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GRADUATE COLLEGE

A STUDY COMPARING STUDENT ACHIEVEMENT IN A FULL-SERVICE  
SCHOOL AND A NON-FULL-SERVICE SCHOOL

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SUBMITTED TO THE GRADUATE FACULTY  
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degree of  
Doctor of Education

By

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A STUDY COMPARING STUDENT ACHIEVEMENT IN A FULL-SERVICE  
SCHOOL AND A NON-FULL-SERVICE SCHOOL

A DISSERTATION APPROVED FOR THE  
DEPARTMENT OF EDUCATIONAL LEADERSHIP AND POLICY STUDIES

BY

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## DEDICATION

This dissertation I dedicate to my wonderful family, the people who provided unconditional love, encouragement, and support each step of the way through this doctoral process. First, I would like to thank my wife and life's partner Robin. She has been my rock and my foundation throughout our thirty-six years of marriage. She always believed in me, which made me consequently believe in myself. My wife would never allow me to falter when I was willing to give up. During these seven years, my love for you has grown even deeper. You have once again shown how beautiful you are as a person to support me emotionally through this doctoral process.

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## ABSTRACT

The purpose of this study was to examine differences in student achievement indicators in a full-service school and at a demographically similar, non-full-service school. A full-service school integrates the delivery of quality educational services with needed health and social services. Evaluation of student learning outcomes in full-service schools is important to policy level support for coordination of services for children.

Student achievement indicators in the two schools were compared. The schools were similar in enrollment, community type, percent low-income students, and percent minority students. Data gathered from the schools was retrieved from each school's State Department of Education website report card database.

The student achievement indicators compared were proficiency levels attained on the individual state's proficiency exams in the areas of English (Reading) over a four-year period for tenth grade students, and a three-year period for all ninth grade students in the area of Algebra I. Additionally, dropout rates and graduation rates were compared over a four-year period. These were considered achievement related factors.

A t-test was used to compare data between the schools. A difference was significant when  $p < 0.05$ . In all the areas tested, the null hypothesis was rejected. The null hypothesis was rejected due to a significant difference in academic achievement between the two schools under study. The differences in student achievement indicators were explained primarily as differences in the characteristics of student groups in the two schools. An implication of the study is that implementation of the full-service school model does not necessarily contribute to improved student achievement.

## CHAPTER ONE

### Overview of the Study

#### *Introduction*

##### *Brief Overview of the Study*

During the late 19th and early 20th centuries, educational and social reformers pushed for an expanded role for public education. Local schools leaders were deeply concerned by the exploding numbers of poor that seemed to overwhelm them, particularly in the nation's booming urban centers. Cities were faced with an ever-enlarging immigrant population, which had little education or economic resources (Bingler, 1999). In hopes of improving the lives of children, educators and social reformers sought to expand the mission of the public school. Not only would the public school educate, but it would also bathe, feed, and inoculate needy children. The mission did not stop there: all children, many of whom were either immigrants themselves or children of recent immigrants, would be "Americanized." They learned the dominant social, political, and cultural norms of mainstream America which at that time was largely Anglo-American (Bingler, 1999).

Reformers of that era viewed the public school as the linchpin in the process of saving children (Bingler, n.d.). By the early nineteenth hundreds, numerous city schools offered gyms, schools nurses, playgrounds, shower facilities, and even school lunches (Birch, 1983). Some locations offered typically at night adult education classes for parents, not only to build their own language skills and knowledge base but also to teach new parenting skills. In other instances, teachers visited their students' homes in hopes of fostering better communication between school and parents, as well as building a

consistency of academic and behavioral expectations. Urban districts began to use the school newspaper as a means of communication with parents and the public at large (American Association of Higher Education, 1995). These efforts to better link the schools with their communities were rooted in the late 19th-century sociological notion of building social ecology, of improving the overall environment in which children and their parents lived." For many children, their lives did improve (Bingler, 1999).

There is a growing movement to integrate community services to meet the needs of today's children (Dryfoos, 1991, 1994, 1998; Dryfoos & Maguire, 2002; Koppick, 1994, Melaville and Blank, 1991, 1994, 2000). Problems currently facing society have parallels with the past, but the world today is more complex and the solutions to these problems are, therefore, not as easily forthcoming. Demographics of communities are changing; poverty is growing; societal problems are escalating; and new ways to deal with these changing times must be created (Stallings, 1995). Causing these changes are family structures, economic pressures, political forces, and fragmented human services systems that provide health screening and services, dental services, family planning, substance abuse, and basic services such as housing, food, and clothing, are causing these changes (Newberg, 1995; Dryfoos, 1998; Dryfoos & Maguire, 2002). Often these changes become evident in the school setting, and schools are not equipped to deal with all the problems facing today's children and families (Dryfoos & Maguire, 2002).

Schools and agencies that serve children and families urgently need to unite in an attempt to cushion the pressures facing them. The ancient African proverb, "It takes a village to raise a child," suggests a new way of looking at how we prepare today's children for the future (Etzioni, 1993). A renewed sense of community, emphasizing a



shared system of values and a sense of responsibility for one another, not just to ourselves, is a concept generally neglected in the world today (Etzioni, 1993).

Communities are asking, "how other, often highly interrelated problems that place youth at risk--poverty, premature parenthood, substance abuse, unemployment, and homelessness--can be addressed so that children can learn" (Melville, Blank, & Asayesh, 1993, p. 1). In some localities, particularly poor urban areas, children often are so concerned with keeping warm, fed, and safe, that little energy or concentration is left for schooling (Krist, 1989; National Commission on Excellence in Education, 1983). Schools are called on to prevent violence in children, to provide anti-drug programs, to keep babies from having babies, to offer day care so that parents can earn an adequate livelihood, and to provide a variety of other services (Dryfoos, 1994, 1998, Dryfoos & Maguire, 2002).

Community agencies, churches, and other organizations also attempt to provide these services to families in their communities. With the inefficiency and higher cost inherent in individual agencies providing similar, if not duplicate services, there has been an increased effort to integrate services between schools and community agencies to address the needs of today's youth (Stefkovich & Guba, 1994). By combining efforts, merging programs, and working together, these forces might be able to better serve our needy and children more effectively at lower cost (Melville & Bank, 2000).

The term "at risk" is commonly applied to that population of children and youth who are less advantaged, have minority status, or suffer from more deficits (Natriello, 2002). Decker & Decker (2003) report recent statistics about children in America, compiled by the Children's Defense Fund. The following is just a sampling:

1 in 2 will live with a single parent at some point in childhood

1 in 3 is born to unmarried parents

1 in 3 will be poor at some point in their childhood

1 in 3 is behind a year or more in school

1 in 5 is born poor

1 in 5 is born to a mother who did not graduate from high school

1 in 5 has a foreign-born mother

1 in 7 has no health insurance

1 in 7 has a worker in the family but is still poor, (p. 19)

Swerdlik, Reeder, & Bucy (1999), writing for the National Association of Secondary School Principals (NASSP) Bulletin, acknowledge the challenges so many of our youth face as they struggle to develop physically, academically, socially, and emotionally.

In 2001, President Bush signed the reauthorization of the Elementary and Secondary Act (ESEA), renamed the No Child Left Behind Act of 2002 or NCLB. This Act became law in January 2002. Hardy (2002) describes the law as "breathtakingly ambitious in scope." With this law, the oversight role of the federal government in education has been expanded. The emphasis is primarily on student outcomes with the long-term goal of having every child score at the proficient level in Reading and mathematics by the year 2014. Annual benchmarks towards this long-term goal are calculated to reflect adequate yearly progress (AYP) as measured by state developed assessments or other acceptable standardized achievement tests in Reading and mathematics. Achievement tests are administered to each child in grades 3 through 8 at the elementary and middle school levels and end of course instruction (EOI) tests in

grade 9 in the areas of Algebra I and Biology I, and grade 10 in the areas of U.S. History and English II. A series of corrective actions will follow for schools that fail to achieve the prescribed adequate yearly progress (No Child Left Behind Act of 2001 Executive Summary, U.S. Department of Education). Undersecretary of Education Eugene Hickock has stated, "part of the purpose of this law...is to uncover where the achievement gaps are -that's why the assessment part is so important - and then make it impossible to ignore this problem" (Hardy, 2002 p. 21). According to Haycock (2001), the achievement gap refers to the wide differences in measures of academic achievement that exist between low income and minority children (i.e. at-risk children described above) and other children in our country. Based on federal mandates, secondary schools in Oklahoma will be measured by their performance on standardized tests in the areas of English II, Algebra I, U.S. History, and Biology I. Additionally, secondary schools must show adequate yearly progress in the areas of attendance, and graduation rates. Each population group will be evaluated each year using the following ratings: advanced, satisfactory, limited knowledge, and unsatisfactory.

*Statement of the Problem.*

President Bush's enactment of No Child Left Behind (NCLB) will have an impact on school districts and communities throughout the nation and the services they provide. Currently, across the nation, local school districts are not connecting with interagency services that can provide needed assistance (Doktor & Poertner, 1996; Dryfoos, 1994, 1998; Dryfoos & Maguire 2002; Melaville & Bank, 2000). The problem is the continuing search to develop ways schools and communities can bridge the achievement gap and assure that all students learn at high levels, which is now mandated by federal

law. For the sake of students who are at risk of school failure, barriers to learning must be removed or diminished. Calfee, Wittwer, & Meredith (1998) assert that traditional patterns of schooling no longer fit the needs of growing numbers of children and families. Wang, Haertl, & Walber (1998) agree, stating that narrow plans that reform a school's instruction program alone will not overcome the numerous physical, social, and emotional obstacles that interfere with student learning.

Currently, issues outside of the school setting are not being addressed in the academic setting. Children who are often more concerned with keeping warm, fed and safe, have little energy or concentration left for schooling (Calfee et al., (1998). Addressing the goals of academic achievement and success in life for our most at risk children and youth is the joint responsibility of school and community, including human service agencies that have traditionally operated separately from the school environment. Calfee et al., (1998) emphasize the growing importance of this partnership in these words, "...teacher, administrators and counselors seeking to improve children's academic performance are beginning to accept that delivery of human services and restructuring of education are inextricably linked" (p. 8). If there continues to be a fragmented relationship between the local school system and agencies that serve children and families, it will become difficult for children to come to school prepared to learn. School systems and service agencies should work together to provide services for children that meet their academic, social/emotional, and medical needs. Examples of different interagency services that connect in various ways and degrees to schools are reported in the recent literature (Amato, 1996; Doktor & Poertner, 1996; Dryfoos, 1994, 1998; Dryfoos & Maguire 2002; Melaville & Bank, 2000; Melaville et al., 1993; U.S.

Department of Education, 1995). Two approaches manifest from the literature: community-based and school-linked (Lugg, 1994; Crowson & Boyd, 1993).

Harkavy & Blank (2002) comment on several of the provisions of NCLB as well the requirements of the law. In the authors' view, the provisions to which they refer take a more comprehensive look at "what it will take to educate all children to succeed as workers, family members, neighbors, and citizens" (p. 14). The authors refer specifically to the law's emphasis on parent involvement in education, the coordination and integration of school services with community services for children and families, development of after school enrichment opportunities for children and youth, and expanded roles for community based organizations. In their comments on the requirements of NCLB, the authors state clearly, "...high academic standards, aligned tests, clear incentives, and strong professional development are important, but they're not sufficient to meet the lofty goal of educating all children to their full potential" (p. 52).

Currently there is a new model of school reform that is growing across the country, particularly in urban areas, referred to as the full-service school. A full-service school integrates the delivery of quality education with whatever health and social services are required in that community. Full-service schools are typically developed or are initiated in areas of high need. For example, in a full-service school it is common that more than 50% of the families are of low-income status. Other high-risk groups such as single parent households, families with limited English proficiency, and/or highly mobile families would typically comprise the student enrollment in a full-service school. In a full-service school, the school must draw on both school resources and outside

community agencies (Dryfoos, 1998). As the full-service school movement grows, the need to evaluate the effectiveness of the full-service school also grows.

### *Purpose of the Study*

The purpose of this study is to compare student achievement between a school participating in the full-service concept model and one that is not. Certain groundwork has been laid for this area of study. Dryfoos (2000), Whalen (2002), and Dryfoos & Maguire (2002) reported early looks at achievement related outcomes, including achievement test scores, attendance, and dropout rates in the full-service school model. Through the quantitative approach, data from the 2001/2002 through the 2004/2005 school years can be obtained and analyzed to determine the success or failure of such a program. Information obtained from this study will allow this researcher to collect and analyze data to determine the success/failure of such program. It is hoped that this study will add information to this relatively small but growing body of data. A full-service school located in Florida was chosen based on its similarity to the non-full-service school located in Oklahoma. Similarities include overall school population, free and reduced meal rate, graduation and dropout rates, and similar minority population. To this researcher there is no more important area of study in terms of contribution to high levels of learning than the identification of classroom, school, and community awareness.

### *The Guiding Research Questions*

The following research questions and hypotheses will guide this study:

Question One: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I for students in a full-service school environment and the scores for the same achievement indicators of students in a demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the total percent of all tenth grade students in a full-service school who scored satisfactory or advanced compared to the tenth grade students in a non-full-service school with regard to Reading?

Null Hypothesis: There is no statistically significant difference in the total percent of all ninth grade students in a full-service school who scored satisfactory or advanced compared to the ninth grade students in a non-full-service school with regard to Algebra I?

Question Two: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I of students classified as high risk (low income and minority students) in full-service school environment and scores for the same achievement indicators of students in comparable groups in demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the total percent of tenth grade low-income students in a full-service school that scored satisfactory or advanced, compared to the tenth grade students in a non-full-service school with regard to Reading?

Null Hypothesis: There is no statistically significant difference in the total percent of ninth grade minority students in a full-service school that scored satisfactory or advance, compared to the ninth grade minority students in a non-full-service school with regard to Algebra I?

Null Hypothesis: There is no statistically significant difference in the total percent of tenth grade minority students in a full-service school that scored satisfactory or advanced, compared to the tenth grade minority students in a non-full-service school with regard to Reading?

Question Three: Is there a significant difference between graduation rates of students in a full-service school environment and graduation rates of students in a demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the percent of all students in a full service school compared to all students in a non-full-service school with regard to graduation rates?

#### *Assumption*

For both the full-service school and the non-full-service school, it is assumed that a standard based curriculum is in place, in accordance with both Florida and Oklahoma regulations regarding academic standards and assessment. This means that the instructional program is aligned with high standards for student achievement in the areas of Reading and Algebra I. The current implementation of an instructional program based on best practices in these areas in both schools is assumed.



### *Limitations of the Study*

The most obvious limitation of this study is the small purposive sample, that is, only two schools. Huck & Cormier (1996) describe a purposive sample as one in which potential members must meet certain criteria in order to be included in the sample. This feature distinguishes a purposive sample from, for example, a random sample or stratified random sample. In this case, the non-full-service school was selected first, and then a comparison full-service school was identified that matched reasonably the demographics of the non-full-service school. This study is designed to provide a glimpse into the extensive area of study of coordinated, school based services and their effects on student achievement.

Another limitation of the study was the type of data collected. It is important to be careful not to identify achievement test scores as the only source of student achievement. Test scores are just one indicator of the overall performance of a school and the overall academic performance of the student body. Authors that write about the importance of improved student learning outcomes as a goal of coordinated school based services warn against over-reliance on achievement test scores as the primary measure of learning outcomes. The portfolio approach to identifying the extent of student learning should be considered (Decker & Decker, 2003; Wang, et al., 1998). Nevertheless, since test scores are measures that are standard, they therefore could be compared in the case of the two schools that were studied. Another limitation is that at the non-full-service school the ninth grade is housed at another building, but their test scores are reflected as part of the non-full-service schools data.

### *Significance of the Study*

The results of this study add to the body of research that describes the linking process, from vision to implementation that occurs when a school district and community agencies work together to address children's needs. This study provides additional information for other schools and communities that are looking for ways to develop programs to serve children and families. It provides an example of an integrative program that may be useful as a guide to begin other such innovations. By recording and understanding the lessons that can be learned from small-scale efforts such as this study, positive ways of implementing new programs in other schools can be recognized and impediments minimized. In this way, it is hoped that the study will have an impact on future endeavors to integrate service delivery to children and families to meet their needs. Through this study, a comparison of the two schools is undertaken to determine if the full-service school model will aid school districts in meeting the requirements of No Child Left Behind. "Students that come to school prepared to learn will learn" (Dryfoos & Maguire, 2002). Additionally this study, investigation attempts to determine if full-service schools do reconnect the school with the community and whether the family is reconnected to the school. Through this study, this researcher is trying to determine if a full-service environment will have an influence on graduation rate and test scores.

### *Definition of Terms.*

For the purposes of this study, the following definitions of terms are provided:

**Multi-agency staffing** refers to a standing committee, composed of representatives from a school and selected community agencies which is convened to discuss the problems or needs of a referred student and to formulate an integrated plan of action to address the identified needs.

**Community-based services** describes a service delivery model administered by community agencies, but they also serve as referral points for school practitioners whether they are employed by the school system or the school-based services center (Dryfoos, 1994).

**School-linked services** is used to describe a service delivery model that utilizes the school as the focal point for making social services "available, accessible, meaningful, and appropriate for children" (Koppich & Kirst, 1993, p. 123). The school plays an integral part in coordinating the services available to a child, but the services may not necessarily be provided on school grounds.

**Full-service schools** are those that provide onsite prevention, treatment, and support services to children and families. The full-service school concept means a school which serves as central point of delivery, a single community hub for whatever education, health, social/human, and employment services have been determined locally to be needed to support a child's success in school and in the community. This service would be built on intensive collaborative arrangements among state and local entities and public and private entities, which build on education, health care, and social services (Dryfoos & Maguire, 2002, p 10).

### *Organization of the Study*

This study is organized using the five-chapter approach to research. Chapter I will contain the historical overview, statement of problem, purpose of the study, the guiding research questions, assumptions, limitations of the study, significance of the study, definition of terms, and a summary. Chapter II is a review of related literature. Chapter III describes the methodology and procedures used to design and conduct this study. Chapter IV offers the findings and analyses of data from research questions. Chapter V provides the discussion, conclusions from the study, and suggested recommendations for future research.

### *Summary*

The first chapter of this study outlined the problem that exists and the purpose of the study. Our most disadvantaged children and youth, who have the greatest need for a sound educational background to provide solid basic skills and problem-solving skills to help assure success in life, are the most at risk for failure in school. Helping these students to achieve in school is a challenge for the entire nation.

The full-service school model combines a strong instructional program based on high academic standards, best practices in instruction and assessment, and community support services linked directly within the school. One of the desired outcomes of the educational, health, and social services provided in a full-service school is improved student academic performance. Currently the number of studies on the effectiveness of the full-service school model in terms of student achievement is growing but still limited. Adding to the knowledge base in this area is important in the overall effort to

demonstrate the efficacy or inefficacy of the full-service school model and to gain district level support for the implementation of such a program if warranted.

## CHAPTER TWO

### Review of Literature

#### *Introduction*

School-community collaboration can be traced back to the end of the 19<sup>th</sup> century. The full-service school movement represents a new era in the quest for more effective ways to deliver human services to children within the school setting. As awareness grows, school systems alone cannot address the social problems affecting millions of children. The concept of full-service schools has been embraced as a potential solution to service delivery problems affecting children living in high-risk environments. Full-service schools represent an effort to make human service system partners in the educational process, while simultaneously making school systems partners in the delivery of human services with a shared commitment to child development (Adelman & Taylor, 1999; Dryfoos, 1994, 1995, 1998).

The purpose of this chapter is to review literature that discusses the concept of a full-service school. Schools are natural centers of activity and supportive services in any community. The full-service school is an updated version of an old idea, with its primary emphasis on supporting children and families to remove obstacles to learning. This review of relevant literature will include a history of school-linked and school-based services and an outline of features of effective programs that integrate services for children and families. Objections and resistance to providing health and social services in schools are reviewed, as well as school restructuring and reform models specifically designed to improve the academic performance of poor and disadvantaged children. Current research on the importance of parent and family partnerships with schools will be

discussed. The literature on full-service schools as an approach to school reform will be examined, including a review of studies in which academic achievement and achievement related factors are measured outcomes of such schools.

### *Theory*

The purpose of this chapter is to discuss the theory surrounding the concepts of the full-service movement and its effect on student achievement, and to address the issues faced by schools in disadvantaged urban communities. Many schools face social and economic barriers that need to be overcome if children are to learn. This challenge can be met by joining forces with community agencies and developing new kinds of comprehensive partnership institutions called full-service community schools (Dryfoos, 1998). In a full-service community school, the school becomes a center in which an integrated selection of educational, health, and social service programs are provided for youth and their families. Within a full-service community school setting, program offerings are determined in accordance with the needs of the local community, by a broad-base collaboration of schools, public and private agencies, parents, and other members of the community. Because of this collaborative and multi-faceted approach to educating our youth, programs that are available in a full-service community school are generally offered before and after regular school hours, on weekends, and during vacation.

*School-Linked and School-Based Services: An Historical Perspective*

Historical precursors to contemporary community-school collaboration can be traced back to what is referred to as the Progressive Era (roughly between 1890 and 1917), when medical practitioners began working with school staff to develop procedures for the identification and education of children with special needs (Sedlak, 1997). The term special needs did not relate to a student with disabilities, but rather to students coming from a disadvantaged background. Additionally, Jane Addams' settlement house movement brought recreational, health, and educational service to working-class, largely immigrant neighborhoods in Chicago and similar urban-industrial centers (Sedlak, 1997). By the early 1900s, John Dewey's concept of the school as a social center encouraged advocates to bring these opportunities into the public school setting. Dewey saw the public school building as a place to locate a whole array of programs. In 1911, the American Medical Association and the National Education Association formed the Joint Commission on School Health Policies as a means of marshaling the power of the professions of education and medicine to aid in developing and expanding health education in schools (Dryfoos, 1994). Through this merger, these two organizations discussed factors influencing changes in school health services, including the shift in educational emphasis from subject matter to child development with the linkage between poverty and educational needs (Dryfoos, 1994).

Soon after the turn of the century, social work and nursing services also began appearing in the schools (Sedlak, 1997). In 1902, Lina Lavanche Rogers began work in New York City as the first school-based nurse in this country, and the role of the school nurse has evolved as a specialty within the field of public health nursing. At the same



time, settlement houses and the school board in New York City joined forces in 1906 and defined the concept of the visiting teacher, a school-based charity worker who provided social services to troubled children within the context of school-community partnership. This event marked the beginning of school social work as a profession (Hawkins, Hayes, & Corliss, 1994).

During the Depression, the idea of the community school, first proposed during the Progressive Era, began to gain increased attention. The term at that time referred to a school in which both the curriculum and the ancillary activities were designed to interact with the needs of the community (Hunt, 1968). According to Hunt (1968), common characteristics of a community-school were the use of the school building as a center for year round leisure-time activities and intellectual stimulation, coupled with a willingness to accommodate space requirements for health and counseling services, and the establishment of the link between the school and the community. During the 1930s, the community school movement was underway. The goal of the community school movement was to link community services under the auspices of the school, including adult classes, recreation programs, job preparation, and health care (Blank, 2001).

Following WWII, analyses of the high rejection rate among Selective Service registrants created the second wave of concern toward school based health services (Schmidt, 1945). The rejection rate among 18 and 19 years olds was due to medical issues that could have been identified and treated long before military service. Schmidt (1945) found clear evidence that health supervision and adequate medical care from infancy throughout adolescence were required.

Crowson (1992) describes a counter community movement in public schools in the 1950s. Some school systems advocated a "four walls of the school" philosophy, which strictly separated family and community business from school business. Without the intrusion of outside forces from neighborhoods and communities, educators were free to work with children as they saw fit. We continue to experience these attitudes to some extent today, as schools seek to insulate themselves from the influences and expressed needs of the community. Family and community involvement can be perceived as threats to the smooth operation of the school.

Between 1930 and 1960, the first support professionals became part of the educational bureaucracy as school psychology, school nursing, and social work became distinct educational professions (Sedlak, 1997). It was during this period that school-based medical inspections, immunization, and dentistry were delivered in a school setting. By the 1960s, the federal role in the delivery of child health services was well established, although there was never a consensus about who should get what services and how they should be paid (same issues faced today). However, a shift in the community school movement began in the 1960s. The school's mission was to produce students with superior achievement in science and mathematics. The "space race" was on, and our national security was at stake. Following the institutionalization of support services, the Rehabilitation Act of 1973 and the Education of All Handicapped Children Act of 1975 guaranteed school-age children with handicapping conditions access to a broad range of special services at the school district's expense. Many observers (Flaherty, Weist, & Warner, 1996; Sedlak, 1997) believe legal mandates to serve special education students contribute significant restriction of access to support services for

children without handicapping conditions as school systems struggled to fulfill legal obligations to an expanding population of students with special needs.

During the 1970s, Congress provided important seed money for the movement to establish community based programs within the school setting with the passage of the Community Schools Act (PL 93-381) and the Community Schools and Comprehensive Community Education Act. Although this funding was folded into a block grant, its passage signaled important federal support for community schools. It was during this period, the Seventies, that advocates of community schools became politically active under new national organizations, the National Association for Community Education (NACE), and the National Center for Community Education (NCCE). Joining together politically helped advocates to introduce federal community schools legislation which passed successfully in 1974. Currently, both major educational unions, the National Education Association (NEA) and the American Federation of Teachers (AFT), are part of the Coalition for Community Schools and have indicated their support for the community school movement.

In the 1980s, our charge was to produce students who could succeed in a competitive global marketplace. Additionally, school health clinics began appearing in middle and secondary schools throughout the country (Dryfoos, 1994). Originally designed to make primary health and family planning services available to youth living in urban settings, the need for complementary mental health, substance abuse, and social services quickly became evident as school-based clinics became operational (Dryfoos, 1994). The components of these “add-on” (social programs) come and go with changing social views about the role of the school and the needs of the people in the community.

Conceptual models of school health programs being advanced by the Center for Disease Control and Prevention recognized the need for mental health and social services within the school setting (Kolbe, Collins, & Cortese, 1997). Also during the eighties, a number of new programs were begun that led to the current movement for full-service schools (Dryfoos, 1994). The collaborative school-linked or school-based services became part of the reform movement. Kagan (1993) makes the distinction between school-based and school-linked services. School-based services are provided in the school building or on school grounds. Schools may be more fiscally responsible as well as physically responsible for providing services in a school-based model. School-linked services, while offered at sites other than the school, collaborate with schools to integrate services. With school-linked services, more of the fiscal responsibility may lie with the participating community agencies. Both models focus on service integration to more efficiently and effectively meet the identified needs of children and families, and both models have demonstrated gains in measured outcomes. The driving force to integrate services was the concern about prevention of adolescent morbidity (sex, drugs, violence, and stress) within the secondary school setting (Dryfoos, 1994). Soon afterwards, clinics in elementary schools approached and determined significant unmet needs for medical, dental, and mental health issues. Family resource centers were added to schools to help parents do a better job of child rearing and, more recently, to help welfare mothers get back into the labor force. This began the focus on “one-stop” service integration due to the proliferation of fragmented and often inaccessible programs for children and families.

*Features of Effective School-Linked and School-Based Service Programs*

Wang, Haertel and Walberg (1997) conducted an analysis of six case studies of school-linked programs and reviewed the research base on school-linked services. They identified 17 features of school-linked programs that are critical to success. The following is a summary of these features:

- The most effective programs are prevention-oriented, address multiple needs, and target the family - not just the child - for intervention.
- A collaborative culture, in which school and agency personnel agree upon their mission, is most effective in fostering communication, building consensus, and maintaining collegial relationships.
- Case management is a feature of school-linked programs that is effective in reducing fragmentation of service delivery.
- Ample planning time and the use of specific planning tools such as needs assessments and written agreements are features of effective programs.
- Collaborative staffs in effective programs have resolved issues of client and family confidentiality in order to share information that enhances service provision.
- Adequate resources, including money, time, physical space, professional expertise and commitment are essential features of successful programs.
- Shared decision-making and management procedures among school and agency personnel contribute to a sense of equal partnership.
- Technical assistance should be provided to collaborative staff as needed.

This could include training on new roles and responsibilities for all staff, goal

setting and goals clarification, and cultural, ethnic, and linguistic sensitivity.

- Location of services must be addressed thoughtfully in order to effectively meet the needs of children and families. (Note: Wang et al. and Dryfoos support co-location of services, that is, services located in the school building, to more efficiently respond to families with multiple needs.)
- The role of teachers and other school personnel in effective programs change and evolve in order to serve the whole child.
- Expanded programs that are conducted before and after school, on weekends, and during school holiday.
- Serving families, including the needs of individual parents, is considered essential to effective programs. This would include medical, mental health, legal, and social services.
- Stable funding streams for children's services are critical to successful programs.
- Formative and summative evaluations of school-linked programs, employing a variety of outcome measures, must be part and parcel of effective program operation. Student achievement data and achievement related factors such as attendance data and dropout rates are included in the outcome measures of effective programs. (p 37-39)

Melaville & Blank (1993) proposed a similar list from the perspective of effective initiatives to change child and family services delivery systems (p. 16). They concluded those effective initiatives have the following characteristics or features:

- They are school-linked
- They are rooted in the community and closely linked to state government.
- They employ experimental service delivery systems to improve services.
- They are data driven.
- They are financially pragmatic.
- They use new forms of training and professional development for collaborative personnel.
- They engage all citizens in decisions about the social and economic well-being of children and families.
- They have both the political and technical skills for effecting systems change.

(p 16)

There are clear commonalities among descriptions of effective school-linked programs. Kagan (1993) outlined organizational strategies that are typically employed for improving integration of services. These integration strategies also align with the previously described features of successful programs. They are: 1) client-centered strategies; 2) program-centered integration; 3) policy-centered strategies and; 4) organizationally centered strategies.

Client-centered strategies include case management, which Wang, et al. (1997) found to be a feature of effective school-linked programs. Program-centered strategies include co-location of services, establishment of systems for sharing relevant information about clients, joint planning, programming and decision-making among collaborative staff, and the development of fiscal linkages to enable sharing of funds for the integration

of programs. Again, most or all of these strategies were included as features of effective school-linked programs.

Policy-centered integration strategies work to create a comprehensive problem-oriented philosophy of policymaking, that goes beyond typical categorical approaches to policy development. Similarly, integration strategies that are organizationally centered may seek to create umbrella agencies or departments of human services to encompass formerly independent agencies under a single new organizational entity. In theory, at least, this strategy supports service integration rather than categorical programs and fragmentation of services.

#### *Objections and Resistance to School-Linked and School-Based Services*

At first look, the idea of linking health and social services with schools to improve multiple outcomes for children and families appear sensible, valid, and not especially vulnerable to criticism or opposition. This is not the case. Shaw (1995) lists barriers to provision of school-linked and school-based health services. Besides turf issues and professional backgrounds, language barriers among professionals, and training among agencies, coupled with a lack of adequate time allotted for collaboration, the author cites these issues as potential obstacles.

One objection is the fear that school-based health services, particularly at the secondary level, will circumvent parental roles and responsibilities by distributing contraceptives, providing abortion counseling, and even referring students for abortion services (Shaw, 1995). Another potential objection from the community is that schools should not provide services that are beyond academic instruction; that taxpayer dollars are not to be used to support non-school programs (Shaw, 1995). A reasonable response



to objections such as these is the provision of clear and specific information about the nature and scope of the school-linked services, as well as extensive efforts to involve the community and get them involved with the program and its intended outcomes, which include improved academic performance.

Lee (1998) writes that emphasis on providing health and social services in schools may divert us from our chief mission of educating students. He indicates that current school reform agendas focusing on curriculum, instruction, and assessment appear to conflict with the movement to integrate health and social services for students in the school setting. Franklin and Streeter (1998) respond with their belief that "school-linked services enhance the educational mission by helping schools confront difficult issues that keep students from achieving academic success" (p. 67). In fact, school-linked services are designed to help schools to be more effective in their mission of educating students.

Perhaps the strongest objections are those that exist at the level of fundamental beliefs about who should be doing what for whom. Wang, Haertel and Walbery (1997) refer to the book *Losing Ground*, written by Charles Murray in 1986. In his book Murray argued that the provision of government services, including school-linked and school-based services, would result in long term negative effects on the receivers of those services: for example, that the ease with which health services can be obtained in a school setting will contribute to a lack of responsibility for personal actions (e.g., an increase in unwanted pregnancies and/or abortion) and an over-reliance on agencies, rather than self, to care for family needs. In summary, many objections to school-linked services are based in misunderstanding and misconception of the scope and goals of service integration programs. As stated previously, community involvement in the development,

implementation, and evaluation of programs keep them on track in meeting identified needs and refraining from overstepping parental roles.

### *School Restructuring and Reform Movements*

In preparation for a review of the literature related to full-service schools as an approach to school reform, it is important to look at recent and ongoing reform efforts, their focus, and lessons learned from these efforts. Murphy (1990) describes the distinctiveness of the reform movements of the 1980's following *A Nation at Risk*. The breadth and depth of reform activity were greater than we have ever experienced. A new development was the involvement of state legislators in actually legislating school improvement, "making a serious incursion into the technical core operations of schools" (p. 6). This reform movement has been sustained over time, perhaps with changes in focus and new proposals, but always with the goal of educational excellence.

During the 1980s, instilling high academic standards was the goal for all students, following the belief that all students can and must learn in order to compete in an increasingly information based and technical society. The effective schools research of the early 1980s provided some direction in how to organize schools to support higher academic achievement, especially for poor and disadvantaged students (Sadovnik, et al. 2002). This body of research produced five key factors that defined successful schools: 1) high expectations for all students and staff acceptance of responsibility for student learning; 2) strong instructional leadership by the school principal; 3) a safe and orderly school environment that is conducive to learning; 4) a clear mission concerning instructional goals that is understood and shared by the school staff; and 5) frequent monitoring of student progress. Additionally, Haycock (2001) claims that what we have

found works in the education of poor and disadvantaged students, is high academic standards, a challenging curriculum, additional academic support for students who need it, continuous teacher training and development, and "a relentless focus on the academic core" (p. 11).

Fowler-Finn (2002), in an account of the steps taken by a large school district in the Midwest to improve academic achievement among all students, also emphasizes the importance of high expectation, a challenging curriculum, and additional instruction and assistance for struggling students. In addition, alternative programs for students with special learning or behavioral needs have been successful. The focus of these programs has been to intensify support and then return students to typical classrooms as quickly as possible. There is little question that high expectations for achievement and a strong research based instructional program taught by highly qualified teachers are critical to the academic success of poor and disadvantaged students. All of the research on effective schools and school programs support this. The component of a successful educational experience for all children that is sometimes overlooked is the involvement of the parent and community. The New American School designs that were reviewed in this study do include a family and community component key to the success of each design.

Rosthstein (2001) writes about the importance of improving the "family capital" of our poorest and most disadvantaged families as a means to improving educational outcomes for children. He argues that assuring adequate housing, nutrition, and health care for poor families is less expensive and will do as much if not more to improve academic achievement than school-based initiatives such as summer tutoring or after school programs, small class size, or highly prescribed instructional programs. Epstein

and Sanders (2002) review the parallel tracks that research on improving schools and research on parent and community involvement in schools have taken historically. The authors write:

The simultaneous influence on children, school, families, and communities is undeniable, but too often, the connections across contexts are ignored in theory, research, policy and practice. Sociologists who study schools rarely examine how school practices affect family or community influences on children or how families and communities affect the schools. Similarly, sociologists who study families rarely account for school or community characteristics or interactions that affect family life (p. 525).

Jones (2001) reiterates the effectiveness of well-designed school and family partnership programs in improving the achievement of all students, especially the poor and disadvantaged. The key is to re-define parental involvement. Jones, referring to a study by Epstein, states that the greatest impact on student achievement comes from family participation in well-designed at-home activities. One example is "interactive homework" which allows the child to show, share, and demonstrate what he or she is learning in class.

*Schools as the Center of School, Community, and Family Activity*

Many authors in the fields of education and sociology promote the blending of integrated child and family services with a strong instructional program. Cohen (1998) believes that schools are the best structure for providing services to children, since schools are an accessible, existing resource that serves all children within a community.

Boyd (1998) also acknowledges that school, though often set up in the mind of the general public as the potential answer to all of society's ills, can contribute to the lessening if not the solution of many social problems. There is no denying that schools "occupy a strategic place in society" (p. 8). Dryfoos and Maguire (2002) write about the importance of developing schools that address the multiple needs of children and families, and they state, "schools become more and more central to the movement to rescue the children" (p. 141). Crowson and Boyd (1999) state that "business as usual cannot get the job done" (p. 20). Zetlin (1997) concurs, noting that significant and durable changes must be made in the ways that schools and agencies work together in order to foster genuine school and community connections. These connections are critical to the improvement of children's achievement in school.

#### *New School Movement*

As the first 100 years of school-community collaboration came to a close, the concept of full-service schools emerged from this historical process as the latest strategy to deliver human services to children more effectively. Evolution of the concept was shaped by two driving forces: (a) renewed concern about social problems affecting learning and (b) intense political pressure to reorganize schools (Talley & Short, 1996; Dryfoos, 1998). Throughout the literature (Carlson, Paavola, & Talley, 1995; Dryfoos, 1994, 1998; Dryfoos and Maguire, 2002; Morrill, 1992; Paavola et al., 1996; Talley & Short, 1996), the concept of full-service schools has repeatedly been linked with: (a) demands for educational reform, (b) the reorganization of health care systems, (c) renewed interest in interagency collaboration, and (d) an emerging focus on the concept of service integration. Some observers (Adelman & Taylor, 1997, 1999; Dryfoos, 1998,

Dryfoos and Maguire, 2002) have argued that true collaboration and true integration have not yet been realized.

Joy Dryfoos, one of the best known researchers and advocates of full-service schooling, looks to the development of innovative school-based health programs in the late 1970s and early 1980s as the forerunners of the current movement. Dryfoos (1994) defines the full-service school "as a concept to guide the organization of service delivery systems designed to promote the physical, emotional, social, and academic growth of children living in high-risk environments" (p. 2). From her perspective, the concept represents an ideal that integrates educational reform and the reorganization of community-based services so that children receive the best education possible, with access to the full complement of human services.

Since the late 1980s, various local, state and foundation-funded efforts have produced new models that further developed the key features of community schools and greatly increased their numbers. Emerging approaches alongside more established community education programs were designed to mobilize the assets of communities and to address barriers to learning resulting from poverty, changing demographics, and other contemporary facts of life. New community school efforts brought about innovations such as family support centers, early childhood and after-school programs, health and mental health services, partnerships with business and civic groups, and initiatives to use school facilities as community centers. Local community schools based on models such as Beacons Schools, Caring Communities, Children's Aid Society, Communities in Schools, among others have flourished.

According to Dryfoos (1994, 1995, 1998), the term “full-service school” was first used in 1991 when the Florida legislature provided funding through the Supplemental School Health Services Program to support a system of interagency collaboration with a mandate to make a comprehensive package of human services available within the school building. The report from the National Commission on Excellence in Education was the driving force behind Florida’s goal to integrate education, medical, social and/or human services that are beneficial to meeting the needs of children and youth and their families on school grounds. It was expected that full-service schools would provide the types of prevention, treatment, and support services children and families needed to succeed. These services would be built on interagency partnerships which would evolve from cooperative ventures into intensive collaborative arrangements among state, local, and private entities. In California, ‘Healthy Start’ legislation has led to school-based services around general health care, mental health, substance abuse prevention and treatment, family support and parenting education, academic support, and youth development services. New York City now has 37 active Beacon Community Centers that are undertaking programs that reconnect parents and adult members of the community with children, youth, and their schools. Other initiatives have used the idea of a settlement house in the school to serve families, siblings, and others in the community (Dryfoos and Maguire, 2002).

A strong indication that the full-service school concept has made inroads into the school reform landscape is the type of publications in which information about this concept appears. For example, mainstream educational publications such as *Education*

*Week, Educational Leadership, Principal*, the *NASSP* (National Association of Secondary School Principals), *Bulletin*, and *Leadership News* (published by the American Association of School Administrators) have printed articles describing and promoting the full-service school concept (Harkavy & Blank, 2002; Deutsch, 2000; Dryfoos, 1996, Melaville & Blank, 2000; Swerdlick, et al., 1999).

### *School Achievement Indicators*

Dryfoos & Maguire (2002) quote Martin Blank, director of the Coalition for Community Schools, on the importance of ongoing evaluation of the impact of community schools on student learning:

The next several years represent a critical juncture for community schools...Federal funding will remain a tough challenge, however...In this era of high-stakes testing and accountability, where the success of students, teachers and principals often rides on a single test, the challenge is getting them to focus on anything other than academic performance.

The community school movement must continually demonstrate how a community school approaches impacts student learning and helps to create the conditions for learning. (p. 182)

Dryfoos & Maguire (2002) agree, stating, "we believe that community schools should be seen as vehicles for education reform; therefore, improved learning and achievement must be a long-term measure of the effectiveness of this growing movement" (p. 2).

A wide range of data types can be used as indicators of student learning and achievement. In a handbook on practical evaluation of collaborative services, Veale,



Morley, & Erickson (2002) name three quantitative indicators of program effectiveness related to academic outcomes. They are grade point average (GPA), school attendance rates, and dropout rates. Calfee, et al. (1998) outline an extensive list of indicators for assessing achievement outcomes in a full-service school:

- GPA
- Homework completion rates
- Class work completion rates
- Acquisition of computer skills
- Standardized test scores
- Absenteeism and attendance rates
- Promotion and retention rates
- Dropout rates
- Number of vocational education completions
- Number of scholarships awarded (p. 199)

Wang, et al. (1997) reported that the five most commonly measured student outcomes in studies and evaluations of school-linked programs were attendance, academic performance, reduced behavior problems, drops out rates, and improved self-esteem.

*Review of Studies in Which Student Achievement is a*

*Measured Outcome of Full-service schools*

In an outcome analysis, Dryfoos (2002) summarized the findings from 49 community school programs. Some programs were multi-site and some were single-site. The report of outcomes was organized into four major categories, which reflected the

comprehensiveness of full-service schools. The categories were: 1) learning and achievement; 2) improved social behavior and healthy youth development; 3) better family functioning and parental involvement and; 4) enhanced community life.

At the outset, Dryfoos acknowledged the difficulties and limitations of the research she summarized. For example, in studies that included comparison groups, very few used random assignment to define the groups. Many studies relied only on pre and post-test of participants but lost a substantial number of participants in the span of a year or two due to high rates of family mobility. Researchers encountered barriers to obtaining permission from families to survey their children and resistance from parents to completing surveys. As Dryfoos (2002) notes, "the constraints are many when one is trying to track events in an innovative multi-faceted program" (p. 3).

The report of findings will be limited here to those in the category of learning and achievement. Dryfoos writes that 36 of the 49 programs (73%) reported academic gains, which generally included improvements in reading and math test scores over a two or three year period. Nineteen programs (39%) reported improvements in school attendance, and several programs reported a decrease in dropout rates. Eleven programs (22%) reported a reduction in suspensions from school.

In 1991, the state of California began awarding Healthy Start grants to local school systems and their collaborative partners to integrate services for children and families. Special emphasis in this initiative was placed on creating child and family centered services systems at or near school sites. One of the primary measured outcomes of this program was improved school performance. An early evaluation conducted in 1997 and based on 138 schools showed that test scores in the lowest quartile improved

substantially. Reading scores increased by 25% and math scores by 50% (Dryfoos 2002).

### *Summary*

Full-service schools have their roots in the community school movement of the 1930s. Interest intensified in the 1990s, when it became clear that the barriers to learning for many poor and disadvantaged children were too great to be surmounted by effective instructional programs alone. Strong family and community partnerships were needed to address multiple needs. Any efforts to gain policy level support for the expansion of full-service schools require substantial evidence that these models of education and integrated service delivery have a positive impact on the children and families they serve. One of the categories of outcomes that are of particular importance in meeting requirements of the No Child Left Behind Act is the category of student learning and achievement.

A limited but growing body of research has shown gains in academic performance school-wide either in full-service schools or for students who received the available school-based services in these schools. In school, studies showed the most consistent gains over the time of implementation of the full-service school model, while studies (few in number) comparing full-service schools to demographically similar schools showed little or no difference in academic gains.

The 2002 passage of the No Child Left Behind Act makes a ground breaking federal commitment to all children's educational success. The legislation incorporates many elements that historically have been essential components of community schools, although they have not been emphasized as much as the accountability and choice provisions of the law. Through the full-school movement, such desirable elements as

parent involvement, after-school programs, violence prevention, service learning, and coordination and integration of existing public and private services will help America leave no child behind.

## CHAPTER THREE

### Methodology

#### *Introduction*

The purpose of this study was to compare differences in student achievement indicators in the areas of Algebra I and Reading, between a full-service school located in Florida and a demographically similar, non-full-service school located in Oklahoma utilizing a quantitative methodology. Additionally, differences in graduation rate were compared. This chapter presents the statement of the problem and an overview of the research design that will be used in this study. Next, this chapter will discuss quantitative research using the t-test for analysis.

#### *Statement of the Problem*

In 1983, the National Commission on Excellence in Education (1983) startled America into conceptualizing a crisis in education with the publication of their report, *A Nation at Risk*. Since that time, attention from the professional and popular press has been directed at the “risk” factors confronting American schools and their children. These factors include declining test scores, high dropout rates, and a host of associated behavioral and psychological difficulties (Frymier, 1992). Additionally, there is startling evidence from other sources that many children, especially children “at risk,” do not have nurturing relationships to support their academic work or their personal development (Frymier, 1992). Every day, millions of children are expected to arrive at the United States public elementary and secondary schools ready to learn. Schools struggle with many children who come to school not ready to learn and lack behavioral, emotional, social-cognitive competencies that impede their learning experiences (Pianta & Walsh,

1996). Additionally, outside influences such as poverty, family instability, parental unemployment, child abuse, teen pregnancy, truancy, and substance abuse have an impact on the child's ability to learn (Dryfoos, 1998). Schools are increasingly being called on to be surrogate parents that can increase the docility of children who arrive on their doorstep in poor shape. Today's schools feel pressured to (a) feed children; (b) provide psychological support services; (c) offer health screening; (d) establish referral networks related to substance abuse, child welfare, and sexual abuse; (e) cooperate with local police and probation officers; and (f) add curricula for prevention of substance abuse, teen pregnancy, suicide, and violence. Communities have looked to the schools as a promising arena for implementing proposed solutions to the problems facing school-age youth. Although programs have met with varying degrees of success in weakening one or more of the barriers to the development of healthy youth, most fall short of a comprehensive approach. The single-issue "band-aid" approach adopted by some schools has treated each problem in isolation. Such an approach has little chance of success since the problems themselves are often interconnected and feed off each other (Dryfoos, 1994). Schools alone cannot overcome the effects of these influences, and many schools are forming partnerships with community human-service agencies to meet the needs of their students through the concept of a full-service school model.

This chapter focuses on the research design which includes the selection of a non-full-service school, and a demographically similar full-service school. Additionally, support services provided in each school, summary of school profiles, data collection, variables, and data analysis. Data analysis was conducted using the t-test of statistical significance.

### *Research Questions*

The research questions and hypotheses guiding this dissertation are:

Question One: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I for students in a full-service school environment and the scores for the same achievement indicators of students in a demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the total percent of all tenth grade students in a full-service school who scored satisfactory or advanced compared to the tenth grade students in a non-full-service school with regard to Reading?

Null Hypothesis: There is no statistically significant difference in the total percent of all ninth grade students in a full-service school who scored satisfactory or advanced compared to the ninth grade students in a non-full-service school with regard to Algebra I?

Question Two: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I of students classified as high risk (low income and minority students) in full-service school environment and scores for the same achievement indicators of students in comparable groups in demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the total percent of tenth grade low-income students in a full-service school that scored satisfactory or advanced, compared to the tenth grade students in a non-full-service school with regard to Reading?

Null Hypothesis: There is no statistically significant difference in the total percent of ninth grade minority students in a full-service school that scored satisfactory or advance, compared to the ninth grade minority students in a non-full-service school with regard to Algebra I?

Null Hypothesis: There is no statistically significant difference in the total percent of tenth grade minority students in a full-service school that scored satisfactory or advanced, compared to the tenth grade minority students in a non-full-service school with regard to Reading?

Question Three: Is there a significant difference between graduation rates of students in a full-service school environment and graduation rates of students in a demographically similar non-full-service school?

Null Hypothesis: There is no statistically significant difference in the percent of all students in a full service school compared to all students in a non-full-service school with regard to graduation rates?

The procedures used in this study are described in this chapter, including the design of the study, sample selection, summary of school profiles, data collection, variables, data analysis, and the summary.

#### *Design of the Study*

The design of this study utilized data collect from two secondary schools to obtain achievement scores in the areas of Reading and Algebra I. The design consists of one independent variable with two levels. The levels are school type, which in this study are a demographically similar full-service school and a non-full-service school. There are three dependent variables: Reading achievement indicators, mathematic achievement



indicators (which are measured using placement into levels), and graduation rates. This study tested for differences in the three dependant variables in the full-service school and the non-full-service school that covered a period consisting of four school years (01-02, 02-03, 03-04 and 04-05). Specifically, to address research question one, test score data on the Florida Comprehensive Assessment Test and the Oklahoma End Of Instruction test in Reading and mathematics for the school years listed above, for all students in grades 9 and 10 were compared.

In Oklahoma, individual students' scores on the Reading and Algebra I assessments place their achievement levels in one of four areas labeled advanced, satisfactory, limited knowledge, and unsatisfactory. The target for all students is achievement at the satisfactory or advanced level. In Florida, individual students' scores on the Reading and Algebra I assessments place their achievement in one of five achievement levels labeled 1, 2, 3, 4, and 5. The target for all students is achievement at the third, fourth, and fifth levels. For the purpose of this study, the terms satisfactory and advanced are used to represent both schools. Advanced in Oklahoma equals the fourth and fifth level in Florida, and satisfactory will equal the third level. For the four years reviewed in this study, the percentages of all student achievement scores in the ninth and tenth grade in both schools were compared in the areas of Reading and Algebra I.

To address research question two, comparisons involved each school's data for each of two groups: low-income students and minority students in grades 9 and 10. Achievement scores in reading and mathematics for the four years were compared with data from the full-service school and the non-full-service school. Achievement for these

groups is reported as the percentage of students who scored in all achievement levels in Reading and Algebra I.

Research question three, which focuses on the achievement related factors, was addressed by comparing the graduation rate of the full-service school compared to the non-full-service school, grades nine through twelve, during a four period. Graduation rate is reported as the percent of all seniors that graduated from school.

### *Sample Selection*

Two secondary schools, one in Florida and one in Oklahoma, were selected for comparison. Each of the schools can be considered an independent sample. That is, each group is an intact group. Random assignment of students to the full-service school and the non-full-service school did not take place. There is no pre-post treatment data to be compared within either of the intact groups, nor has a one-to-one match between students in each school been achieved (Huck & Cormier, 1996).

### *Selection of a Non-full-service school*

The non-full-service school was selected first. The school district in which the non-full-service school is located serves 16,851 students in 35 schools. The non-full-service school itself serves a neighborhood with a largely low-income, ethnically diverse population.

The non-full-service school provides educational services to about 1,300 students in grades 10 through 12. Ethnic makeup shows that 47 percent are white, 32 percent black, 3 percent Asian, 11 percent Hispanic, and 7 percent American Indian. Thus, 53 percent of the total school population is minority. Free or reduced meals are provided for 54 percent of the student population, and the mobility rate is about 43 percent. Other

statistical data include an attendance rate of 93 percent, and a graduation rate of 80 percent.

Current restructuring within the school district will move the 9th grade class from two feeder schools to the high school setting, thus increasing the school population to approximately 1,800 students. Due to the projected enrollment changes, achievement indicators were reported for school years 01/02, 02.03, 03/04, and 04/05 before enrollment changes take place.

*Selection of a Demographically Similar full-service school*

The identification of a demographically similar, full-service school was somewhat challenging. When searching for a school with similar demographics, school profiles database was used to identify a school located in Florida.

The full-service school is located within a school district that serves 31,309 students in 37 traditional schools. The full-service itself is located in a neighborhood with a large low-income and ethnically diverse population.

The full-service school provides educational services to about 1,350 students in grades 9 through 12. Ethnic makeup shows that 45 percent are white, 49 percent are black, 3 percent Hispanic, and 3 percent Asian. Thus, 55 percent of the total school population is minority. Free or reduced meals are provided for 43 percent of the student population, and the mobility rate is 44 percent. Other statistical data include an attendance rate of 94 percent, and a graduation rate of 59.3 percent. Statistics for the full-service school were derived from data provided for the 2004-2005 school year as a baseline to compare similarity between the two schools for research purposes.

Demographic data for the two schools are shown in the Table 1 below. This information identifies the schools as similar during the comparison years.

Table 1

Demographic Data for the Two Schools

	<b>Community Type</b>	<b>Grade Configuration</b>	<b>Total Enrollment 2004-05</b>	<b>Percent Minority 2004-05</b>	<b>Percent Low Income 2004-05</b>
Full-Service	Intercity	9 – 12	1350	55%	43.1%
Non-Full Service School	Intercity	10 – 12	1300	53%	54.0%

A review of school profile data for each school for school year 2004-05 showed similar racial and/or ethnic diversity in that similar numbers of students in minority subgroups such as African American and Hispanic took the required tests in reading and mathematics in the ninth and tenth grades. Additional school demographic data showed that in 2004-05, the non-full-service school enrollment distribution by race/ethnicity was 47 percent white, 32 percent black, 3 percent Asian, 11 percent Hispanic, and 7 percent American Indian. Total minority population is 53 percent. The enrollment distribution in the full-service school was 45 percent white, 49 percent black, 3 percent Hispanic, and Asian 3 percent. There were no American Indian students enrolled at the full-service school. Total minority population is 55 percent.

*Support Services Provided in Each School*

The service matrix (adapted from Calfee, et al., 1998, pp. 18-20) lists each support service the school provides or collaborates with, its description and the target population or clientele, its location and availability (i.e. before, during, or after school hours), its funding source or sources, and the number of years the service has been in place. A service matrix for each school is shown in Tables 2 and 3 on the next pages.

Table 2

Service Matrix for the Non-full-service school

Service	Description/clientele	Location/Availability	Funding Source
School Counselor (4)	10-12 general academic counseling	On school site during school hours Monday through Friday	School district funded
Student Assistant Counselor	Drug and Alcohol counseling	By referral on site during school hours Monday through Friday	School district funded
License Professional Counselor (LPC)	Students with social and emotional issues	By referral on site during school hours Monday through Friday	School district funded
Department Chair	Facilitate team to develop academic intervention plans	On school site during school hours Monday through Friday	School district funded
At risk specialist (open doors)	At risk students	By referral on site during first period of each school day	University sponsored
After school tutoring 35 minutes per day	10-12 general academic population	On school site Monday, Tuesday, Thursday and Friday	School district funded

Table 3

Service Matrix for the full-service school

Service	Description/Clientele	Location/Availability	Funding Source(s)
School Counselor (4)	9-12 students; referral basis; individual and group counseling	On school site school hours Monday through Friday	School district funded
Instructional Support Team Coordinator (1)	9-12 students; referral basis; facilitate team to develop academic intervention plans for individual students	On school site school hours Monday through Friday	School district funded
Social worker (1)	9-12 students, referral basis; protective services; developmental and truancy and delinquency intervention	On school site 8:00a.m. - 6:00p.m. Monday through Friday	County funded
Mental Health Therapists (1)	9-12 students; referral basis; therapeutic intervention for individual students and their families	On school site 8:00a.m. - 5:00p.m. Monday through Friday	State and County funded
Drug and Alcohol Counselor (1)	9-12 students; referral basis; services for students and families affected by alcohol and/or drug issues	On school site school hours 3X per week	School district funded
After school tutoring	9-12 available to all students	On school site 5X a week	School district funded
Home and School Visitor (1)	9-12 students; referral basis; home visits provide training support for at risk families	Office on school site School hours 3 days a week	School district funded

English Language Learner Tutoring	9-12; referral basis; support to limited and non-English speaking students and families	On school site during school hours Monday through Friday	State and school district funded
CARE Team	9-12 students; referral basis; interagency team that develops support plans for students and families	On school sit Meets 1X per week	School district funded

An examination of the service matrices shows difference in the number, type, location, frequency, and duration of support services provided in each school. The full-service school provided more services and a greater variety of services at a greater frequency. Most of the services are housed and delivered within the school building. The non-full-service school provides more conventional school-based services.

In an effort to define and/or categorize the extent of school-community linkages and collaboration in each school, three models of school-community relationships described by Calfee, et al., (1998) were used as reference points. The models are listed below.

**Model One: Traditional School-Community Relations**

In the traditional model, the family teaches values; the school delivers academics; and community agencies provide medical, social, and human services. There is no tracking system for problems or solutions, no way of knowing if, when, or how a particular problem is resolved. Separation of school and community is complete.

### **Model Two: School-Community Partnerships**

The relationships and interactions between school and community are closer than in the traditional model...The emerging partnership strengthened by invitations from the school to the community, or from the community to the school, to participate in activities that create bonds between parent organizations, volunteer programs, evening adult literacy activities, and no-campus after-school youth groups...However, there is clearly a line separating school and community as to function. The school still teaches academics, but it neither delivers nor coordinates human services to children and their families on or near the school site.

### **Model Three: School – Community Relationship**

The full-service school concept is recognized when the lines of distinction between the school and the community start to become invisible...In this collaborative model, the school and community are highly interactive and mutually involved. Community agencies are either co-located on the school property or housed within the school building. Interagency agreements establish partnerships between the school and community agencies. Cost sharing, problem solving, and information exchanges reduce duplication and bureaucratic red tape. (pp. 10-12)



The status of school-community relationships in any school does not fit neatly into one of these models. School-community relationships exist on a continuum of involvement, with unlimited variations depending on the needs of the community and the school and the will and the capacity of both to collaborate. Using information supplied in the service matrix, the identified full-service school has several of the features of model three: school community collaboration. Using the service matrix, the non-full-service school has many of the features of model two and none of the features of model three.

It is important to note here that for purposes of research the ideal comparison would be two schools that operate at either end of the continuum of school-community relationships, that is, two schools that are dichotomous types. The identification of dichotomous school types would require finding a demographically similar school that fits the description of model one: traditional school-community relations. A school of that type may exist, but this investigator was not able to find it. Practically speaking, it is difficult to conceive of any public school functioning separately from the community, even if it is the school's desire to do so.

#### *Summary of School Profiles*

Two conclusions about the schools were formed as a result of the information gathered. One conclusion had to do with whether one school could be identified with confidence as a full-service school and the other as non-full-service school for purposes of comparison in this study. The second conclusion had to do with whether the schools could be identified with confidence as demographically similar except for the full-service component. Each conclusion is discussed separately.

The service matrix supplied by each site supports the identification of one school as a full-service school and the comparison school as a non-full-service school. The full-service school clearly provides more services and a greater variety of services at a greater frequency than the comparison school. Most of the services are housed and delivered within the school building, and a system (CARE team) is in place for interagency collaboration and integration of services for students and families. This is consistent with the definition of a full-service school and is a reasonable fit with Calfee, et al. (1998) model three, the school-community collaboration. The comparison school fits neither definition of a full-service school nor the Calfee (1998) school-community collaboration model to any notable extent.

The contents of the service matrices point to an important difference in the demographic profile of the schools, specifically in terms of racial/ethnic diversity. This difference, and its possible relationship to student achievement indicators, is discussed in detail in the next chapter.

Based on the information gathered from the school sites, the two schools can be considered demographically similar except that the full-service school did not have an American Native population and that the Hispanic population was larger in the non-full-service. The total minority population only differed by 2 percent between the two schools.

### *Data Collection*

Data affecting the comparisons outlined in the research questions were collected primarily from two sources. For the non-full-service school, the data was gathered from Oklahoma State Department of Education Office of Accountability. This data is available online at [www.SchoolReportCard.org](http://www.SchoolReportCard.org). For the full-service school, the data were gathered from Florida State Department of Education NCLB School Public Accountability Report. These data are available online at [www.schoolgrades.floe.org](http://www.schoolgrades.floe.org). For the school years used, each school's report card contained information on enrollment, percentage of low-income students, attendance rate, and promotion rate. Additionally, for each school, test score data in reading and mathematics is reported for grade 9 for Algebra I and grade 10 for Reading.

### *Variables*

There is one independent variable with two levels. The levels are school type, which in this case, a full-service school and a non-full-service school. The dependent variables in this study are Reading achievement indicator, Algebra I achievement indicator, and graduation rate for each of the groups specified in the research questions.

Data for two dependent variables for each school Reading achievement indicators and Algebra I achievement indicators are displayed for the total number of ninth and tenth grade students who took the Florida Comprehensive Assessment Test and the Oklahoma End of Instruction Test in school years 01-02, 02-03, 03-04, and 04-05.

Data for the dependent variable of graduation rate for each school are displayed as one data item (percentage of students that graduated from high school) for the school years 01-02, 02-03, 03-04, and 04-05.

### *Data Analysis*

Data collected from on line sources are analyzed using the t-test, which will determine the significance of each variable related to the research questions. Student achievement indicators, and graduation rates for each school were tested for difference, using t-test of independent samples. The t-test is the most commonly used method to evaluate the difference in means between two groups. In this research project, the t-test is used to test achievement scores between two groups of students being served by a full-service school and a demographically similar non-full-service school in the areas of Reading and Algebra I. Additionally, graduation rates are compared to determine if there is a significant difference between the two schools. The determination of whether there is statistical significance between the two means will be reported as a p-value. Typically, if the p-value is equal to or less than a certain level (0.05), the conclusion is that there is a statistically significance difference between the two means. The lower the p-value the greater the evidence there is a statistically significant difference between the two means.

### *Summary*

The purpose of this chapter was to explain the design of the study. This included an explanation of how the sample schools were identified and selected, and a look at additional information about each school, gathered via web sites that identified them as similar except for the full-service component. The additional information about each

school supported the investigator's inference that the full-service school could be identified as such with confidence, and that the comparison school does not comprise the features of a full-service school to any notable extent.

The additional information about each school also revealed an important demographic factor that showed subgroups (i.e. minority students) were similar except for the full-service school not having a large American Indian population.

## CHAPTER FOUR

### Presentation and Analysis of Data

#### *Introduction*

This chapter presents the analysis and interpretation of the data collected in this study. The null hypothesis that guided this research is “there is no significant difference between academic achievement and academic indicators in a school participating in the full-service school model compared to a demographically similar non-full-service school.” The main purpose of the study was to determine whether there are significant differences in student achievement indicators between identified students in a full-service (FS) school and the same achievement indicators for comparable students in a demographically similar, non-full-service (NFS) school. In addition, there is the question of whether there is a significant difference in achievement-related factors--specifically, graduation rates between the two schools.

By comparing Florida’s Comprehensive Assessment Test (FCAT), to Oklahoma’s End of Instruction Test (EOI) test scores, data for Reading for students in the tenth grade and Algebra I for students in grade nine were examined to determine if significant differences in achievement indicators existed. Data for all students in the ninth and tenth grades, as well as data for grades 9 and 10 in the two subgroups, low-income and ethnic heritage, are compared. The means of each student group tested are displayed for each group and subject area by comparing the mean test score over a four-year period for Reading and a three-year period for Algebra I. The significant difference in graduation rate were examined by comparing means over the four-year period studied.

Student achievement indicators were tested for differences using t-test of independent samples. The t-test is the most commonly used method to evaluate the differences in means between two groups. In this research project, the t-test, tested achievement scores between two groups of students served by a full-service (FS) school and a demographically similar non-full-service (NFS) school in the areas of Reading and Algebra I. The t-test also was used to compare the difference between graduation rates. Typically, if the p-value is equal to or less than a certain level (0.05 in this case), the conclusion is that there is a statistically significant difference between the two means, i.e., the lower the p-value the greater the evidence the difference is a significance.

#### *Research Questions*

There were three research questions which formed the basis of this study:

Question One: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I for students in a full-service school environment and the scores for the same achievement indicators of students in a demographically similar non-full-service school?

Question Two: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I of students classified as high risk (low income and minority students) in full-service school environment and scores for the same achievement indicators of students in comparable groups in demographically similar non-full-service school?

Question Three: Is there a significant difference between graduation rates of students in a full-service school environment and graduation rates of students in a demographically similar non-full-service school?

#### *Descriptive Quantitative Data*

Descriptive data, including the percent of the total population tested in each group that scored at the satisfactory and advanced levels, is displayed in Table 4 for the non-full-service (NFS) school and in Table 5 for the full-service (FS) school. Tables 6 through 13 show all the performance levels in each group for Reading by school year. Data from performance levels satisfactory or higher were analyzed. Each table represents a specific school year for the school. Four years worth of data was collected regarding Reading test scores in both the non-full-service (NFS) and the full-service (FS) school. From this research, group statistics determine the research questions proposed in this study. Additionally, three-years worth of Algebra I test scores were collected for both schools at all performance levels, and are listed in Tables 14 and 15. Again, group statistics determine the research questions proposed. The reason for only three years worth of data collection for Algebra I is because in both states testing for Algebra did not start until the 02/03 school year. Tables 16 through 21 display the statistical data for each population group as indicated in this study. Additionally, over a four-year period graduation rates were collected. This data is reported in Table 22 and are grouped as well. Scoring on this test is numerical from 1 to 999, with 700 being the optimum score for a satisfactory rating.

Statistical information addressed in Tables 4 and 5 cover a four-year period in Reading. The purpose for these tables is to give the reader an overview of how each



school compares demographically. The comparison is as follows (NFS = non-full-service; FS = full-service):

- Total students tested in Reading: NFS 1,295, and FS 1,155.
- Of the 1,295 students from the NFS school, 787 scored satisfactory and above, which equal 61 % of this population. Of the 1,155 students from the FS school, 322 scored satisfactory and above, which equal 27 % of this population.
- Of the 68 students (NFS) classified American Indian, 36 scored satisfactory or above, which equal to 53 percent of this population. Of the 14 students (FS) classified American Indian, 1 student performed satisfactory or above, which equal to 7 percent of this population.
- Of the 52 students (NFS) classified Asian, 36 scored satisfactory or above, which equal to 69 percent of this population. Of the 27 students (FS) classified Asian, 23 scored satisfactory or above, which equal 85 percent of this population.
- Of the 411 students (NFS) classified African American, 197 scored satisfactory or above, which equal 48 percent of this population. Of the 535 students (NFS) classified African American, 100 scored satisfactory or above, which equal 19 percent of this population.
- Of the 128 students (NFS) classified Hispanic, 75 scored satisfactory or above which equal 59 percent of this population. Of the 69 students (FS) classified Hispanic, 22 scored satisfactory or above, which equal 32 percent of this population.

- Of the 636 students (NFS) classified Caucasian, 443 scored satisfactory or advanced, which equal 70 percent of this population. Of the 510 students (FS) classified Caucasian, 160 scored satisfactory or above, which equal 31 percent of this population.
- Of the 588 students (NFS) classified poverty level, 294 scored satisfactory or above, which equal 50 percent of this population. Of the 334 students (FS) classified poverty level, 97 scored satisfactory or above, which equal 39 percent of this population.

Table 4

Number and Percent of all Tenth Grade Students Satisfactory/Advanced in the area of Reading NFS

English II (Reading NFS) Non-Full-Service	Total Number Tested Scoring Satisfactory/Advanced			
	N	Percent	Mean (Total Tested)	SD
Total tested N=1295	787	61	718.0	3.500
Ethnicity				
American Indian/ Alaskan Native N=68	36	53	715.3	1.414
Asian/Pacific Islander N=52	36	69	725.0	9.434
Black or African American N=411	197	48	695.5	3.521
Hispanic or Latino N=128	75	59	731.0	5.079
White N=636	443	70	742.8	1.095
Free/Reduced Meals N=588	294	50	693.5	.447

Table 5

Number and Percent of all Tenth Grade Students Satisfactory/Advanced in the area of Reading FS

English II (Reading FS) Full-Service	Total Number Tested Scoring Satisfactory/Advanced			
	N	Percent	Mean (Total Tested)	SD
Total tested N=1155	322	28	631.3	4.400
Ethnicity				
American Indian/ Alaskan Native N=14	1	7	583.8	3.376
Asian/Pacific Islander N=27	23	85	737.5	4.722
Black or African American N=535	100	19	665.3	2.529
Hispanic or Latino N=69	22	32	633.3	8.390
White N=510	160	31	668.0	3.605
Free/Reduced Meals N=334	97	39	645.8	3.286

Tables 6 through 13 provide a year-to-year evaluation of all academic performance levels in the area of Reading for each school under study. By comparing each school type yearly, trends such as population decline or growth in each area studied especially ethnicity and economically disadvantaged, were evaluated to see the possible effect on achievement scores.

Table 6 represents all students who scored unsatisfactory through advance for the non-full-service school in the area of Reading during the academic year 2001/02. The main focus of this table is the number of students in each category that scored satisfactory and advanced. The information contained in this table and the following tables determines the academic performance index (API) and average yearly progress (AYP) for

the school under observation. Table 6 indicates the total population for this year group achieved a passing score of 70 percent, with the white population scoring 80 percent which is satisfactory under the guidelines of the API. The remaining groups failed to meet the benchmark of 70 percent. For the purpose of this study, the main areas under study are those test scores that reflect satisfactory and advanced levels for the non-full-service school, and levels 3, 4, and 5 for the full-service school. When comparing test scores, satisfactory and advance (NFS) equal levels 3, 4, and 5 (FS). This comparison places the value in each reporting category, as follows, satisfactory (NFS) equal level 3 (FS), and advanced equals level 4 and 5.

Table 6

Number and Percent of all Tenth Grade Students all areas of performance in Reading NFS School Year 01/02

English II (Reading NFS 01/02)	Number of Students	Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	313	23	8	73	24	196	63	21	7	217	70
Ethnicity											
American Indian/Alaskan Native	16	1	6	4	25	10	63	1	6	11	69
Asian/Pacific Islander	10	0		4	40	6	60	0		6	60
Black or African American	94	12	13	31	33	49	52	2	2	51	54
Hispanic or Latino	35	4	11	9	26	20	57	2	6	22	63
White	158	6	5	25	16	111	70	16	10	127	80
Free and Reduced Lunch	154	16	10	42	27	91	59	5	4	96	62

Table 7 represents all students who scored unsatisfactory and advance for the full-service school in the area of Reading during the academic year 2001/02. During this school year, the full-service school failed to meet the annual benchmark of 70

percent for the total population, except for the Asian/Pacific Islander population who scored an 86 percent passing rate in the area of Reading.

Table 7

Number and Percent of all Tenth Grade Students all areas of performance in Reading  
 FS School Year 01/02

English II (Reading FS 01/02)	Number and Percent of Students at each Performance Level												
	Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	306	116	38	101	33	46	15	21	7	22	6	89	28
Ethnicity													
American Indian or Alaskan Native	3	1	34	2	66	0		0		0		0	
Asian/Pacific Islander	7	1	15	0	3	43	3	43	0	6	86		
Black or African American	155	32	21	56	37	13	9	6	4	7	5	26	18
Hispanic or Latino	13	7	54	3	23	2	16	1	7	0	3	23	
White	128	22	23	40	32	28	22	11	9	15	12	54	43
Free and Reduced Lunch	68	33	49	16	24	7	11	9	14	3	5	19	28

Table 8 represents all students who scored unsatisfactory through advanced for the non-full service school in the area of Reading during the academic year 2002/03. During this year, the total population failed to meet the annual benchmark. Only two subgroups scored above the satisfactory mark in the area of Reading. The Asian/Pacific Islander population achieved a Reading score of 73 percent and the White population scored a 75 percent rating. When comparing the two schools during this school year, the non-full-service school out scored the full-service school in total population tested and in each subgroup except for Asian/Pacific Islander.

Table 8

Number and Percent of all Tenth Grade Students in all areas of performance in Reading  
NFS School Year 02/03

English II (Reading NFS 02/03)				Number and Percent of Students at each Performance Level							
	Number of Students	Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	354	66	22	65	18	190	52	33	9	223	61
Ethnicity											
American Indian/Alaskan Native	23	6	26	3	13	14	61	0		14	61
Asian/Pacific Islander	18	3	17	2	11	12	67	1	6	13	73
Black or African American	104	34	33	28	27	39	38	3	3	42	41
Hispanic or Latino	28	3	11	6	21	19	68	0		19	68
White	181	20	11	26	14	106	58	29	16	135	75
Free and Reduced Lunch	135	38	28	33	24	59	44	5	4	64	48

Table 9 represents all students who scored unsatisfactory through advanced for the full-service school in the area of Reading during the academic year 2002/03. The results contained in table 9 shows the total population failed to achieve the 70 percent benchmark. Only the Asian/Pacific Islanders scored above the benchmark with a 100 percent rating. The remaining subgroups failed to achievement the required percent. During this academic year, the non-full-service school outscored the full-service school in total population tested, and in each subgroup except for Asian/Pacific Islander.

Table 9

Number and Percent of all Tenth Grade Student all areas of performance in Reading FS

School Year 02/03

English II (Reading FS 02/03)	Number and Percent of Students at each Performance Level												
	Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	290	80	28	107	37	52	18	33	12	18	7	103	37
Ethnicity													
American Indian or Alaskan Native	2	0	2	100	0	0	0	0	0	0	0	0	0
Asian/Pacific Islander	4	0	0	3	75	1	25	0	4	100			
Black or African American	125	39	32	51	41	28	23	5	4	2	2	35	29
Hispanic or Latino	17	9	53	3	18	4	24	1	6	0	5	30	
White	142	45	32	54	38	29	21	5	4	9	7	43	32
Free and Reduced Lunch	82	34	42	28	35	12	15	7	9	1	2	20	26

Table 10 represents all students who scored unsatisfactory through advanced for the non-full-service school in the area of Reading during the academic year 2003/04.

The total population tested during this school year failed to achieve the annual benchmark of 70 percent. The only subgroup that achieved a satisfactory score is the Asian/Pacific Islander who scored 73 percent.

Table 10

Number and Percent of all Tenth Grade Students all performance areas in Reading NFS

School Year 03/04

English II (Reading NFS 3/04)	Number of Students	Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	297	18	6	115	39	145	48	19	7	164	55
Ethnicity											
American Indian /Alaskan Native	14	0		9	64	5	36	0		5	36
Asian/Pacific Islander	11	1	9	2	18	7	64	1	9	8	73
Black or African American	101	9	9	43	43	44	44	5	5	49	49
Hispanic or Latino	32	2	6	13	41	17	53	0		17	53
White	139	6	4	48	35	72	52	13	9	85	61
Free and Reduced Lunch	141	13	9	65	46	60	43	3	2	63	45

Table 11 represents all students who scored unsatisfactory through advanced for the full-service school in the area of Reading during the academic year 2003/04.

During this academic year, the full-service school failed to achieve the required 70 percent in total population along with all subgroups. The non-full-service school even though not achieving at the required level, out scored the full-service school in total population and all subgroups.



Table 11

Number and Percent of all Tenth Grade Students all performance areas in Reading FS

School Year 03/04

English II (Reading FS 03/04)	Number and Percent of Students at each Performance Level												
	Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	262	118	45	89	34	29	11	10	4	16	6	55	21
Ethnicity													
American Indian or Alaskan Native	5	3	60	1	20	1	20	0	0	0	1	20	
Asian/Pacific Islander	9	0	3	33	2	22	1	12	3	33	6	67	
Black or African American	116	59	51	41	35	9	8	2	2	5	5	16	15
Hispanic or Latino	16	3	19	9	57	4	25	0	0	0	4	25	
White	116	53	45	35	31	13	12	7	6	8	7	28	25
Free and Reduced Lunch	101	26	26	37	36	18	18	12	12	8	8	38	38

Table 12 represents all students who scored unsatisfactory through advanced for the non-full-service school in the area of Reading during the academic year 2004/05. During this academic year, the full-service school failed to meet the required benchmark of 70 percent in total population tested and all subgroups understudy.

Table 12

Number and Percent of all Tenth Grade Students all performance areas in Reading NFS

School Year 04/05

English II (Reading NFS 04/05)	Number of Students	Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	331	22	7	126	38	163	49	20	7	183	56
Ethnicity											
American Indian/Alaskan Native	15	0		9	60	6	40	0		6	40
Asian/Pacific Islander	13	1	8	3	23	8	62	1	8	9	70
Black or African American	112	10	9	47	42	50	45	5	4	55	49
Hispanic or Latino	33	3	9	13	39	17	52	0		17	52
White	158	8	5	54	34	82	52	14	10	96	61
Free and Reduced Lunch	158	16	10	71	45	68	43	3	2	71	45

Table 13 represents all students who scored unsatisfactory through advanced for the full-service school in the area of Reading during the academic year 2004/05. During this academic year, the non-full-service school failed to meet the annual benchmark of 70 percent in total students tested. The only subgroup that scored satisfactory is the Asian/Pacific Islanders. When comparing the data from both schools, they both failed to achieve the required benchmark of 70 percent for the total population tested. The only area the full-service school outscored the non-full-service was in the Asian/Pacific Islander subgroup, but both schools meet the benchmark for this subgroup.

Table 13

Number and Percent of all Tenth Grade Students all performance areas in Reading FS

School Year 04/05

English II (Reading FS 04/05)	Number and Percent of Students at each Performance Level												
	Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	297	136	46	86	29	36	11	18	6	21	7	75	24
Ethnicity													
American Indian or Alaskan Native	4	3	75	1	25	0	0	0	0	0	0	0	0
Asian/Pacific Islander	7	0	0	0	3	43	1	14	3	43	7	100	
Black or African American	139	67	48	49	35	12	9	6	5	5	4	23	18
Hispanic or Latino	23	7	31	6	26	4	17	4	17	2	9	10	43
White	124	58	46	31	25	17	14	7	6	11	9	35	29
Free and Reduced Lunch	83	24	29	39	46	9	11	7	9	4	5	20	25

Data addressed in Tables 14 and 15 cover a three-year period in Algebra I. The purpose for these tables is to give the reader an overview of how each school compares demographically. The comparison is as follows:

- Total tested over the three-year period in Algebra I non-full-service (NFS) was 1,166, and full-service (FS) 1,129. Total number of students who scored satisfactory and above NFS was 366 with a percent of 31, and the FS 474 with a percent of 39. The mean for all student tested was 646 for the NFS, and 675 for the FS. The grading scale was numerical, 1 through 999, with 700 being the achievement goal for a rating of satisfactory.
- Of the 84 students (NFS) classified American Indian, 16 scored satisfactory or above, which equal 19 percent of this population. Of the 24 students (FS) classified American Indian, 4 scored satisfactory or above, which equal 17percent of this population.

- Of the 38 students (NFS) classified Asian, 20 scored satisfactory or above, which equal 53 percent of this population. Of the 25 students (FS) classified Asian, 16 scored satisfactory or above, which equal 64 percent of this population
- Of the 376 students (NFS) classified African American, 130 scored satisfactory or above, which equal 35 percent of this population. Of the 467 students (FS) classified African American, 188 scored satisfactory or above, which equal 40 percent of this population.
- Of the 111 students (NFS) classified Hispanic, 19 scored satisfactory or above, which equal 17 percent of this population. Of the 74 students (FS) classified Hispanic, 15 scored satisfactory or above, which equal 20 percent of this population.
- Of the 507 students (NFS) classified Caucasian, 181 scored satisfactory or above, which equal 36 percent of this population. Of the 539 students (FS) classified Caucasian, 254 scored satisfactory or above, which equal 47 percent of this population.
- Of the 308 students (NFS) classified poverty level, 44 scored satisfactory or above, which equal 14 percent of this population. Of the 313 students (FS) classified poverty level, 83 scored satisfactory or above, which equal 27 percent of this population.

Table 14

Number and Percent of all Ninth Grade Students scoring satisfactory/advanced in the area of Algebra I NFS

Algebra I (NFS) Non-Full-Service	Total Number Tested Scoring Satisfactory/Advanced			
	N	Percent	Mean (Total Tested)	SD
Total tested N=1166	366	31	646.0	2.500
Ethnicity				
American Indian/ Alaskan Native N=84	16	19	616.0	1.304
Asian/Pacific Islander N=38	20	53	689.0	8.056
Black or African American N=376	130	35	649.0	2.345
Hispanic or Latino N=111	19	17	641.0	1.183
White N=507	181	36	658.0	.707
Free/Reduced Meals N=308	44	14	633.0	1.224

Table 15

Number and Percent of all Ninth Grade Students scoring Satisfactory/advanced in the area of Algebra I FS

Algebra I (FS) Full-Service	Total Number Tested Scoring Satisfactory/Advanced			
	N	Percent	Mean (Total Tested)	SD
Total tested N=1129	474	39	675.0	6.00
Ethnicity				
American Indian/ Alaskan Native N=24	4	17	419.0	43.150
Asian/Pacific Islander N=25	16	64	717.7	9.607
Black or African American N=467	188	40	634.4	2.720
Hispanic or Latino N=74	15	20	615.7	1.095
White N=539	254	47	672.0	3.049
Free/Reduced Meals N=313	83	27	674.7	2.213

Table's 16 through 21 provide a year-to-year evaluation of all academic performance levels in the area of Algebra I for each school under study. By comparing each school type yearly, trends such as population decline or growth in each area studied, especially in the areas of ethnicity and economically disadvantage students, to see the possible effect on achievement scores.

Table 16 represents all students who scored unsatisfactory through advanced for the non-full service school in the area of Algebra I during the academic year 2002/03. The main focus of this table is the number of students in each category that scored satisfactory and advanced. The information contained in this table determines the academic performance index (API) and average yearly progress (AYP) for the school under study.

Table 16

Number and Percent of all Ninth Grade Students all performance levels in Algebra I NFS  
School Year 02/03

Algebra I (NFS 02/03)		Number and Percent of Students at each Performance Level											
		Number of Students		Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%		
<b>Total Tested</b>		428		144	33	194	47	54	13	36	5	90	18
Ethnicity													
American Indian or Alaskan Native		28		16	58	4	15	4	15	4	15	8	30
Asian/Pacific Islander		16		2	13	10	63	0		4	25	4	25
Black or African American		160		68	43	72	45	10	7	10	7	20	14
Hispanic or Latino		48		18	38	24	50	2	5	4	9	6	13
White		176		40	22	84	45	38	20	14	8	52	28
Free and Reduced Lunch		108		38	35	52	48	11	10	7	6	18	16

Table 17 represents all students who scored unsatisfactory and advanced for the full-service school in the area of Algebra I during the academic year 2002/03. During this year school, the NFS failed to meet the benchmark standard of 70 percent in total population and in all the subgroups.

Table 17

Number and Percent of Ninth Grade Students all performance areas in

Algebra I FS School Year 02/03

Algebra I (FS 02/03)		Number and Percent of Students at each Performance Level												
		Number of Students		Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5
			N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>		388	74	19	141	36	126	33	39	10	8	2	173	45
Ethnicity														
American Indian or Alaskan Native		4	0	3	75	1	25	0	0	0	0	1	25	
Asian/Pacific Islander		12	3	25	1	9	3	25	3	25	2	16	8	66
Black or African American		178	39	21	66	37	57	32	15	9	1	1	73	42
Hispanic or Latino		12	6	50	4	34	1	8	1	8	0	2	16	
White		182	26	15	67	36	64	35	20	11	5	3	89	49
Free and Reduced Lunch		78	42	53	23	29	9	12	4	6	0	13	18	

Table 18 represents all students who scored unsatisfactory through advanced for the non-full-service school in the area of Algebra I during the academic year 2003/04. The FS school out scored the NFS school in total population tested and all subgroups. During this school year, the FS school failed the meet the annual benchmark of 70 percent in total population tested and all subgroups tested. During this school year, the FS school out scored the NFS in total population tested and all subgroup except for American Indian.



Table 18

Number and Percent of Ninth Grade Student all performance areas in Algebra I NFS

School Year 03/04

Algebra I (NFS 03/04)	Number and Percent of Students at each Performance Level										
	Number of Students	Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	370	74	20	117	32	92	25	87	24	179	49
Ethnicity											
American Indian or Alaskan Native	26	6	22	12	46	4	16	4	16	8	31
Asian/Pacific Islander	16	0		6	37	2	13	8	50	10	63
Black or African American	148	33	22	44	30	41	28	30	20	71	48
Hispanic or Latino	13	2	16	8	61	1	7	2	16	3	23
White	167	33	20	47	28	44	26	43	26	87	52
Free and Reduced Lunch	104	26	24	62	60	9	9	7	7	16	16

Table 19 represents all students in the NFS school who scored unsatisfactory through advanced for the in the area of Algebra I during the academic year 2003/04. During this academic year, the NFS school failed to meet annual benchmark of 70 percent in total population test and in all the subgroups listed. The NFS school did perform at a higher rate than the FS except for the area of Asian/Pacific Islander.

Table 19

Number and Percent of all Ninth Grade Students all performance areas in Algebra I FS

School Year 03/04

Algebra I (FS 03/04)		Number and Percent of Students at each Performance Level												
		Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
			N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>		349	97	28	155	45	25	8	46	14	26	8	97	28
Ethnicity														
American Indian or Alaskan Native		20	2	10	18	90	0		0		0		0	
Asian/Pacific Islander		6		0		0	2	33	4	67	0		6	100
Black or African American		124	47	37	38	31	10	8	17	14	12	10	39	32
Hispanic or Latino		50	14	28	26	52	0		10	20	0		10	20
White		149	34	23	73	49	13	9	15	10	14	9	42	28
Free and Reduced Lunch		96	27	28	59	61	0		9	10	1	1	10	11

Table 20 represents all students who scored unsatisfactory through advanced for the non-full-service school in the area of Algebra I during the academic year 2004/05. During this school year, the NFS school failed to meet the annual benchmark of 70 percent in total population tested and in all subgroups except for the Asian/Pacific Islander where they score a 100 percent rating.

Table 20

Number and Percent of all Ninth Grade Students all performance levels in Algebra I NFS

School Year 04/05

Algebra I (NFS 04/05)		Number and Percent of Students at each Performance Level											
		Number of Students		Unsatisfactory		Limited Knowledge		Satisfactory		Advanced		Total Sat/Adv	
		N	%	N	%	N	%	N	%	N	%		
<b>Total Tested</b>		368		96	26	175	54	67	14	30	6	97	20
Ethnicity													
American Indian or Alaskan Native		30		2	6	28	94	0		0		0	
Asian/Pacific Islander		6		0		0		2	33	4	67	6	100
Black or African American		128		46	36	43	33	27	21	12	10	39	31
Hispanic or Latino		50		14	28	26	52	10	20	0		10	20
White		154		34	22	78	51	28	18	14	9	42	27
Free and Reduced Lunch		96		27	28	59	61	9	10	1	1	10	11

Table 21 represents all students who scored unsatisfactory through advanced for the full-service school in the area of Algebra I during the academic year 2004/05.

During this academic year, the FS school failed to meet the annual benchmark of 70 percent for total population test and in all subgroups. It should be noted that the FS out scored the NFS in total population test and in all subgroup except for the Asian/Pacific Islander even though they did not meet the annual requirement of 70 percent.

Table 21

Number and Percent of all Ninth Grade Students all performance levels in Algebra I FS

School Year 04/05

Algebra I (FS 04/05)	Number and Percent of Students at each Performance Level												
	Number of Students	Level 1		Level 2		Level 3		Level 4		Level 5		Level 3-5	
		N	%	N	%	N	%	N	%	N	%	N	%
<b>Total Tested</b>	393	79	20	110	28	141	36	55	14	8	2	204	52
Ethnicity													
American Indian or Alaskan Native	0	0	0	0	0	0	0	0	0	0	0	0	0
Asian/Pacific Islander	7	2	29	3	43	2	29	0	0	0	0	2	29
Black or African American	166	40	23	50	31	58	34	17	11	1	1	76	46
Hispanic or Latino	12	5	41	4	33	2	17	1	9	0	0	3	26
White	208	32	16	53	26	79	37	37	17	7	4	123	59
Other													
Free and Reduced Lunch	139	43	30	36	25	43	31	16	12	1	1	60	44

Table 22 provides the socioeconomic statistical data for both schools. This data compares the graduation of both schools under study over a four-year period. This information provides the demographic as outlined in the research question number three. Demographics are as follows: Graduation rate for the NFS school equals 78.3 %; Graduation rate for the FS school equals 61.2 %.

Table 22

Socioeconomic Data

Socioeconomic Data				
School Data		Non Full-service school		
		Graduation Rate 78.3 percent		
School Year	01/02	02/03	03/04	04/05
Graduation Rate	78.6	74.2	80.4	79.8
School Data		Full-service school		
		Graduation Rate 61.2 percent		
School Year	01/02	02/03	03/04	04/05
Graduation Rate	60.1	59.1	61.2	64.3

Table 23 provides the variable information used in performing the t-test analysis.

Table 23

Variable Information

Variable	Label
Date	Date of Testing
NumStudents	Number of Students
Domain	Subject Domain
EthnicN	Percent Ethnicity Native American
EthnicA	Percent Ethnicity Asian
EthnicB	Percent Ethnicity Black
EthnicH	Percent Ethnicity Hispanic
EthnicW	Percent Ethnicity White
School Type	School Service Type
Econ	Percent Free / Reduced Lunch
Performance	Percent Test Performance Satisfactory or Above
FreeCat	Percent Free & Reduced Lunch (Categorical)

Table 24 provides the variable values used to determine the statistics.

Table 24

Variable Values

Value		Label
Date	1	01/02
	2	02/03
	3	03/04
	4	04/05
Domain	1	Reading
	2	Algebra I
School Type	1	Full Service
	2	Non-Full Service
FreeCat	1	Full Service
	2	Non-Full Service

Tables 25 through 53 display the statistical t-test data.

Table 25

t-Test School Service Type Group Statistics Reading

	School Service Type	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	1155	631.3	4.400
	Non-Full Service (2)	1295	718.0	3.500

Table 25 compares the descriptive statistics for the two groups under study in the area of Reading. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 718.0 compared to the mean of 631.3 for the full-service school in the area of Reading. The scoring range for the Reading test is 1 through 999, with 700 being the optimum number needed to achieve a rating of satisfactory on the academic performance index (API). In this case, the non-full-service school achieved a higher mean and also achieved the satisfactory rating compared to the full-service school

whose mean fell below the expected level of 700. Figure 1 displays the means using the bar graph for a visual comparison.

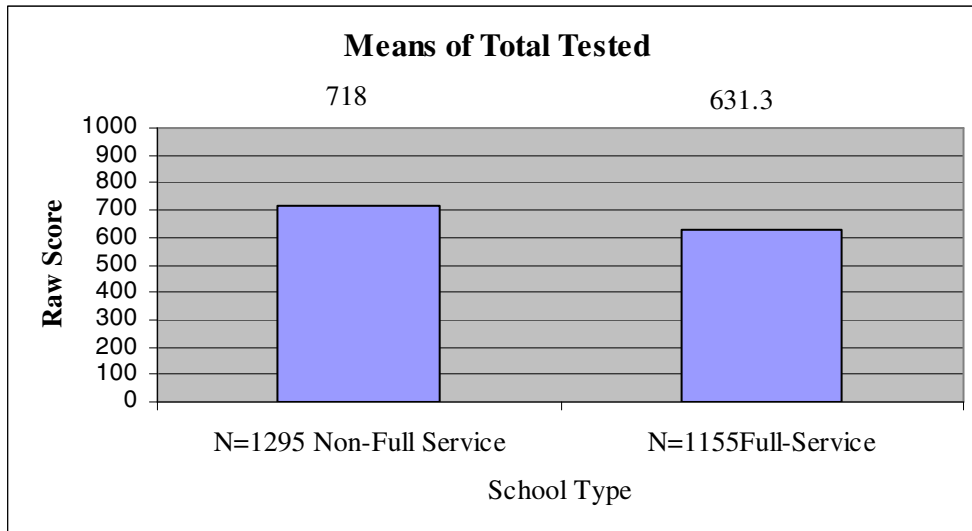


Figure 1: Group Statistics Reading

The next process is to determine the t value and the degrees of freedom to determine if there is a significant difference between the two schools under study (table 26). The formula used to determine the t value was obtained from the Basic Statistics for the Behavioral Sciences 1981 (p 175). The computed t value must be compared to a critical value. This critical value is a number based on the type of test (in this case one-tailed t-test), degrees of freedom, and alpha level. The critical value gives information regarding how probable a result would be, given that the null hypothesis was in fact true. For a one-tailed test, we want to conclude that one group is different than another in a predictable manner. For the one-tailed test, we specify that we expect one group to be greater than another or the opposite. To decide on the critical t value, the value against which we will compare our computed t value, we need three pieces of information prior to entering the statistical tables; 1) alpha level of comparison (for this analysis 0.05 will be used); 2) degrees of freedom which is determined by our N values. This is computed

by using the following formula  $(N1) + (N2) - 2$ ; and 3) our hypothesis (relation between the two concepts). Once this information is determined, the t-distribution table is entered with our degrees of freedom (df) and alpha of 0.05. The t table used in this study was extracted from the Basic Statistics for the Behavioral Sciences. This process is used for each research question posed in this study.

Table 26

Group Statistics Reading t-value Total Population

$$\sqrt{\frac{3.2^2}{1295} + \frac{4.4^2}{1155}} = \sqrt{\frac{12.5}{1295} + \frac{19.4}{1155}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .316$$

$$NFS(\text{mean}) - FS(\text{mean}) = 718 - 631 = 87$$

$$t - \text{value} = \frac{87}{.316} = 275.4$$

When entering the t table with degrees of freedom of 2,448.0 which is infinity, a value of 1.645 is extracted from the 0.05 column and is compared to our computed t value of 275.4. The comparison indicates that the non-full-service school had a significant difference (scored higher) in academic achievement overall in Reading compared to the full-service school. The non-full-service school achieved the benchmark of 700 for a satisfactory rating. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.



Table 27

Percent Free & Reduced

Group Statistics Reading

	Percent Free & Reduced Lunch (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	334.0	645.8	3.386
	Non-Full Service (2)	588.0	693.5	.447

Table 27 compares the descriptive statistics for the two groups under study in the area of Reading, comparing the category of Free and/or Reduced Lunch. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 693.5 compared to the mean of 645.8 for the full-service school in the area of Reading. In this case the non-full-service school achieved a higher mean but did not achieve the satisfactory rating nor did the full-service school whose mean fell below the accepted level of 700 also. Figure 2 displays the means using the bar graph for a visual comparison.

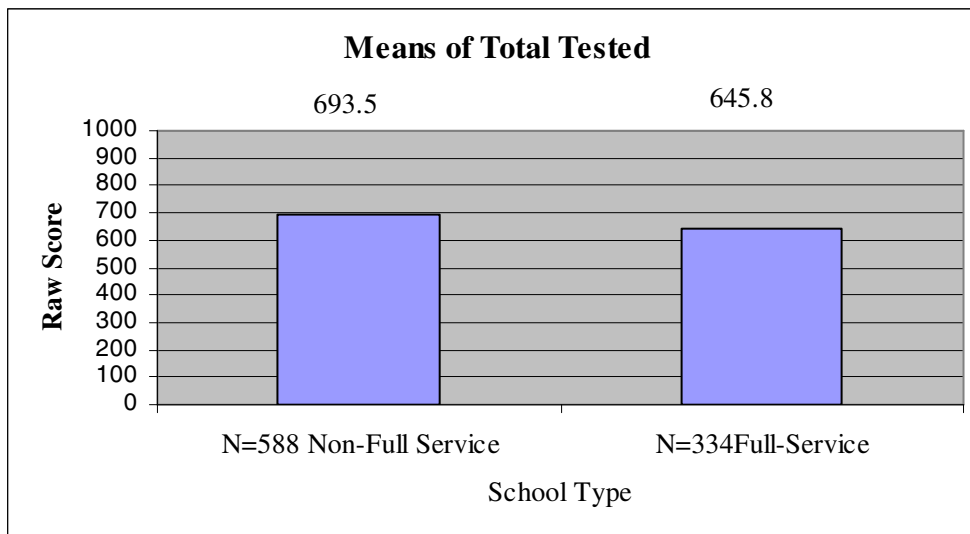


Figure 2: Group Statistics Free/Reduced Reading

Table 28

Group Free/Reduced T-Value Total Population

$$\sqrt{\frac{.414^2}{588} + \frac{3.286^2}{334}} = \sqrt{\frac{2.0}{588} + \frac{10.8}{334}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .316$$

$$NFS(\text{mean}) - FS(\text{mean}) = 693.5 - 645.8 = 47.7$$

$$t - \text{value} = \frac{47.7}{.316} = 151.0$$

Table 28 uses the same process as above. The t table is entered with degrees of freedom of 920.0, which is infinity, and a value of 1.645 is extracted from the 0.05 column and compared to our computed t value of 151.0. The comparison indicates that the non-full-service school students receiving free/reduced meal achieved a significant difference (scored higher) in academic achievement in Reading compared to the full-service school. Both schools failed to achieve the satisfactory level of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 29

American Indian Group Statistics Test Reading

	Percent Native American (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	14	583.8	2.529
	Non-Full Service (2)	68	715.3	3.521

Table 29 compares the group statistics for the American Indian subgroup for the two schools under study by comparing Reading test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 715.3 compared to the mean of 583.8 for the full-service school in the area of Reading. In this case, the non-full-service school achieved a higher mean and also achieved the satisfactory rating

compared to the full-service school, whose mean fell below the accepted level of 700.

Figure 3 displays the means using the bar graph for a visual comparison.

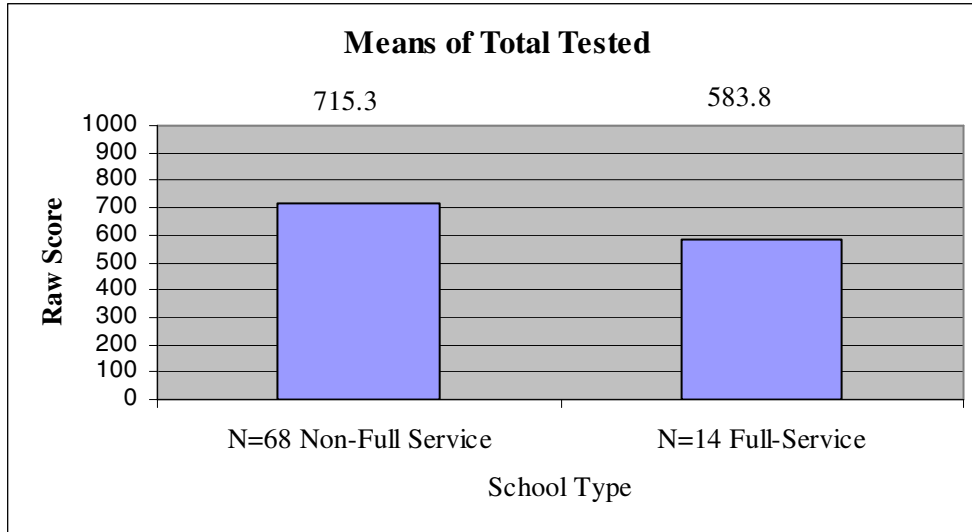


Figure 3: American Indian Group Statistics Reading Total Population

Table 30

American Indian Group T-Value

$$\sqrt{\frac{.414^2}{68} + \frac{3.376^2}{14}} = \sqrt{\frac{2.0}{68} + \frac{11.4}{14}} = \sqrt{0.0 + 0.9} = \sqrt{0.1} = 1.0$$

$$NFS(\text{mean}) - FS(\text{mean}) = 715.3 - 583.8 = 131.5$$

$$t - \text{value} = \frac{131.5}{1.0} = 131.5$$

Table 30 - When entering the t table with degrees of freedom of 80, a value of 1.671 is extracted and compared to our computed t value of 131.5. The comparison indicates that the non-full-service school had a significant difference (scored higher) in academic achievement in Reading compared to the full-service school for the American Indian group. The non-full-service school achieved the benchmark of 700 for a

satisfactory rating. This analysis rejected the null hypothesis. There was a significant difference between the two schools.

Table 31

Asian Group Statistics Reading

	Percent Asian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	27	737.5	4.722
	Non-Full Service (2)	52	725.0	9.434

Table 31 compares the group statistics for the Asian subgroup for the two schools under study by comparing Reading test scores. The mean derived by the t-test shows that the full-service school scored higher with a mean of 737.5 compared to the mean of 725.0 for the non-full-service school in the area of Reading. Both schools achieved the benchmark of 700 for the performance index. Figure 4 displays the means using the bar graph for a visual comparison.

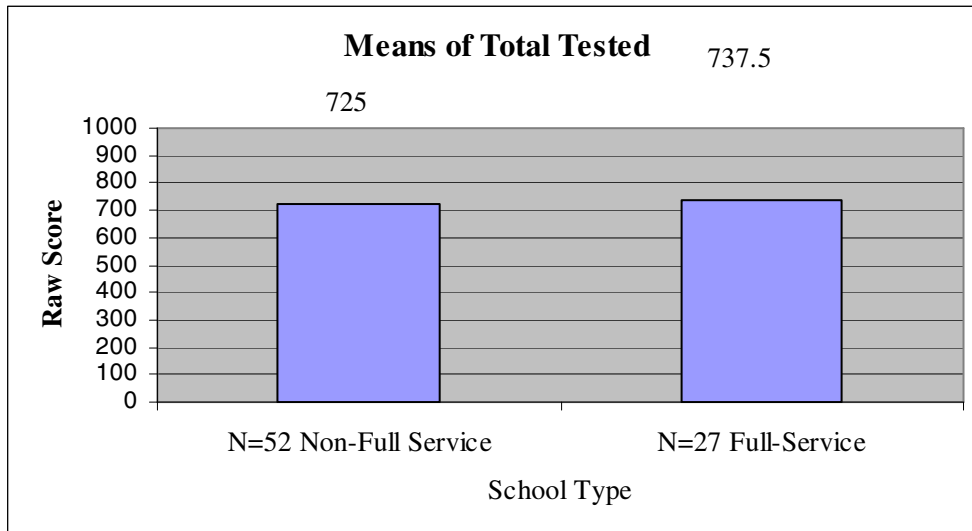


Figure 4: Asian Group Statistics Reading

Table 32

Asian Group T Value Total Population

$$\sqrt{\frac{4.434^2}{68} + \frac{4.722^2}{14}} = \sqrt{\frac{89.0}{68} + \frac{22.3}{14}} = \sqrt{1.8 + 0.9} = \sqrt{2.7} = 1.643$$

$$NFS(\text{mean}) - FS(\text{mean}) = 725.0 - 737.5 = 12.5$$

$$t - \text{value} = \frac{12.5}{1.643} = 7.6$$

Table 21 - When entering the t table with degrees of freedom of 77, a value of 1.671 is extracted and compared to our computed t value of 7.6. The comparison indicates that the full-service school had a significant difference in academic achievement (scored higher) in Reading for the Asian population compared to the non-full-service school. Both schools achieved the satisfactory rating of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools even though both schools achieved a satisfactory rating of 700.

Table 33

African American Group Statistics Reading

	Percent African American (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	535	665.3	2.529
	Non-Full Service (2)	411	695.5	3.521

Table 33 compares the group statistics for the African American subgroup for the two schools under study by comparing Reading test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 695.5 compared to the mean of 665.3 for the full-service school in the area of Reading. Even though the non-full-service school outscored the full-service school, neither school achieved the

satisfactory mark. Figure 5 displays the means using the bar graph for a visual comparison.

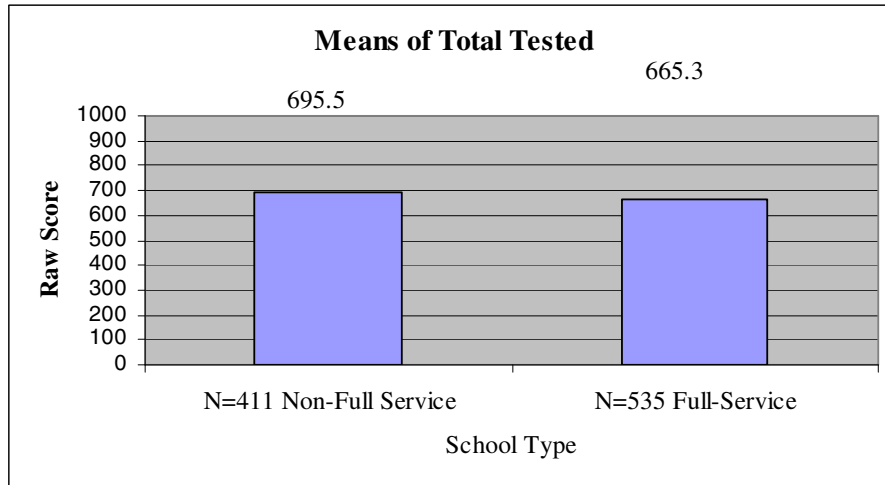


Figure 5: African American Group Statistics Reading

Table 34

Group African American T-Value

$$\sqrt{\frac{3.521^2}{411} + \frac{2.529^2}{535}} = \sqrt{\frac{12.4}{411} + \frac{6.4}{535}} = \sqrt{0.1 + 0.1} = \sqrt{0.2} = .447$$

$$NFS(\text{mean}) - FS(\text{mean}) = 695.5 - 665.3 = 30.2$$

$$t - \text{value} = \frac{30.2}{.447} = 67.6$$

Table 34 - When entering the t table with degrees of freedom of 944, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 67.6. The comparison indicates that the non-full-service schools African American population had a significant difference (scored higher) in academic achievement in Reading compared to the full-service school. Both school failed to achieve a score of 700 for a satisfactory. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools even though the satisfactory rating was not achieved.

Table 35

Hispanic Group Statistics Reading

	Percent Hispanic (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	69	633.3	8.390
	Non-Full Service (2)	128	731.0	5.079

Table 35 compares the group statistics for the Hispanic subgroup for the two schools under study by comparing Reading test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 731.0 compared to the mean of 633.3 for the full-service school in the area of Reading. In this case, the non-full-service school achieved a higher mean and also achieved the satisfactory rating compared to the full-service school whose mean fell below the accepted level of 700.

Figure 6 displays the means using the bar graph for a visual comparison.

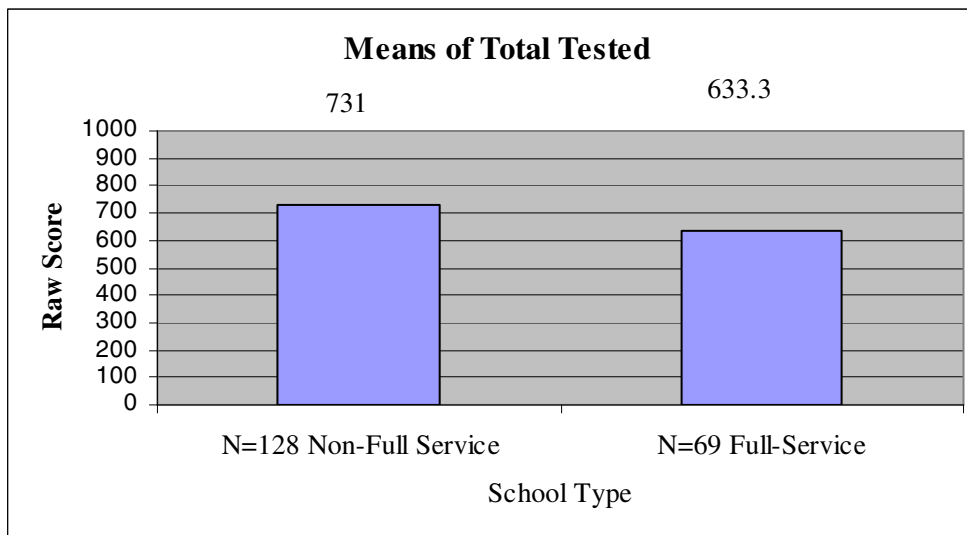


Figure 6: Hispanic Group Statistics Reading

Table 36

Group Hispanic T-Value

$$\sqrt{\frac{5.079^2}{411} + \frac{8.390^2}{535}} = \sqrt{\frac{25.8}{411} + \frac{70.4}{535}} = \sqrt{0.2 + 1.1} = \sqrt{1.3} = 1.140$$

$$NFS(\text{mean}) - FS(\text{mean}) = 731.0 - 633.3 = 97.7$$

$$t - \text{value} = \frac{97.7}{1.140} = 85.7$$

Table 36 - When entering the t table with degree of freedom of 195, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 85.7. The comparison indicates that the non-full-service school’s Hispanic population had a significant difference (scored higher) in academic achievement in Reading compared to the full-service school. The non-full-service school achieved the benchmark of 700 for a satisfactory rating. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 37

Caucasian Group Statistics Reading

	Percent Caucasian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	510	668.0	3.605
	Non-Full Service (2)	636	742.8	1.095

Table 37 compares the group statistics for the Caucasian subgroup for the two schools under study by comparing Reading test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 742.8 compared to the mean of 668.0 for the full-service school in the area of Reading. In this case, the non-full-service school achieved a higher mean and also achieved the satisfactory rating



compared to the full-service school whose mean fell below the accepted level of 700.

The population group (White) for the non-full-service school was much larger compared to the full-service school. This researcher believes this would have an impact on the results reported in these statistics. Figure 7 displays the means using the bar graph for a visual comparison.

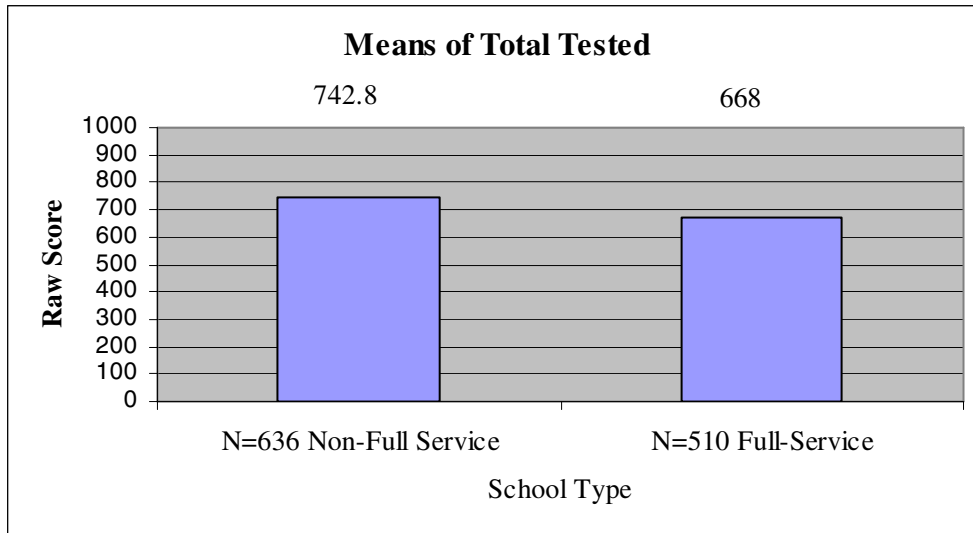


Figure 7: Caucasian Group Statistics Reading

Table 38

Group Caucasian T-Value

$$\sqrt{\frac{1.095^2}{636} + \frac{3.605^2}{510}} = \sqrt{\frac{1.2}{636} + \frac{13.0}{510}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .3162$$

$$NFS(\text{mean}) - FS(\text{mean}) = 742.8 - 668.0 = 74.8$$

$$t - \text{value} = \frac{74.8}{.3162} = 236.6$$

Table 38 - When entering the t table with degree of freedoms of 1,144.0, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 236.6.

The comparison indicates that the non-full-service school Caucasian population had a

significant difference (scored higher) in academic achievement in Reading compared to the full-service school. The non-full-service school achieved the benchmark of 700 for a satisfactory rating. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 39

School Type Group Statistics Graduation Rate

	School Type	N	Mean	Std. Deviation
Graduation Rate	Non Full Service	4	78.2500	2.80179
	Full Service	4	61.1750	2.25296

Table 39 compares the group statistics for Graduation Rate for all subgroups for the two schools under study. The N represents four years worth of mean percentages. When determining the graduation rate, calculations over a four-year period are used. The mean derived by the t-test shows that the non-full-service school had a higher graduation rate of 78.25 compared to the full-service school graduation rate of 61.18. Figures 9 display the means using the bar graph for a visual comparison.

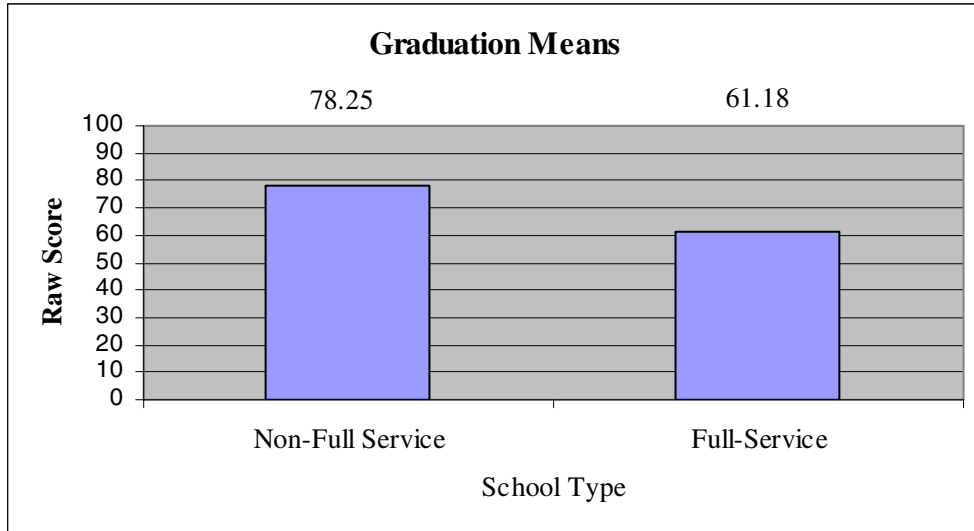


Figure 9: School Type Group Statistics Graduation Rate

The following statistics will compare the two schools under study in the area of Algebra I. The same process used to determine whether there is a significant difference between the non-full-service school and the full-service school in Reading is used to determine the same information for Algebra I.

Table 40

School Type Group Statistics Algebra I

	Percent Group (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	1129	675.4	6.000
	Non-Full Service (2)	1166	646.0	2.500

Table 40 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the full-service school scored higher with a mean of 675.4 compared to the mean of 646.0 for the non-full-service school in the area of Algebra I. Even though the full-service school achieved a higher mean, both schools failed to meet the optimum goal of 700. Figure 10 displays the means using the bar graph for a visual comparison.

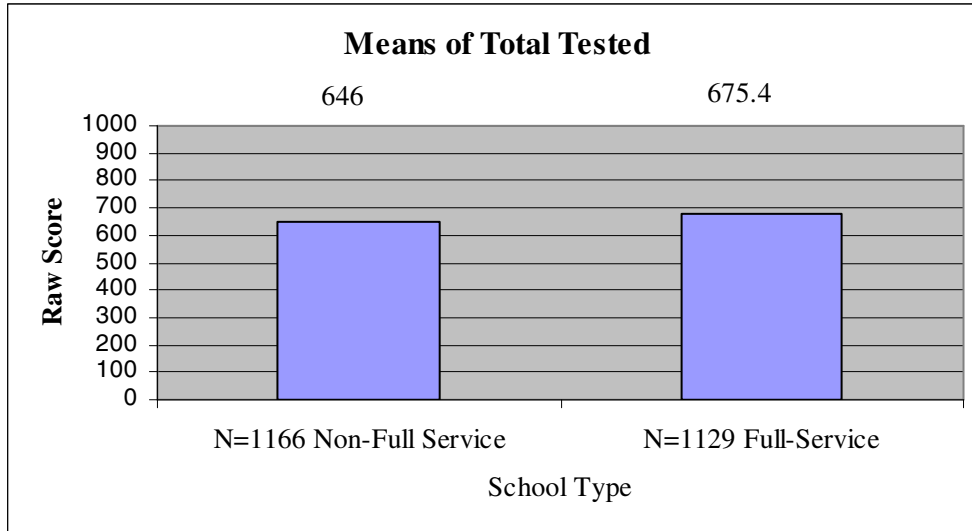


Figure 10: School Type Group Statistics Algebra I

Table 41

Group Statistic T-Value

$$\sqrt{\frac{2.5^2}{1166} + \frac{6.0^2}{1129}} = \sqrt{\frac{6.3}{1166} + \frac{36.0}{1129}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .3162$$

$$NFS(\text{mean}) - FS(\text{mean}) = 646 - 675.4 = 29.4$$

$$t - \text{value} = \frac{29.4}{.3162} = 93.1$$

Table 41 - When entering the t table with degrees of freedoms of 2,293, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 93.1. The comparison indicates that the full-service school total population had a significant difference (scored higher) in academic achievement in Algebra I compared to the non-full-service school. Both schools failed to achieve the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools, even though the satisfactory benchmark was not achieved.

Table 42

Percent Free & Reduced Group Statistics Algebra I

	Percent Free/Reduced Group Statistics (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	313	674.7	2.213
	Non-Full Service (2)	308	633.0	1.224

Table 42 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the full-service school scored higher with a mean of 674.7 compared to the mean of 633.0 for the non-full-service school in the area of Algebra I. Even though the full-service school achieved a higher mean, both schools failed to meet the optimum goal of 700. Figure 11 displays the means using the bar graph for a visual comparison.

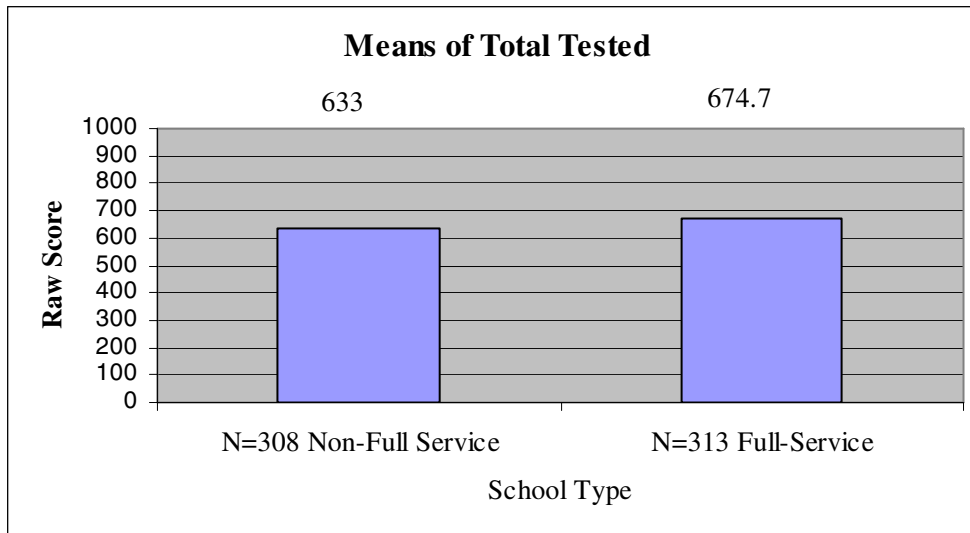


Figure 11: Percent Free & Reduced Group Statistics Algebra I

Table 43

Group Statistic Free/Reduce T-Value

$$\sqrt{\frac{1.224^2}{308} + \frac{2.213^2}{313}} = \sqrt{\frac{1.5}{308} + \frac{4.9}{313}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .3162$$

$$NFS(\text{mean}) - FS(\text{mean}) = 633 - 674 = 41$$

$$t - \text{value} = \frac{41.0}{.3162} = 129.8$$

Table 43 - When entering the t table with degrees of freedom of 619, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 129.8. The comparison indicates that the full-service school free/reduced population had a significant difference (scored higher) in academic achievement in Algebra I compared to the non-full-service school. Both schools failed to meet the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 44

American Indian Group Statistics Algebra I

	Percent American Indian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	24	419	43.150
	Non-Full Service (2)	84	616	1.304

Table 44 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 616 compared to the mean of 419 for the full-service school in the area of Algebra I. The figures represented in this table

fail to show one-year worth of data. During one school year, the full-service school did not have any American Indian students enrolled. This researcher feels this lack of data has a diffident impact on the outcome of this t-test. Figure 12 displays the means using the bar graph for a visual comparison.

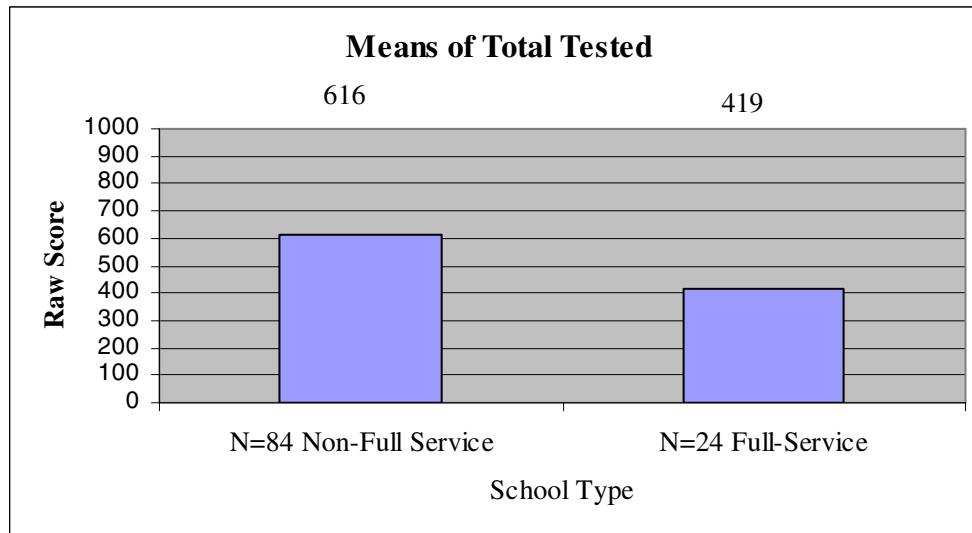


Figure 12: American Indian Group Statistics Algebra I

Table 45

Group Statistics American Indian T-Value

$$\sqrt{\frac{1.304^2}{84} + \frac{43.150^2}{24}} = \sqrt{\frac{0.1}{84} + \frac{1.8}{24}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .3162$$

$$NFS(mean) - FS(mean) = 616 - 419 = 197.0$$

$$t - value = \frac{197.0}{.3162} = 623.1$$

Table 45 - When entering the t table with degrees of freedom of 106, which is infinity, a value of 1.671 is extracted and compared to our computed t value 623.1. The comparison indicates that the non-full-service school had a significant difference (scored higher) in academic achievement in Algebra I in the American Indian populated

compared to the full-service school. Both schools failed to meet the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools, even though the satisfactory benchmark was not achieved.

Table 46

African American Group Statistics Algebra I

	Percent African American (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	467	634.4	2.720
	Non-Full Service (2)	376	649.0	2.345

Table 46 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 649.0 compared to the mean of 634.4 for the full-service school in the area of Algebra I. Even though the non-full-service school achieved a higher mean, both school failed to meet the optimum goal of 700. Also noted was the population size. The full-service school tested ninety-one more students that could have an impact on the mean overall placement. Figure 13 displays the means using the bar graph for a visual comparison.



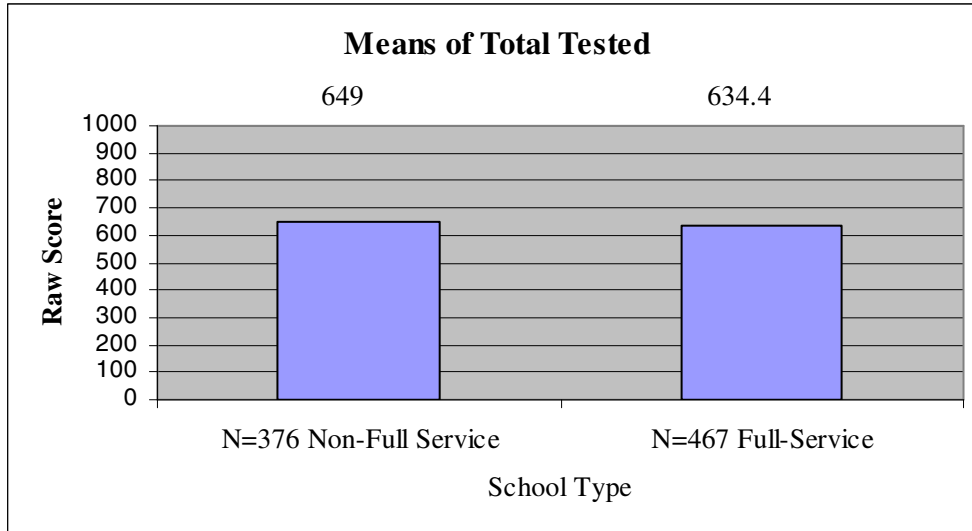


Figure 13: African American Group Statistics Algebra I

Table 47

Group Statistics African American T-Value

$$\sqrt{\frac{2.345^2}{376} + \frac{2.270^2}{467}} = \sqrt{\frac{7.6}{376} + \frac{7.4}{467}} = \sqrt{0.1 + 0.1} = \sqrt{0.2} = .447$$

$$NFS(\text{mean}) - FS(\text{mean}) = 649 - 634 = 15.0$$

$$t - \text{value} = \frac{15.0}{.447} = 33.6$$

Table 47 - When entering the t table with degrees of freedom of 841, which is infinity, a value of 1.645 is extracted and compared to our computed t value of 33.6. The comparison indicates that the non-full-service school had a significant difference (scored higher) in academic achievement in Algebra I compared to the full-service school within the African American population. Both schools failed to meet the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a difference academically between the two schools even though neither school achieved the satisfactory rating.

Table 48

### Asian Group Statistics Algebra I

	Percent Asian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	25	717.7	9.607
	Non-Full Service (2)	38	689.0	8.056

Table 48 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the full-service school scored higher with a mean of 717.7 compared to the mean of 689.0 for the non-full-service school in the area of Algebra I. The full-service achieved the optimum score of 700 for a satisfactory for the performance index. Figure 14 displays the means using the bar graph for a visual comparison.

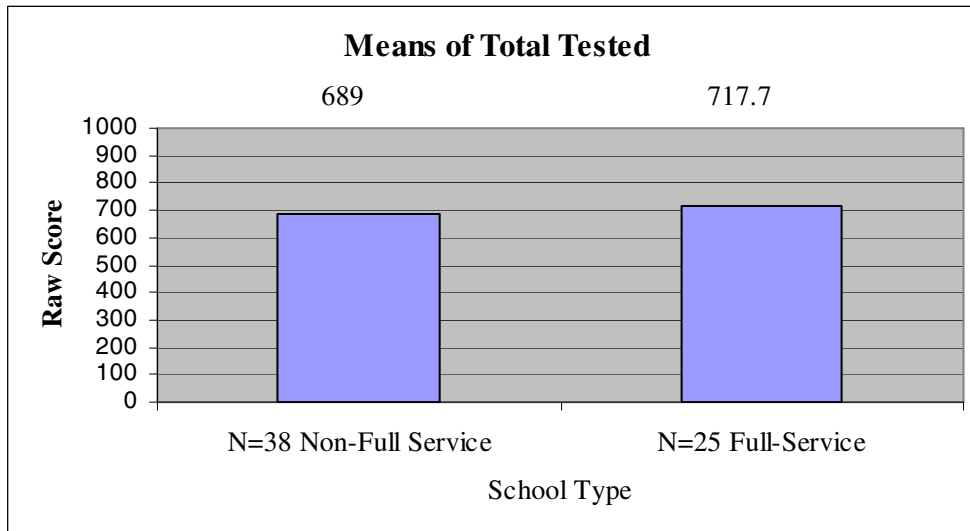


Figure 14: Asian Group Statistics Algebra I

Table 49

### Group Statistics Asian T-Value

$$\sqrt{\frac{8.056^2}{38} + \frac{9.607^2}{25}} = \sqrt{\frac{64.9}{38} + \frac{92.3}{25}} = \sqrt{1.7 + 3.7} = \sqrt{5.4} = 2.323$$

$$NFS(\text{mean}) - FS(\text{mean}) = 689 - 717.7 = 28.7$$

$$t - \text{value} = \frac{28.7}{2.323} = 12.4$$

Table 49 - When entering the t table with degrees of freedom of 61, a value of 1.671 is extracted and compared to our computed t value of 12.4. The comparison indicates that the full-service school had a significant difference (scored higher) in academic achievement in Algebra I compared to the non-full-service school within the Asian population. The Asian population achieved the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 50

Hispanic/Latino Statistics Algebra I

	Percent Asian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	74	615.7	1.085
	Non-Full Service (2)	111	641.0	1.183

Table 50 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the non-full-service school scored higher with a mean of 641.0 compared to the mean of 615.7 for the non-full-service school in the area of Algebra I. Neither school achieves the optimum score of 700 to achieve a satisfactory rating. The non-full-service did test more students which could have an impact on the mean score. Figure 15 displays the means using the bar graph for a visual comparison.

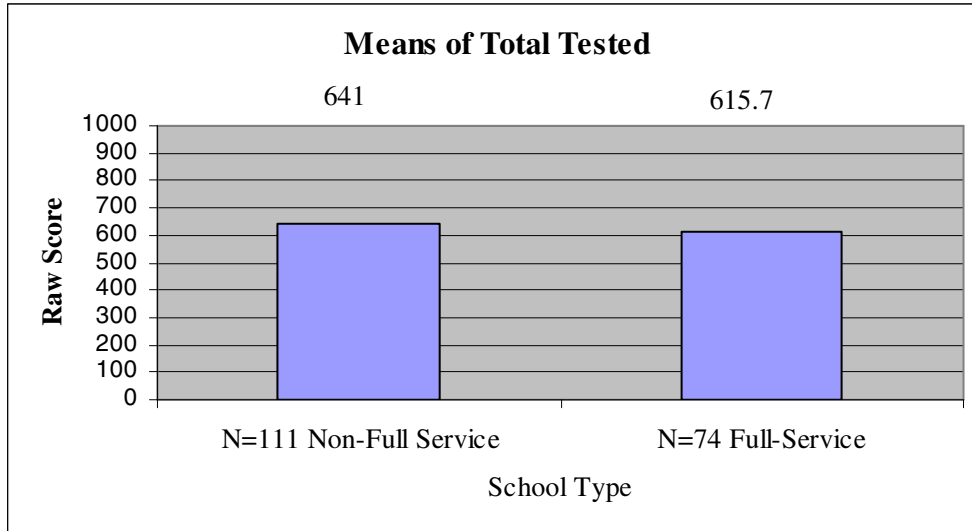


Figure 15: Hispanic/Latino Group Statistics Algebra I

Table 51

Group Statistics Hispanic T-Value

$$\sqrt{\frac{1.183^2}{111} + \frac{1.095^2}{74}} = \sqrt{\frac{1.0}{111} + \frac{1.2}{74}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .316$$

$$NFS(\text{mean}) - FS(\text{mean}) = 641 - 615.7 = 25.3$$

$$t - \text{value} = \frac{25.3}{.316} = 80.1$$

Table 51 - When entering the t table with degrees of freedom of 183, which is infinity, a value of 1.645 is extracted and compared to our computed t value 80.1. The comparison indicates that the non-full-service school had a significant difference (scored higher) in academic achievement in Algebra I compared to the full-service school within the Hispanic population. Both schools failed to meet the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

Table 52

## Caucasian Statistics Algebra I

	Percent Asian (Categorical)	N	Mean	Std. Deviation
Percent Test Performance	Full Service (1)	539	672.0	3.049
	Non-Full Service (2)	507	658.4	.707

Table 52 compares the group statistics for Algebra I for the two schools under study by comparing Algebra I test scores. The mean derived by the t-test shows that the full-service school scored higher with a mean of 672.0 compared to the mean of 658.4 for the non-full-service school in the area of Algebra I. Neither school achieved the optimum score of 700 for a satisfactory rating. Figure 16 displays the means using the bar graph for a visual comparison.

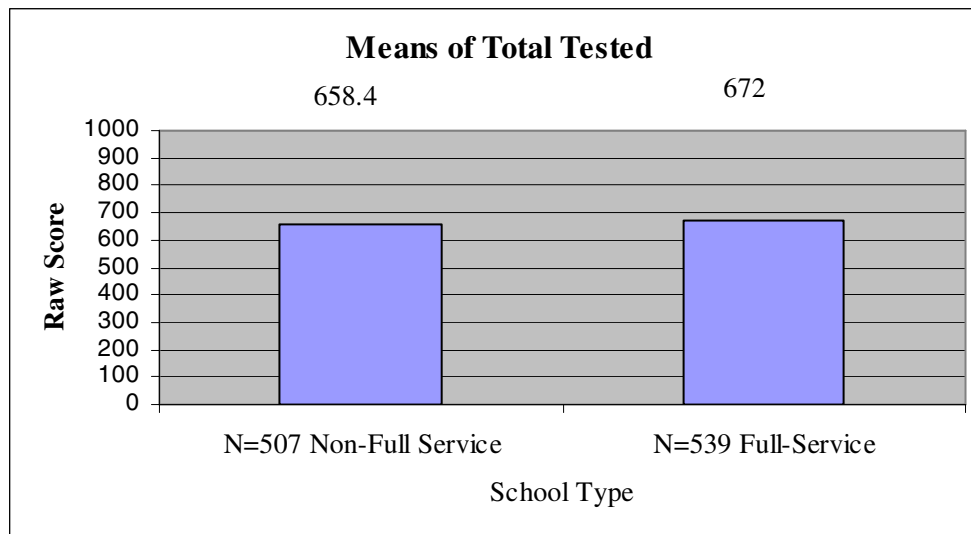


Figure 16: Caucasian Group Statistics Algebra I

Table 53

Group Statistics Caucasian T-Value

$$\sqrt{\frac{.707^2}{507} + \frac{3.049^2}{539}} = \sqrt{\frac{.5}{507} + \frac{9.3}{539}} = \sqrt{0.0 + 0.1} = \sqrt{0.1} = .316$$
$$NFS(\text{mean}) - FS(\text{mean}) = 658 - 672 = 14.0$$
$$t - \text{value} = \frac{14.0}{.316} = 44.3$$

Table 53 - When entering the t table with degrees of freedom of 1,044 which is infinity, a value of 1.645 is extracted and compared to our computed t value 44.3. The comparison indicates that the full-service school had a significant difference (scored higher) in academic achievement in Algebra I compared to the non-full-service school within the Caucasian population. Both schools failed to meet the satisfactory benchmark of 700. This analysis rejected the null hypothesis. There was a significant difference academically between the two schools.

*Chapter Summary*

This chapter gave the results of the study. It included a brief summary of the procedures used to collect the data, as well as demographics of the schools under study. The comparison of each school in the areas of Reading and Algebra I as outlined by the research questions are displayed. Each school's academic performance in the areas of ethnicity and socioeconomic status are presented for an academic comparison.

The t-test analysis examined the relationship between the two schools to determine whether there was a significant difference in academic achievement in the areas under study.

Quantitative data for each school covered a four-year period in Reading and a three-year period in Algebra I. The information used in this study was retrieved from each school's State Department of Education website.

Chapter five will present a discussion of the results of the study and recommendations for future research and application to practice.

## CHAPTER FIVE

### Conclusions and Recommendations

This chapter reviews the purpose of the study, the research questions addressed, and the procedures used to conduct the research. Next, major findings reported in Chapter 4 and conclusions based on those findings are given. The contributions of the findings and conclusions of this study to the literature on full-service schools follow. Finally, the implications and recommendation are made based on the result of this study.

#### *Review of the Study*

The main purpose of this study was to compare student achievement in the areas of Reading, and Algebra I between two schools. The schools are demographically similar except for their classification, one a full-service school and the other a non-full-service school. Three questions guided this study:

Question One: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I for students in a full-service school environment and the scores for the same achievement indicators of students in a demographically similar non-full-service school?

Question Two: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I of students classified as high risk (low income and minority students) in full-service school environment and scores for the same achievement indicators of students in comparable groups in demographically similar non-full-service school?



Question Three: Is there a significant difference between graduation rates of students in a full-service school environment and graduation rates of students in a demographically similar non-full-service school?

The population of this study was composed of students in grades 9 and 10. Data for the area of Reading was compiled from test scores over a four-year period, totaling 1,295 tenth graders from the non-full-service school, and 1,155 tenth graders from the full-service school. Data for the area of Algebra I was compiled from test scores over a three-year period totaling 1,166 ninth graders from the non-full-service school, and 1,129 ninth graders from the full-service school. Additionally, graduation rates were compiled from data retrieved from each school's State Department of Education website. These data covered a four-year period for both schools.

#### *General Discussion*

There are several items of note in the data displays. First, as stated earlier in this research project, the differences in rating procedures are as follows. The full-service school rates its students using a numerical system, 1 through 5 (1 being unsatisfactory and 5 advanced). The non-full-service school rates its students using unsatisfactory, limited knowledge, satisfactory, and advanced. For the purpose of this study, 1 equals unsatisfactory, 2 equals limited knowledge, 3 equals satisfactory, and 4 and 5 equals advanced.

Table 4 shows the number, percent, and mean score of all tenth grade students who scored satisfactory and advanced in Reading for the non-full-service school compared with data recorded in table 5, which shows all of the tenth grade students in the full-service school who scored satisfactory and advanced over a four-year period. Tables

6 through 13 show each school-by-school year and the number of students from each school that tested unsatisfactory and above in the subject domain of Reading. Each school and school year is broken into categories by ethnicity and free and reduced meal status. Additionally, the number and mean of students in each performance level is listed with the last column showing the number and mean of students who achieved at the satisfactory and advanced level. Table 14 shows the number and mean of all ninth grade students scoring satisfactory and advanced in the area of Algebra I for the non-full-service school. Table 15 shows the number and mean of all ninth grade students scoring satisfactory and advanced in the area of Algebra I for the full-service school. Tables 16 through 21 show each school-by-school year and the number of students from each school that is tested in the subject domain of Algebra I. Each school and school year is broken into categories by ethnicity and free and reduced meal status. Additionally, the number and mean of students in each performance level is listed with the last column showing the number and mean of students who achieved at the satisfactory and advanced level.

The second area compares the graduation rate (Table 22) for each school over a four-year period. The graduation rate is computed over a four-year period for each year presented in this study.

The third area is a small fluctuation in the number of students taking the tests. The greatest difference is in the school year 02/03. During this school year, the number of students taking the Reading test decreased. Another area that showed a decrease is ethnicity. The non-full-service school had a larger Hispanic and American Native population. A possible cause could be due to the location of the schools, one being in

Oklahoma with a larger American Native and Hispanic/Latino population around the school in study, and the other being in Florida where there is possibly a smaller population of American Native and Hispanics/Latinos in and around the school. The total enrollment in each school is similar with the total percent of minority students comparable.

Table 23 provides the variable information used in performing the t-test analysis. Table 24 lists the variable values used in performing the t-test analysis. Group statistics and the independent samples tests are presented in Tables 25 through 53.

### *Major Findings*

This study compared student achievement in the areas of Reading and Algebra I between a school participating in the full-service concept model and one that is not. Additionally, graduation rates are compared. The major findings for each of the three broad research questions are presented.

#### *Tests of Differences in Achievement Indicators in the Two Schools*

As noted in chapter 4, student achievement indicators, and graduation rates for each school were tested using the t-test of independent samples. The t-test is the most commonly used method to evaluate the differences in means between two groups to show the mean and standard deviation along with the standard error of the mean which provides an index of how much the sample means vary about the population mean. In this research project, the t-test is used to test achievement scores between two groups of students being served by a full-service school and a demographically similar non-full-service school in the areas of Reading and Algebra I. Additionally, graduation rates were evaluated to determine whether there is a significant difference between the two.

The determination of whether there is statistical significance between the two means is reported as a p-value. Typically, if the p-value is equal to or less than a certain level (0.05), the conclusion is that there is a statistically significant difference between the two means. The lower the p-value the greater the evidence that there is a statistically significant difference between the two group means.

### *Results*

The results of the t-test on the next pages are answers to the specific questions that correspond to the three broader research questions posed in this study.

Question One: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I for students in a full-service school environment and the scores for the same achievement indicators of students in a demographically similar non-full-service school?

- The school service type achievement scores for Reading based on the t-test, shows a mean score of 631.3 for the full-service school and a mean of 713.0 for the non-full-service school (Table 25). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\*. Within this table, the p factor column of .05 is used for a one-tailed test. If the calculated value as in this case 275.4 (Table 26) is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Reading scores are higher than the full-service, which rejects the null hypothesis. The non-full-service school also achieved a higher score than the state mandated satisfactory score of 700.

- In the area of Algebra I the t-test shows a mean score of 675.4 for the full-service school and a mean of 646.0 (Table 40) for the non-full-service school. The same process as above is used for determining whether there is a significant difference between the two schools in the area of Algebra I. A degrees of freedom value of 2,293 is used to enter the statistical table. If the calculated t-value, in this case 93.1 (table 41), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the full-service school's overall Algebra I scores are higher than the non-full-service, a fact which rejects the null hypothesis. In this area, both schools failed to achieve the state mandated satisfactory score of 700.

Question Two: Is there a significant difference between achievement scores (satisfactory or advanced) for Reading and Algebra I of students classified as high risk (low income and minority students) in full-service school environment and scores for the same achievement indicators of students in comparable groups in demographically similar non-full-service school?

- The school service type achievement indicators for Reading based on the t-test, shows that the free/reduce meal group score a mean of 645.8 for the full-service school and a mean of 693.5 for the non-full-service school (Table 27). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value, in this case 151.0 (Table 28), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's

overall Reading scores are higher than the full-service school, which rejects the null hypothesis. Neither school achieved the state mandated satisfactory score of 700.

- In the area of Algebra I, the t-test for free/reduced group shows a mean score of 674.7 for the full-service school and a mean of 633.0 for the non-full-service school (Table 42). The same process as above is used to determine if there is a significant difference between the two schools in the area of Algebra I. A degrees of freedom value of 619 is used to enter the statistical table. If the calculated t-value, in this case 129.8 (Table 43), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the full-service school's overall Algebra I scores are higher than the non-full-service school, which rejects the null hypothesis. In this area, both schools failed to achieve the state mandated satisfactory score of 700.
- The American Indian achievement indicators for Reading based on the t-test, shows a mean score of 583.8 for the full-service school and a mean of 715.3 for the non-full-service school (Table 29). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value as in this case 131.5 (Table 30) is greater than t\* tables value (t\* 1.671), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) were as the non-full-service school's overall Reading scores are higher than the full-service school which rejects the null hypothesis. The non-full-service school also achieved a higher score than the state mandated satisfactory score of 700.

- In the area of Algebra I, the American Indian t-test shows a mean score of 419 for the full-service school and a mean of 616 for the non-full-service school. The same process as above is used for determining if there is a significant difference between the two schools in the area of Algebra I. A degrees of freedom value of 106 is used to enter the statistical table. If the calculated t-value, in this case 623.1 (Table 45), is greater than t\* tables value (t\* 1.671), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Algebra I scores are higher than the full-service, which rejects the null hypothesis. In this area, both school failed to achieve the state mandated satisfactory score of 700.
- The Asian achievement indicators for Reading based on the t-test, shows a mean score of 737.5 for the full-service school and a mean of 725.0 for the non-full-service school (Table 31). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value, in this case 77 (Table 26), is greater than t\* tables value (t\* 1.671), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) were as the full-service school's overall Reading scores are higher than the non-full-service which rejected the null hypothesis. Both schools achieved a higher score than the state mandated satisfactory score of 700.
- In the area of Algebra I, the Asian group t-test shows a mean score of 717.7 for the full-service school and a mean of 689 for the non-full-service school (Table 48). The same process as above is used for determining if there is a significant

difference between the two schools in the area of Algebra I. A degrees of freedom value of 61 is used to enter the statistical table. If the calculated t-value, in this case 12.4 (Table 49), is greater than t\* tables value (t\* 1.671), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the full-service school's overall Algebra I scores are higher than the non-full-service, which rejects the null hypothesis. In this area, the full-service school achieved the state mandated satisfactory score of 700.

- The African American achievement indicators for Reading based on the t-test, shows a mean score of 665.3 for the full-service school and a mean of 695.5 for the non-full-service school (Table 33). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value, in this case 67.6 (Table 34), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Reading scores are higher than the full-service school, which rejects the null hypothesis. Both schools failed to meet the state mandated satisfactory score of 700.
- In the area of Algebra I, the African American t-test shows a mean score of 634.4 for the full-service school and a mean of 649.0 for the non-full-service school. The same process as above is used for determining if there is a significant difference between the two schools in the area of Algebra I. A degrees of freedom value of 841 is used to enter the statistical table. If the calculated t-value, in this case 33.6 (Table 47), is greater than t\* tables value (t\* 1.645), then the null



hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Algebra I scores are higher than the full-service, which rejects the null hypothesis. In this area, both schools failed to achieve the state mandated satisfactory score of 700.

- The Hispanic achievement indicators for Reading based on the t-test, shows a mean score of 633.3 for the full-service school and a mean of 731.0 for the non-full-service school (Table 35). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value, in this case 85.7 (Table 30), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Reading scores are higher than the full-service school, which rejects the null hypothesis. The non-full-service school also achieved a higher score than the state mandated satisfactory score of 700.
- In the area of Algebra I, the Hispanic t-test shows a mean score of 615.7 for the full-service school and a mean of 641.0 for the non-full-service school (Table 50). The same process as above is used for determining if there is a significant difference between the two schools in the area of Algebra I. A degrees of freedom value of 183 is used to enter the statistical table. If the calculated t-value, in this case 80.1 (Table 51), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) were as the non-full-service school's overall Algebra I scores are higher than the full-service which rejects the null hypothesis. In this area, both school failed to

achieve the state mandated satisfactory score of 700.

- The Caucasian group achievement indicators for Reading based on the t-test, shows a mean score of 668.0 for the full-service school and a mean of 742.8 for the non-full-service school (Table 37). When entering the Basic Statistics for the Behavioral Science table, the degrees of freedom value is used to enter TABLE t\* using the p factor .05 column for a one-tailed test. If the calculated value, in this case 236.6 (Table 38), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the non-full-service school's overall Reading scores are higher than the full-service school, which rejects the null hypothesis. The non-full-service school also achieved a higher score than the state mandated satisfactory score of 700.
- In the area of Algebra I the Caucasian t-test shows a mean score of 672.0 for the full-service school and a mean of 658.4 for the non-full-service school. The same process as above is used for determining if there is a significant difference between the two schools in the area of Algebra I. A degree of freedom value of 1,044 is used to enter the statistical table. If the calculated t-value, in this case 44.3 (Table 53), is greater than t\* tables value (t\* 1.645), then the null hypothesis is rejected. There was a significant difference (higher scoring rate) whereas the full-service school's overall Algebra I scores are higher than the non-full-service, which rejects the null hypothesis. In this area, both schools failed to achieve the state mandated satisfactory score of 700.

Question Three: Is there a significant difference between graduation rates of students in a full-service school environment and graduation rates of students in a demographically similar non-full-service school?

- In the area of graduation rate, the t-test shows a mean score of 61.18 for the full-service school and a mean of 78.25 for the non-full-service school (Table 39).

When comparing the two means, the non-full-service school achieved a higher graduation rate than the full-service school, which shows there is a significant difference between the two schools in the area of graduation which rejects the null hypothesis.

#### *Discussion of Findings*

When reviewing the findings of each area under study, the results of the analysis rejected the null hypothesis. Each area under study showed a significant difference in performance based on the t-test analysis. When reviewing the analysis of each research question, the following results are presented:

- In the area of overall group statistics for Reading, the non-full-service school achieved a higher performance rating than the full-service school. In the area of Algebra I, the full-service school received a higher performance rating.
- The free/reduced population for the non-full-service school scored a higher performance rating in Reading than the full-service school. In the area of Algebra I, the full-service school outperformed the non-full-service school.
- The American Indian population within the non-full-service school outperformed the full-service school in both areas (Reading and Algebra I).

- The Asian population within the full-service school outperformed the non-full-service school in both areas (Reading and Algebra I).
- The African American population within the non-full-service school outperformed the full-service school in both areas (Reading and Algebra I).
- The Hispanic population within the non-full-service school outperformed the full-service school in both areas (Reading and Algebra I).
- The Caucasian population within the non-full-service school outperformed the full-service school in Reading, whereas the full-service school achieved a higher performance rating in Algebra I
- In the area of graduation rate, the non-full-service graduation rate was 17 percent higher than the full-service school

After reviewing the findings of this study, the researcher considered them in light of the purpose of the study, which was to examine differences in student achievement indicators and achievement related factors in a full-service school and a demographically similar, non-full-service school. Though not stated at the outset of this study, the anticipation was that any differences found would be in support of the full-service school, as indicated by the literature review, but this was not the case.

Research shows that the concept of full-service schools has been embraced as a potential solution to service delivery problems affecting children living in high-risk environments. Full-service schools represent an effort to make human service system partners in the educational process, while simultaneously making school systems partners in the delivery of human services with a shared commitment to child development (Adelman & Taylor, 1999; Dryfoos, 1994, 1995, 1998). Wang, Haertel and Walberg

(1997) conducted an analysis of six case studies of school-linked programs and reviewed the research base on school-linked services and the success of such programs. Melaville & Blank (1993) proposed a similar study from the perspective of effective initiatives to change child and family services delivery systems to foster an environment that was caring and connected (p. 16). Kagan (1993) outlined organizational strategies that are typically employed for improving integration of services. These integration strategies also align with the previously described features of successful programs. They are: 1) client-centered strategies; 2) program-centered integration; 3) policy-centered strategies and; 4) organizationally centered strategies.

Client-centered strategies include case management, which Wang, et al. (1997) found to be a feature of effective school-linked programs. Program-centered strategies include co-location of services, establishment of systems for sharing relevant information about clients, joint planning, programming and decision-making among collaborative staff, and the development of fiscal linkages to enable sharing of funds for the integration of programs. Again, most or all of these strategies were included as features of effective school-linked programs.

At first look, the idea of linking health and social services with schools to improve multiple outcomes for children and families appear sensible, valid, and not especially vulnerable to criticism or opposition. This is not the case. Shaw (1995) lists barriers to provision of school-linked and school-based health services. Besides turf issues and professional backgrounds, language barriers among professionals, and training among agencies, coupled with a lack of adequate time allotted for collaboration along with the following objections.

One objection is the fear that school-based health services, particularly at the secondary level, will circumvent parental roles and responsibilities by distributing contraceptives, providing abortion counseling, and even referring students for abortion services (Shaw, 1995). Another potential objection from the community is that schools should not provide services that are beyond academic instruction; that taxpayer dollars are not to be used to support non-school programs (Shaw, 1995). A reasonable response to objections such as these is the provision of clear and specific information about the nature and scope of the school-linked services, as well as extensive efforts to involve the community and get them involved with the program and its intended outcomes, which include improved academic performance.

Lee (1998) writes that emphasis on providing health and social services in schools may divert us from our chief mission of educating students. He indicates that current school reform agendas focusing on curriculum, instruction, and assessment appear to conflict with the movement to integrate health and social services for students in the school setting. Franklin and Streeter (1998) respond with their belief that "school-linked services enhance the educational mission by helping schools confront difficult issues that keep students from achieving academic success" (p. 67). In fact, school-linked services are designed to help schools to be more effective in their mission of educating students.

Perhaps the strongest objections are those that exist at the level of fundamental beliefs about who should be doing what for whom. Wang, Haertel and Walbery (1997) refer to the book *Losing Ground*, written by Charles Murray in 1986. In his book Murray argued that the provision of government services, including school-linked and school-based services, would result in long term negative effects on the receivers of those

services: for example, that the ease with which health services can be obtained in a school setting will contribute to a lack of responsibility for personal actions (e.g., an increase in unwanted pregnancies and/or abortion) and an over-reliance on agencies, rather than self, to care for family needs. In summary, many objections to school-linked services are based in misunderstanding and misconception of the scope and goals of service integration programs. As stated previously, community involvement in the development, implementation, and evaluation of programs keep them on track in meeting identified needs and refraining from overstepping parental roles.

When reviewing both sides of the issue, full-service vice non-full-service schools, the results of this small scaled research project shows that the non-full-service school's academic performance was at a higher academic performance level in most areas under study which would indicate that the services being provided do not enhance academic performance. The following is a summary of these results. In all the areas examined over a four-year period for Reading and a three-year period for Algebra I, there were significant differences in academic performance based on the t-test analysis. The non-full-service school outperformed the full-service school in ten out of the sixteen areas studied.

#### *Conclusions from the Study*

When comparing the two schools, several areas could impact test results, but were not evaluated. One area was the high mobility rate of each school. The movement of students coming into and exiting the school could have a direct implication that could impact the test results. Another area of note is the American Indian population of the full-service school. For two of the four years under study, the population was zero,

which could have a direct implication that could impact test results comparison. Another area is how many students are classified as English language learners, which could have a direct effect on academic performance.

When comparing the Algebra I test scores over the three-year period, the full-service school has had a steady climb in test results, whereas the non-full-service school's test scores varied each year. A possible reason for this is the method of instruction by the teachers in the two different schools or possibly the high mobility. When reviewing the Reading analysis, the non-full-service school outscored the full-service school in the area of Reading in six out of seven groups. However, the full-service school outscored the non-full-service four out of seven times in the area of Algebra I. This investigator speculates that the differences in Reading scores could be a direct relationship on instructional methods, grasp of the English language, or a high mobility rates, whereas Algebra I is a less English language reliant than Reading.

This investigator does not have knowledge of the methods used by these two schools to teach Reading and Algebra I to students with limited English proficiency, or what methods are used to assess student progress; however, some research findings could apply here. There is evidence in the research literature on teaching students whose first language is not English that allowing/encouraging students to use their first language to acquire and understand Reading and Algebra I constructs contributes to their achievement (Valdez, et al., 2002). Judit Moschkovich (2000) describes the importance of teaching students with limited English proficiency to use all their resources, including their first language, pictorial representations, and concrete objects, to clarify meanings.



The last area to review was the graduation rates. As stated earlier, there was significantly different in graduation rates. When comparing the results of table 15, the non-full-service school has a higher percentage of students graduating compared to the full-service school. When determining graduation rates, the numbers of students who start as freshman are tracked over a four-year period. Based on the information provided, one could conclude that the non-full-service school does a better job in tracking students and documenting movement or does a better job in student retention.

#### *General Conclusion from the Study*

The general conclusion from the study is that no matter what services are provided, whether they are within the school setting as in the full-service school or the general community, the school is only as good as the academic environment. When comparing the different services provided by each school, an assumption could be made that more is better, meaning more services. This study disputes that notion. As shown above, the school without the social services outperforms the other school in the area of Reading in six of the seven groups that are studied. In the area of Algebra I, the school with the additional services outperformed the other school in four of the seven groups. Again, this could be a result of teaching methods, language issues, or mobility rates.

#### *Recommendation for Future Research*

Recommendations included in this section are based on the outcome of this study and the literature review. This study investigated the academic performance of two schools. One classified as a full-service school and the other as a non-full-service school. This study focused on the academic outcomes in the areas of Reading and Algebra I only. The following recommendations for further study are offered:

1. The study could be expanded to include a larger population (number of schools being studied).
2. Future research could be designed to collect more comprehensive data regarding teaching methods and service implementation.
3. Future research replicating this study using a qualitative approach to look at the inner workings of the schools and how it impacts on the educational environment.
4. Future research could look at attendance rates and how in school services aid in increasing the average daily membership.

### *Conclusions*

There is a growing movement to integrate community services to meet the needs of today's children (Dryfoos, 1991, 1994, 1998; Dryfoos & Maguire 2002; Koppick, 1994; Melaville & Blank, 1991, 1994, 2000). Problems currently facing society have parallels with the past, but the world today is more complex and the solutions to these problems are, therefore, not as easily forthcoming. Demographics of communities are changing; poverty is growing; societal problems are escalating; and new ways to deal with these changing times must be created (Stallings, 1995). Causing these changes are family structures, economic pressures, political forces, and fragmented human services systems that provide health screening and services, dental services, family planning, substance abuse, and basic services such as housing, food, and clothing, are causing these changes (Newberg, 1995; Dryfoos, 1998; Dryfoos & Maguire, 2002). Often these changes become evident in the school setting, and schools are not equipped to deal with all the problems facing today's children and families (Dryfoos & Maguire, 2002).

Schools and agencies that serve children and families urgently need to unite in an attempt to cushion the pressures facing them. The ancient African proverb, "It takes a village to raise a child," suggests a new way of looking at how we prepare today's children for the future (Etzioni, 1993). A renewed sense of community, emphasizing a shared system of values and a sense of responsibility for one another, not just to ourselves, is a concept generally neglected in the world today (Etzioni, 1993).

As stated, the idea of integrating community services with the educational setting is not new. The question must be asked, how this is really impacting our educational system. Is this concept preparing a better citizen or one that relies on others? Does this form of education provide the student with the skills needed to become a successful member of today's society? One who can make not only educational decisions, but day-to-day survival decisions. By using the full-service school concept is the educational system creating a generation of helplessness. Based on this study the school that did not provide all the social services scored higher academically, which would indicate that the money being spent on these social service programs could be used to create a better academic environment.

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