO HIGH SCHOOL FOR MATH SCIENCE	54.55
CHOICES	84.21

LATTA HIGH	76.22
LAKE VIEW HIGH	85.81
DILLON HIGH	92.06
SUMMERVILLE HIGH	56.32
FORT DORCHESTER HIGH	47.43
ASHLEY RIDGE HIGH	48.26
WOODLAND HIGH	84.95
STROM THURMOND HIGH	73.40
FOX CREEK HIGH	48.16
FAIRFIELD CENTRAL HIGH	92.47
SOUTH FLORENCE HIGH	71.53
WILSON SENIOR HIGH	78.96
WEST FLORENCE HIGH	53.93
HANNAH-PAMPLICO HIGH	74.93
LAKE CITY HIGH	91.27
TIMMONSVILLE HIGH	94.74
JOHNSONVILLE HIGH	69.59
ANDREWS HIGH	84.89
GEORGETOWN HIGH	75.56
WACCAMAW HIGH	42.73
CARVERS BAY HIGH	85.86
BEREA HIGH	87.26
BLUE RIDGE HIGH	49.29
CAROLINA HIGH ACADEMY	92.68
EASTSIDE HIGH	41.63
GREENVILLE SENIOR HIGH ACADEMY	67.09
GREER HIGH	65.25
WADE HAMPTON HIGH	49.76
HILLCREST SENIOR HIGH	52.64
J L MANN HIGH ACADEMY	39.06
MAULDIN HIGH	36.50
RIVERSIDE HIGH	30.41
SOUTHSIDE HIGH	71.93
TRAVELERS REST HIGH	65.26
WOODMONT HIGH	61.60
GREENVILLE TECHNICAL CHARTER	27.19
LEGACY CHARTER	93.86
BRASHIER MIDDLE COLLEGE CHARTER	23.17
GREER MIDDLE COLLEGE CHARTER SCHOOL	24.59
WASHINGTON CENTER SPECIAL	97.87
EMERALD HIGH	63.88

GREENWOOD HIGH	64.79
WARE SHOALS HIGH	79.45
NINETY SIX HIGH	62.35
WADE HAMPTON HIGH	75.65
ESTILL HIGH	95.30
AYNOR HIGH	65.03
NORTH MYRTLE BEACH HIGH	69.43
CONWAY HIGH	79.41
GREEN SEA FLOYDS HIGH	85.28
LORIS HIGH	81.49
MYRTLE BEACH HIGH	69.47
SOCASTEE HIGH	59.60
CAROLINA FOREST HIGH	59.21
ST. JAMES HIGH	60.00
EARLY COLLEGE HIGH SCHOOL	73.29
RIDGELAND HIGH	88.39
HARDEEVILLE MIDDLE/HIGH	84.86
NORTH CENTRAL HIGH	78.62
CAMDEN HIGH	65.81
LUGOFF-ELGIN HIGH	53.78
BUFORD HIGH	62.83
INDIAN LAND HIGH	34.92
ANDREW JACKSON HIGH	57.60
LANCASTER HIGH	75.20
LAURENS DISTRICT 55 HIGH	74.50
CLINTON HIGH	77.41
LEE CENTRAL HIGH	94.78
GILBERT HIGH	52.53
LEXINGTON HIGH	28.55
PELION HIGH	77.46
WHITE KNOLL HIGH	55.29
AIRPORT HIGH	71.27
BROOKLAND CAYCE SENIOR HIGH	62.82
BATESBURG-LEESVILLE HIGH	68.26
SWANSEA HIGH	83.91
SWANSEA HIGH FRESHMAN ACADEMY (WAS SWANSEA PRIMARY	84.13
CHAPIN HIGH	21.96
IRMO HIGH	55.85
DUTCH FORK HIGH	36.38
MCCORMICK HIGH	91.44

MARION HIGH	86.20
MULLINS HIGH	92.25
CREEK BRIDGE HIGH	96.73
MARLBORO COUNTY HIGH	89.27
NEWBERRY HIGH	83.69
MID CAROLINA HIGH	54.52
WHITMIRE HIGH	77.17
TAMASSEE-SALEM MIDDLE/HIGH	74.07
SENECA SENIOR HIGH	65.58
WALHALLA SENIOR HIGH	60.04
WEST-OAK SENIOR HIGH	64.21
LAKE MARION HIGH	90.58
EDISTO HIGH	80.32
BRANCHVILLE HIGH	64.65
HUNTER-KINARD-TYLER HIGH	94.01
BETHUNE-BOWMAN MIDDLE HIGH	93.75
ORANGEBURG-WILKINSON SENIOR HIGH	86.98
NORTH MIDDLE HIGH	90.26
D W DANIEL HIGH	43.49
EASLEY HIGH	54.24
LIBERTY HIGH	66.87
PICKENS SENIOR HIGH	56.56
COLUMBIA HIGH	86.93
DREHER HIGH	56.43
EAU CLAIRE HIGH	95.70
A C FLORA HIGH	48.05
C A JOHNSON PREPARATORY ACADEMY	98.24
W J KEENAN HIGH	87.87
LOWER RICHLAND HIGH	85.70
RICHLAND 1 CHARTER MIDDLE COLLEGE	84.25
HALL INSTITUTE	95.65
PENDERGRASS-FAIRWOLD SCHOOL	98.41
SPRING VALLEY HIGH	50.42
RICHLAND NORTHEAST HIGH	64.08
RIDGE VIEW HIGH	46.61
BLYTHEWOOD HIGH	51.13
RICHLAND TWO CHARTER HIGH	58.23
SALUDA HIGH	70.31
CHAPMAN HIGH	62.99
LANDRUM HIGH	50.17
BOILING SPRINGS HIGH	53.50

CHESNEE HIGH	71.99
BOILING SPRINGS 9TH GRADE CAMPUS	58.02
BROOME HIGH	64.60
WOODRUFF HIGH	60.68
JAMES F BYRNES HIGH	57.43
JAMES F BYRNES FRESHMAN ACADEMY	61.36
DORMAN HIGH	59.44
DORMAN HIGH FRESHMAN CAMPUS	66.67
SPARTANBURG HIGH	72.04
SPARTANBURG FRESHMAN ACADEMY	72.21
MCCARTHY/TESZLER LEARNING CENTER	95.88
SUMTER HIGH	69.03
CRESTWOOD HIGH	76.75
LAKEWOOD HIGH	86.75
UNION COUNTY HIGH	72.81
HEMINGWAY HIGH	95.30
KINGSTREE SENIOR HIGH	96.44
C E MURRAY HIGH	93.25
YOUTH ACADEMY CHARTER	100.00
YORK COMPREHENSIVE HIGH	65.34
CLOVER HIGH	40.15
NORTHWESTERN HIGH	51.67
ROCK HILL HIGH	60.54
SOUTH POINTE HIGH	56.83
FORT MILL HIGH	19.85
NATION FORD HIGH	32.43
CALHOUN FALLS CHARTER	92.97
SC WHITMORE SCHOOL	78.11

From South Carolina State Department of Education

APPENDIX D

POVERTY INDEX RATES FOR SOUTH CAROLINA HIGH SCHOOLS FOR 2013

School	Poverty Index Rate
ABBEVILLE HIGH	75.65
DIXIE HIGH	71.63
SILVER BLUFF HIGH	76.38
AIKEN HIGH	67.66
SOUTH AIKEN HIGH	48.45
MIDLAND VALLEY HIGH	72.51
NORTH AUGUSTA HIGH	52.71
RIDGE SPRING-MONETTA HIGH	84.94
WAGENER-SALLEY HIGH	83.27
AIKEN PERFORMING ARTS ACADEMY	67.92
ALLENDALE-FAIRFAX HIGH	96.29
PALMETTO HIGH	64.71
POWDERSVILLE HIGH	43.38
WREN HIGH	40.70
BELTON-HONEA PATH HIGH	62.54
CRESCENT HIGH	74.60
PENDLETON HIGH	61.33
T L HANNA HIGH	48.20
WESTSIDE HIGH EARLY COLLEGE ACADEMY	74.95
ANDERSON FIVE CHARTER SCHOOL	79.00
BAMBERG-EHRHARDT HIGH	72.63
DENMARK-OLAR HIGH	97.38
BLACKVILLE-HILDA HIGH	90.00
WILLISTON-ELKO HIGH	81.08
BARNWELL HIGH	73.43
BEAUFORT HIGH	56.49
HILTON HEAD HIGH	42.34
BATTERY CREEK HIGH	76.47
BLUFFTON HIGH	54.16
WHALE BRANCH EARLY COLLEGE HIGH	83.30
STRATFORD HIGH	56.72

BERKELEY HIGH	69.21
CROSS HIGH	97.46
GOOSE CREEK HIGH	74.65
HANAHAN HIGH	56.88
TIMBERLAND HIGH	86.23
CANE BAY HIGH	66.02
BERKELEY COUNTY MIDDLE COLLEGE HIGH	57.30
CALHOUN COUNTY HIGH	92.00
BAPTIST HILL HIGH	99.00
NORTH CHARLESTON HIGH	98.18
GARRETT ACADEMY OF TECHNOLOGY	94.05
BURKE HIGH	97.04
LINCOLN HIGH	96.27
WANDO HIGH	26.85
MILITARY MAGNET ACADEMY	94.25
ST JOHN'S HIGH	91.27
R B STALL HIGH	93.46
CHARLESTON SCHOOL OF THE ARTS	22.85
ACADEMIC MAGNET HIGH	8.91
WEST ASHLEY HIGH	69.60
GREG MATHIS CHARTER	98.67
JAMES ISLAND CHARTER HIGH	47.38
CHARLESTON CHARTER SCHOOL FOR MATH AND SCIENCE	54.94
BLACKSBURG HIGH	75.55
GAFFNEY HIGH	74.25
CHESTER SENIOR HIGH	79.52
GREAT FALLS HIGH	77.60
LEWISVILLE HIGH	63.88
CHERAW HIGH	74.22
CHESTERFIELD HIGH	69.58
MCBEE HIGH	68.81
CENTRAL HIGH	83.31
SCOTTS BRANCH HIGH	96.06
MANNING HIGH	88.08
PHOENIX CHARTER HIGH SCHOOL	97.50
EAST CLARENDON MIDDLE/HIGH	68.94
COLLETON COUNTY HIGH	84.26
HARTSVILLE HIGH	69.02
LAMAR HIGH	86.07
DARLINGTON HIGH	87.54

MAYO HIGH SCHOOL FOR MATH, SCIENCE	58.47
CHOICES	90.91
LATTA HIGH	78.92
LAKE VIEW HIGH	83.02
DILLON HIGH	91.38
SUMMERVILLE HIGH	58.14
FORT DORCHESTER HIGH	49.62
ASHLEY RIDGE HIGH	49.77
WOODLAND HIGH	86.77
STROM THURMOND HIGH	73.20
FAIRFIELD CENTRAL HIGH	92.53
SOUTH FLORENCE HIGH	73.23
WILSON SENIOR HIGH	75.80
WEST FLORENCE HIGH	55.30
HANNAH-PAMPLICO HIGH	75.30
LAKE CITY HIGH	92.13
TIMMONSVILLE HIGH	94.00
JOHNSONVILLE HIGH	67.89
ANDREWS HIGH	84.42
GEORGETOWN HIGH	76.74
WACCAMAW HIGH	41.70
CARVERS BAY HIGH	86.89
BEREA HIGH	90.20
BLUE RIDGE HIGH	50.79
CAROLINA HIGH ACADEMY	93.75
EASTSIDE HIGH	42.35
GREENVILLE SENIOR HIGH ACADEMY	65.34
GREER HIGH	64.66
WADE HAMPTON HIGH	50.19
HILLCREST SENIOR HIGH	53.70
J L MANN HIGH ACADEMY	40.44
MAULDIN HIGH	36.94
RIVERSIDE HIGH	32.46
SOUTHSIDE HIGH	69.60
TRAVELERS REST HIGH	67.11
WOODMONT HIGH	62.29
GREENVILLE TECHNICAL CHARTER	29.52
BRASHIER MIDDLE COLLEGE CHARTER	24.45
GREER MIDDLE COLLEGE CHARTER SCHOOL	27.81
WASHINGTON CENTER SPECIAL	96.45
EMERALD HIGH	64.97

GREENWOOD HIGH	66.34
WARE SHOALS HIGH	81.68
NINETY SIX HIGH	64.74
WADE HAMPTON HIGH	77.37
ESTILL HIGH	95.32
AYNOR HIGH	66.44
NORTH MYRTLE BEACH HIGH	71.00
CONWAY HIGH	78.75
GREEN SEA FLOYDS HIGH	85.93
LORIS HIGH	83.63
MYRTLE BEACH HIGH	69.70
SOCASTEE HIGH	59.00
CAROLINA FOREST HIGH	59.86
ST. JAMES HIGH	59.51
EARLY COLLEGE HIGH SCHOOL	75.14
PALMETTO ACADEMY OF LEARNING MOTORSPORTS	83.82
RIDGELAND-HARDEEVILLE HIGH	88.09
NORTH CENTRAL HIGH	83.11
CAMDEN HIGH	68.19
LUGOFF-ELGIN HIGH	54.20
BUFORD HIGH	63.52
INDIAN LAND HIGH	37.38
ANDREW JACKSON HIGH	59.90
LANCASTER HIGH	78.01
LAURENS DISTRICT 55 HIGH	76.95
CLINTON HIGH	78.51
LEE CENTRAL HIGH	96.19
GILBERT HIGH	53.54
LEXINGTON HIGH	29.89
PELION HIGH	78.21
WHITE KNOLL HIGH	56.67
AIRPORT HIGH	74.24
BROOKLAND CAYCE SENIOR HIGH	63.97
BATESBURG-LEESVILLE HIGH	71.92
SWANSEA HIGH	82.75
CHAPIN HIGH	22.99
IRMO HIGH	55.60
DUTCH FORK HIGH	37.19
MCCORMICK HIGH	91.24
MARION HIGH	89.29

MULLINS HIGH	94.71
CREEK BRIDGE HIGH	96.72
MARLBORO COUNTY HIGH	89.77
NEWBERRY HIGH	84.57
MID CAROLINA HIGH	55.76
WHITMIRE HIGH	79.51
TAMASSEE-SALEM MIDDLE/HIGH	73.49
SENECA SENIOR HIGH	67.66
WALHALLA SENIOR HIGH	63.33
WEST-OAK SENIOR HIGH	66.21
LAKE MARION HIGH	94.29
EDISTO HIGH	80.83
BRANCHVILLE HIGH	70.53
HUNTER-KINARD-TYLER HIGH	92.64
BETHUNE-BOWMAN MIDDLE HIGH	95.20
ORANGEBURG-WILKINSON HIGH	87.65
NORTH MIDDLE HIGH	91.84
D W DANIEL HIGH	44.27
EASLEY HIGH	56.51
LIBERTY HIGH	68.63
PICKENS SENIOR HIGH	60.33
COLUMBIA HIGH	88.11
DREHER HIGH	57.27
EAU CLAIRE HIGH	95.89
A C FLORA HIGH	48.21
C A JOHNSON HIGH	96.81
W J KEENAN HIGH	87.82
LOWER RICHLAND HIGH	85.15
RICHLAND 1 MIDDLE COLLEGE	79.34
HALL INSTITUTE	100.00
PENDERGRASS FAIRWOLD SCHOOL	97.30
SPRING VALLEY HIGH	47.93
RICHLAND NORTHEAST HIGH	70.60
RIDGE VIEW HIGH	53.52
BLYTHEWOOD HIGH	41.72
WESTWOOD HIGH	71.06
RICHLAND TWO CHARTER HIGH	55.95
SALUDA HIGH	75.13
CHAPMAN HIGH	65.73
LANDRUM HIGH	55.44
BOILING SPRINGS HIGH	55.33

CHESNEE HIGH	70.11
BROOME HIGH	66.48
WOODRUFF HIGH	63.66
JAMES F BYRNES HIGH	58.95
DORMAN HIGH	62.54
SPARTANBURG SENIOR HIGH	71.02
MCCARTHY/TESZLER LEARNING CENTER	96.71
SUMTER HIGH	70.99
CRESTWOOD HIGH	76.63
LAKEWOOD HIGH	86.48
UNION COUNTY HIGH	74.47
HEMINGWAY HIGH	93.85
KINGSTREE SENIOR HIGH	96.95
C E MURRAY HIGH	95.02
YOUTH ACADEMY CHARTER	100.00
YORK COMPREHENSIVE HIGH	67.33
CLOVER HIGH	39.71
NORTHWESTERN HIGH	54.76
ROCK HILL HIGH	62.05
SOUTH POINTE HIGH	57.84
FORT MILL HIGH	21.87
NATION FORD HIGH	31.62
CALHOUN FALLS CHARTER	91.98
SC CONNECTIONS ACADEMY	62.49
SC VIRTUAL CHARTER SCHOOL	73.49
PALMETTO STATE E-CADEMY	63.31
PROVOST ACADEMY SOUTH CAROLINA	75.00
PALMETTO SCHOLARS ACADEMY	42.54
SC WHITMORE SCHOOL	71.67
FOX CREEK HIGH SCHOOL	52.87
JOHN DE LA HOWE	96.55
GOVERNOR'S SCHOOL FOR SCIENCE & MATH	16.36

From South Carolina State Department of Education

APPENDIX E

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH DECLARATION OF NOT HUMAN SUBJECTS

OFFICE OF RESEARCH COMPLIANCE

INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH

DECLERATION of NOT HUMAN SUBJECTS

This is to certify that research proposal: **Pro00038799**

Entitled: *Virtual High Schools Versus Brick and Mortar High Schools: An Analysis of Graduation Rates for Low Socio-Economic Students in South Carolina*

Submitted by:

Principal Investigator: Alice Montgomery

College: College of Education

Department: Education Administration

Address: Wardlaw College 201

Columbia, SC29208

was reviewed by the Office of Research Compliance, an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Office of Research Compliance, on behalf of the Institutional Review Board, has determined that the referenced study meets the Not Human Research criteria set forth by the Code of Federal Regulations (45 CFR 46) of:

a. the specimens and/or private information/data were not collected specifically for the currently proposed research project through an interaction/intervention with living individuals AND

b. the investigator(s) including collaborators on the proposed research cannot readily ascertain the identity of the individual(s) to whom the coded private information or specimens pertain

No further oversight by the USC IRB is required; however, the investigator should inform the Office of Research Compliance prior to making any substantive changes in the research methods, as this may alter the status of the project.

If you have questions, contact Arlene McWhorter at arlenem@sc.edu or (803) 777-7095.

Sincerely,

Lisa M. Johnson
IRB Manager