Fall 12-2009

Improving Academic Achievement at a Greater Rate with Increased Instructional Time for Students who Qualify for Free and Reduced Lunch

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Improving Academic Achievement at a Greater Rate with Increased Instructional Time for Students who Qualify for Free and Reduced Lunch

by

Jeffrey Steven Beiswinger
December 2009

A Dissertation submitted to the Education Faculty of

Lindenwood University

in partial fulfillment of the requirements for the

degree of

Doctor of Education

School of Education

Declaration of Originality

I do hereby declare and attest to the fact that this is an original study based solely upon my own scholarly work here at Lindenwood University and that I have not submitted it for any other college or university course or degree here or elsewhere.

Full Legal Name: Jeffrey Steven Beiswinger

Signature: Jeffrey S Beiswinger Date: 12-7-09

A Dissertation

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This dissertation has been approved as partial fulfillment of the

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at Lindenwood University by the School of Education

Dr. Susan Isenberg, Committee Chair	12-7-09 Date
Dr. Wanda Brown, Committee Member	12/7/09 Date
Dr. Sandra Logan, Committee Member	12/7/09 Date

Acknowledgments

I dedicate this dissertation to my family. To my wife, Vonciel, who has been with me throughout this difficult, yet rewarding process, I want to express my gratitude for her constant support and flexibility. Earning the Doctor of Education Degree would not have been possible without her encouragement, patience, and wisdom that helped to sustain me during the trying times, while juggling work, school, and family commitments. To my sons, Steven and Matthew, and to my granddaughter, Alexis, I offer my thanks for your understanding and support, as well as your patience during the times I had to miss a family activity while writing this dissertation. My appreciation is immeasurable.

To my parents, Gilbert and Beverly Beiswinger, this body of work is possible because I was the benefactor of your viewpoints on life and practices on life. Thank you for teaching, demonstrating, and instilling in me the family values that were based on your beliefs about work ethic, dedication, tenacity, and commitment. These traits that I gleaned from you have served as the driving force behind my ability to complete this milestone in my career.

Finally, I want to acknowledge those who provided assistance, support, and guidance through the dissertation process. I acknowledge the Lindenwood faculty, including Dr. Cindy Vitale, for her willingness to serve as my Committee Chair and provide guidance through the IRB process and completion of my dissertation; Dr. Susan Isenberg, for countless hours of phone conferences in the final stages of my IRB submission; and Dr. Larry Matthews, who assisted me in establishing the data collection process and dissertation methodology. I acknowledge the study district faculty and administration, including Dr. Sandra Logan, for listening and discussing ideas as my

dissertation progressed, as well her encouragement to obtain the Doctor of Education Degree; Dr. Sally Beth Lyon, who approved my application for this project; Dr. Wanda Brown, for serving as a Committee Member for my dissertation, and for her support and direction as I continued my professional growth; Mrs. Lily Long, for time she devoted to proofreading each of my dissertation chapters and making suggestions to strengthen my writing; Mr. Michael Rowson, for his assistance with the statistical analysis of the data; Ms. Jennifer Curtner, who assisted with formatting of the document; Mr. Justin Burns, for his assistance with the statistical analysis of the data. Finally, I acknowledge and thank Mrs. Jana Thornsberry, for serving as a committee member, who read and provided suggestions during the writing of my dissertation.

Abstract

Great demands are placed on educators to meet student academic standards as set forth by No Child Left Behind legislation. To meet these expectations, school districts must consider instructional strategies that maximize learning time. The study school, located in Midwest Missouri, implemented Start on Time, a tardy reduction program at the beginning of the 2006/2007 school year. The intent of the Start on Time program was to reduce tardies, thereby reducing interruptions to instruction while providing support strategies so students arrive prepared.

The purpose of this study was to determine if increased instructional time would increase academic achievement and academic growth of students who qualify for free and reduced lunch. The instrument for this study consisted of two assessments: the EXPLORE and the Missouri Assessment Program (MAP). This study compared the mean scale scores for eighth-grade students in the content areas of math and communication arts who attended the study school during the school years of 2003/2004 through 2007/2008.

The results from this study found no significant difference between the achievement level of students who qualified for free and reduced lunch and those who were considered paid lunch in the content area of math. Results differed when comparing communication arts scores. Students who qualified for free and reduced lunch returned higher assessment scores than students who did not qualify for free and reduced lunch. The findings may be due to the fact that math shares a common language known and practiced by all students; however, communication arts does not. Economically advantaged students are more likely to have developed their use of the formal language

that allows them to be successful on written tests compared to economically disadvantaged students who are more likely not to have developed their understanding of the formal language and, therefore, are at a higher risk of low achievement scores. In addition, the results indicated a difference on the rate of growth between the two groups of students. Students who qualified for free and reduced lunch showed a greater rate of academic growth following the implementation of the tardy reduction program.

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Background

Poverty is a relative term associated with an individual or family, who by a government's standards, earns an income below the poverty threshold. The poverty threshold is a calculated amount of earned income based on cost of living, number of family members, and potential income providers (Cruse & Powers, 2006). Poverty has been a concern in this country since the years following World War I. What must be understood regarding the history of poverty is that prior to this time, families typically did not move from the rural areas to the cities; therefore, individuals who were struggling to make ends meet were lacking two key aspects used to identify poverty: lack of education and comparison groups.

During the Great Depression, families began to leave the family farms and move into cities. These changing trends led to families meeting others who were of low income. Payne (1996) considered poverty to be relative, citing the phrase, "If everyone around you has similar circumstances, the notion of poverty and wealth is vague" (p.10). The indication of poverty became evident as families had the opportunity to live next to other families of less or greater income; as a result, identifying those of poverty by comparison of socioeconomic groups became possible. During the 1930s, 68% of U.S. families were in poverty (Meacham, 1993). Through the study and research of economic factors, people of poverty have been divided into two categories: generational poverty and situational poverty. Generational poverty recognizes families who have continued to earn income below the poverty threshold during two or more generations. Situational poverty is a form of poverty due to a crisis or a reduction of resources (Payne, 1996). The Census Bureau

data revealed that families with one parent are at a higher risk of earning income below the poverty threshold. This finding is particularly evident when a female is the lone parent. In 1959, the poverty rate in the United States was 18.3%. Of the 18.3%, 42.6% consisted of families with a female as the head of the household. The percentage of families in poverty declined during the 1960s and 1970s; however, it increased during the recession of the 1980s and 1990s. During the last forty years, the percentage of poverty rate has declined with some fluctuation; yet, for families with a female as the head of the household, the poverty rate remains high at 28% (United States Census Bureau, 2004).

The Kennedy and Johnson administrations are given credit for making the greatest impact on the poverty level in the United States, adopting a campaign known as the "War on Poverty." Prior to the Kennedy administration, many Americans felt the poverty war declared during the Great Depression was over due in part to the social programs established by President Roosevelt's "New Deal" programs. However, during the presidential campaign in 1960, President Kennedy witnessed large-scale poverty across the nation with more than 22% of the United States population living below the poverty level. Of most concern to the administration was the fact that nearly 27% of children, those younger than 18 years of age, lived in poverty. These economic factors led President Kennedy to develop anti-poverty programs; unfortunately, these programs were in their early stages at the time of his assassination. His successor, President Johnson, continued the support for these programs that provided home repair, job training, health care, and free food to those in need (Meacham, 1993; Seccombe, 2000). By 1970 with continued support of these established programs, the overall poverty rate dropped to 12.6% and reduced child poverty levels to 14.9%. Unfortunately, by 1990, the

United States poverty level for children had risen to 19.9%, which represented that one in every five children was affected by poverty (Seccombe).

Federal Programs

The National School Lunch Program was established in 1946 under the National School Lunch Act and most recently extended by Congress in 2004 under the Child Nutrition and Women, Infants and Children Reauthorization Act. Section 2 of the Act defines its purposes:

> It i8 [*sic*] hereby declared to be the policy of Congress, as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in aid and other means, in providing an adequate supply of food and other facilities for the establishment, maintenance, operation and expansion of nonprofit school lunch programs (United States Department of Agriculture, 2009, section 2).

This program provides free meals to eligible children whose family income is at or below 130% of the federal poverty guidelines. Students are eligible to receive reduced price lunch whose family income is above 130% but below 185% of the poverty guidelines (Cruse & Powers, 2006; Sirin, 2005).

As illustrated in Table 1, the earned yearly income for a family of four whose annual income is $39,220 would qualify for reduced-price meals based on the calculation of 185% of the determined poverty guideline. Establishing criteria such as 185% allows for families who earn yearly income above the poverty guideline to qualify for federal assistance through the lunch program. By comparison, a similar family of four whose

annual income is $27,560 would qualify for free meals based on the calculation of 130% of the determined poverty guideline. Again this is determined by multiplying $21,200 by 130%; however, this calculation results in a lower yearly income. Therefore, the two percentages of 130% and 185% set the criteria for those families who qualify for free lunch and those who qualify for reduced price lunch (Federal Register, 2008).

Table 1

Income Eligibility Guidelines

Family Size	Poverty Guideline	Reduced Lunch (185%)	Free Lunch (130%)
2	$14,000	$25,900	$18,200
3	$17,600	$32,560	$22,880
4	$21,200	$39,220	$27,560
Added member	+$3,600	+$6,660	+$4,680

Note. The data in Table 1 are from "Child Nutrition Programs-Income Eligibility Guidelines. 2008, *Federal Register, Vol.73, No. 69.*

Poverty guidelines are established by the Department of Health and Human Services to determine financial eligibility for federal and state programs, such as free and reduced lunch eligibility for school-age children. By contrast, poverty thresholds are determined by the Census Bureau, specifically to calculate poverty data, such as the number of Americans in poverty. The importance of these two versions used to measure poverty is that poverty guidelines are calculated by taking a weighted average of the poverty threshold. Therefore, both of these numbers will be approximately equal (Cruse

& Powers, 2006; Federal Register, 2008; Institute for Research on Poverty, 2008; United States Department of Health and Human Services, 2008).

Quality of Education

In recent years educators have been charged with the responsibility to improve the quality of education and the processes used to educate students. Research has shown that children who come from poverty contribute to the greatest subgroup that is at risk of failure in public schools. Consequently, there are several factors that are considered to contribute to the challenges of educating children of poverty: (a) high rates of mobility among families, (b) high incidence rates of emotional and behavioral problems, (c) large number of students who have limited proficiency in English, and (d) inadequate school facilities and resources. These factors not only affect the education of children of poverty but also impinge on all children who attend such a school climate (Knapp & Shields, 2005). Adding to the risk of school failure for this subgroup is the fact that a child spends a small portion of their day at school, approximately eight hours. This means for the largest portion of a child's day provisions to provide instruction or academic support may not exist.

Students spend two-thirds of their day outside of school; consequently, time is a valuable resource that must be maximized each day (Silva, 2007). Ornstein (1989) cited two important factors regarding time: more is not always better, quality is crucial; and teachers must find ways to efficiently use time. Estimates reveal that time wasted on nonacademic activities during class can impact instructional time by as much as 60 to 90 school days. The greatest potential to lost instructional time occurs at the beginning of each class period. Three factors identified as contributing to lost instructional time at the

beginning of a class period include (a) checking attendance, (b) addressing tardy issues, and (c) management of student behavior (Ornstein).

In research aimed at providing strategies to narrow the achievement gap, Prince (2004) revealed two key components regarding instructional time or time management within a class setting: increasing both the number of school days for the academic year and the length of the school day by providing before-school and after-school programs. Considering the cost factor of extending the school year and the instructional quality that may not meet standards in before school and after-school programs, school districts may benefit by striving to maximize the instructional time within the regular school day (Prince, pp. 57-70).

Start on Time Program and Research

The Start on Time program was developed by Dr. Randy Sprick in conjunction with Safe and Civil Schools. The study school discovered the program at a national administrator conference in the spring of 2005. The study school had conducted a student survey and an informal faculty survey both recorded concerns for student safety during passing periods as well as interruptions to instruction due to students arriving late to class. Additionally, the administration was aware that instructional time was lost each period due to students arriving late to class and the potential controversy that may result when a teacher would attempt to assign a consequence. Therefore, the study school embarked on a search for a program that provided on-going hall supervision and had the capability to reduce student tardies, thereby increasing potential instructional time.

When the Start on Time program was reviewed, the study school administrative team recognized the positive impact this program would have on the school climate by

reducing tardies, enhancing teacher moral, improving hallway safety and increasing instruction time by allowing the teachers to begin class when the tardy bell sounds, hence the teacher potentially has a full 50 minute period for instruction.

The Start on Time program is designed with the following outcomes: (a) a reduction of tardiness and disciplinary referrals from halls during passing periods, (b) increased staff coordination and consistency when dealing with student behavior, (c) improved school climate, (d) enhanced school safety, (e) increased positive interactions between staff and students, (f) improved staff skill in effective supervision and positive behavior support, and (g) use of data-based decision-making regarding behavior and discipline practices (Sprick, 2003).

At the time of program determination, there was not sufficient research available for the study school to review prior to purchasing the program. However at present, schools that have implemented Start on Time have submitted data supporting the positive effects of the program. For example, Marshall Middle School (city/state unknown) showed a significant reduction. Prior to implementation, this middle school averaged 643 tardies per week and after implementation dropped to an average of 90 tardies per week (Safe & Civil Schools, 2009).

The researcher who developed the implementation plan designed the Start on Time program to fit the study school's building design, teacher availability, staff professional development, and data collection and reporting. The Start on Time program design addressed the three components outlined by Ornstein (1989) as leading factors towards loss of instructional time: (a) checking attendance, (b) addressing tardy issues, and (c) management of student behavior.

Statement of Purpose

Currently in education, schools are mandated to meet the guidelines of the No Child Left Behind Act (NCLB). School districts that do not meet the established standards are at risk of losing credibility status for graduating students as well as a portion of state and federal funding. The Midwest school district that participated in this study placed emphasis on closing achievement gaps and reducing disparities between ethnic groups. Therefore, a study to show whether a relationship exists between academic achievement and students who qualify for free and reduced-priced meal could be beneficial. The purpose of this study was to determine if increased instructional time would increase academic achievement and impact the rate of academic growth of students who qualify for free and reduced lunch.

Rationale for the Study

Poverty affects the human population in a variety of ways. Research has illustrated a direct relationship connecting the cognitive development of children based on the length of time their families were affected by poor living conditions. Children of families who maintain a low-income status have been shown to have lower cognitive development compared to those children who do not maintain a low-income status. The largest effect of developmental delays was due to the quality of the child's environment and parenting strategies ("Duration and Development", 2005).

As illustrated in Table 2, the accumulated sum of children in poverty in the United States equaled 12,769,000. The five ethnic subgroups included in this statistic were the Caucasian, the African-American, the Hispanic, the American Indian, and the Asian/Pacific Islander populations. While Caucasian children make up the highest

percentage of children in poverty, Table 2 also reveals the large number and percentage of minority children who live in poverty.

Table 2

Children in Poverty by Ethnic Subgroup

	Number of Children in Poverty	Percent of Children in Poverty	Percent of Population in Poverty
Caucasian	4,386,000	34.3%	11%
African American	3,661,000	28.7%	35%
Hispanic	4,149,000	32.5%	27%
American Indian	211,000	1.7%	
Asian/Pacific Islander	362,000	2.8%	

Note. The data in Table 2 are from Kids Count Data Center by The Annie E. Casey Foundation (2007).

Table 2 illustrates that the Caucasian population has a greater number of children in poverty; however, additional data submitted by Kids Count (2007) revealed that even though the Caucasian population has the overall largest percent of children in poverty, it is the minority subgroups that realize the greatest impact. These percentages support research that indicates minority subgroups have the greatest overall percent of children living in poverty (The Annie E. Casey Foundation). The National Center for Children in Poverty (2002) reported similar trends among minority children—African-American children represented 30% and Hispanic children represented 28% of the children living in poverty in the United States to tally 58% (as cited in Clark, Shreve, & Stone, 2004). The

National Center for Children in Poverty supports the continuing concerns of the educational process, citing that even with the reform programs implemented in recent years, there is still academic underachievement with minority students in public schools. The Research questions guiding this study are as follows:

1. Does a relationship exist between increased instructional time and academic achievement scores for students of poverty?
2. Will students of poverty who have increased instructional time improve academically at a greater rate than students not of poverty?

School districts use the free and reduced lunch program as measurable criteria to identify the number of school-age children meeting the federal level for family poverty. Effective July 1, 2008, the United States Department of Agriculture's Food and Nutrition Service increased the income limits for students who qualify for the free and reduced lunch program. Families of four whose annual income does not exceed $27,560 will receive free lunches for their school-age children. This represents an increase of 2.7% from the previous year (Federal Register, 2008).

This increase in the poverty criteria has had a direct effect on the eligibility data for the study school district, resulting in a 2.5% increase in the number of students who qualify for free and reduced lunch over a five-year period. However, the past two years have resulted in a 2.2% increase in eligible students (Department of Elementary and Secondary Education [DESE], 2009b). The study school is one of three junior-high schools within the school district. The study school's enrollment averaged 949 students during the years of this study. Although enrollment was relatively consistent each year, ranging from 956 to 943, an increase of 4.2% in students who qualify for free and

reduced lunch programs between 2004 and 2008 occurred. Similar to district data, the study school had its greatest margin of increase within the past two years, increasing from 20% in school year 2006-2007 to 23.2% in school year 2008-2009. The 3.2% increase in eligible students reflected over the four-year period beginning 2004 through 2008 demonstrates a change in the family economic stability within the attendance area of the study school. When the free and reduced student data was separated into subgroups by grade, the eighth grade accounted for 12% of the eligibility enrollment (Columbia Public Schools [CPS], 2008c; DESE 2009a). Figure 1 reflects the progression of eligible free and reduced lunch by percent of student enrollment for the study district and the study school.

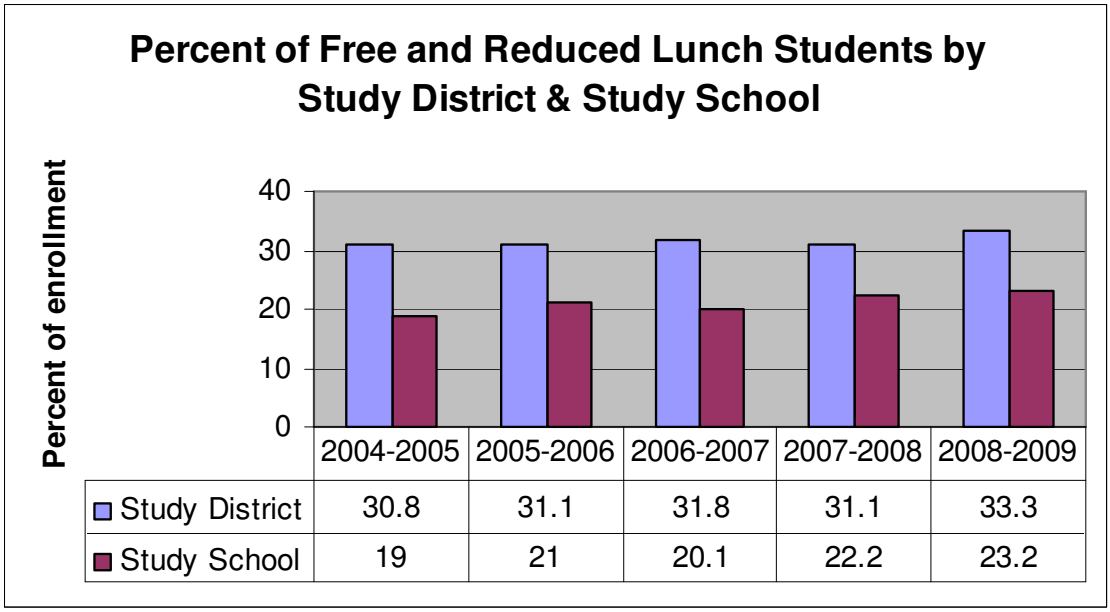

Figure 1. Free and Reduced Lunch by Study School District and Study School

Note. From CPS Website (2008c).

The study school district established as district goals the following three strategic initiatives in 2004:

1. increase student achievement
2. eliminate achievement disparities between groups of students
3. maximize resource efficiency

These three initiatives were the focal points in the district's efforts to improve academic performance for all students. The researcher contends that as the demographics of the study district change due to the new standards in the federal poverty guidelines established by the federal government, the impact on the school district will become increasingly greater as the potential for the number of school-aged children who receive free or reduced lunch increases. An example of how a school district might be impacted by the new standards could be a change in family dynamics such as reduced family income due to a job loss. An external factor such as this can effect a child's mental, social, and emotional well being, thereby affecting academic progress. Therefore, school administrators and teachers should examine current teaching strategies in order to maximize the potential learning time with the goal of higher achievement scores.

Independent Variable

The independent variable for this study was increased instructional time for eighth-grade students.

Dependent Variable

The dependent variable for this study was the average achievement scores on the Eighth Grade Explore Test and the Missouri Assessment Program (MAP) scale scores in

areas of math and communication arts and the rate of growth between students who qualify for free and reduced lunch and those who qualify for paid lunch.

Hypotheses

Null hypothesis 1. There will be no relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Alternate hypothesis 1. There will be a relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Null hypothesis 2. Students who qualify for free and reduced lunch and increase their instructional time will not improve their academic achievement at a statistically greater rate than students who do not qualify for free and reduced lunch.

Alternate hypothesis 2. Students who qualify for free and reduced lunch and increase instructional time will improve their academic achievement at a greater rate than students who do not qualify for free and reduced lunch.

Internal Validity – Limitation of Study

Internal validity is defined as the "degree to which observed differences on the dependent variable are directly related to the independent variable, not to some other variable" (Fraenkel & Wallen, 2000, p. 665). Fraenkel and Wallen described five possible threats to internal validity.

Subject. The subject characteristics threat was a possibility because other characteristics of the individuals such as behavior patterns, attitude toward test taking, or environmental influences cannot be controlled and may explain any other relationships

that are found (Fraenkel & Wallen, 2000). The test results are referred to as mean scores, therefore, if a student demonstrates characteristics that may affect the results of the mean scores, then the results of the study will not reflect accurate data.

Location. A location threat was possible. The specified testing school was the same for each individual; however, the individuals were tested in various locations; therefore, the testing environments were different (Fraenkel & Wallen, 2000). Student testing locations were determined by their first period class.

Testing. Testing is not considered a threat because the Explore Test and MAP were standardized tests. Test management was strictly controlled by the test administrator. To reduce the threat on test procedures, instructions were read to all testing students at the same time by one person.

Instrumentation. Instrumentation is not considered a threat in this study because the testing instrument did not request opinions or call for observational data collection.

Mortality. Mortality is not considered a threat to internal validity because anyone lost must be excluded from the study. "Correlations cannot be obtained unless a researcher has a score for each person on both of the variables being measured" (Fraenkel & Wallen, 2000, p. 375).

Researcher bias. Researcher bias is considered a threat in this study because the researcher is employed at the study school and responsible for implementation of the Start on Time program.

School population. School population is considered a threat in this study because this study used data from only one school with the demographic make-up remaining consistent during the period of this study.

Study period. The length of the study is considered a threat in this study because the study period gathered data over a four-year period.

Test score. Test scores collected is considered a threat in this study because data is collected from two assessments, both reporting scores differently. Therefore, the researcher converted the assessment mean scores to z-scores, allowing both measures to be compared on an equal numerical format.

Definitions of Terms

Academic Instructional Time – The actual amount of time the instructor spends on content within the curriculum (Ornstein, 1989).

EXPLORE Test – This assessment measures students' curriculum-related knowledge and their cognitive skills in English, mathematics, reading, and science. This assessment is administered to eighth-grade students.

Free and Reduced Lunch Program – This program provides free meals to eligible children whose household income is at or below 130% of the poverty threshold. For a family of four, the poverty threshold is set at $21,200. This means a family whose earned income is $27,560 qualifies for free and reduced lunch for their children (Cruse and Powers, 2006; Federal Register, 2008).

Missouri Assessment Program (MAP) – This assessment is designed to measure each student's progress in meeting the Show-Me Standards, a set of academic goals adopted by the State Board of Education (DESE, 2008b).

No Child Left Behind (NCLB) – A bill signed by President George W. Bush in 2002 that reauthorized the existing Elementary and Secondary Education Act, mandating all schools produce high levels of student performance and staff schools with high-quality

teachers. Specifically, all children will be proficient in reading and math as established by each state by the year 2014 (DESE, 2005; O'Donnell & White, 2005).

Positive Behavior Support (PBS) - A collaborative school improvement process for structuring the learning environment to support the academic and social success of all students (CPS, 2008a).

Start on Time – "Comprehensive multimedia program that guides schools through the process of designing a proactive and positive plan for creating safe transitions and reducing tardies" (Sprick, 2003, p. 2).

Summary

The purpose of this study was to investigate the relationship between the potential increase of instructional time and academic achievement for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch. Silva (2007) revealed students spend two-thirds of their day outside of school; therefore, school time is a valuable resource that must be use efficiently each day. Ornstein (1989) reported that teachers must find ways to effectively use time, acknowledging the greatest potential for loss of instructional time comes at the beginning of each period. The implementation of Start on Time provided teachers the capacity to begin the instructional lesson immediately following the tardy bell.

Chapter II – Review of Literature

The relationship between education and poverty continues to be a topic of interest and study. The April 2008 issue of *Educational Leadership* was devoted to poverty and learning, examining topics that include: full-service schools, cultural poverty, recruiting and retaining teachers, reducing summer setbacks, closing the teacher quality gap, and social and economic reforms to improve student achievement. Recent reports indicated that only 28% of high-achieving, first-grade students come from low-income homes, suggesting that achievement disparities begin before students enter elementary school. In addition, the same report suggested that high-achieving students, who come from low-income families, lose high-achieving status as they advance through grade levels (NewsLeader, 2008). This type of inequity is compounded in school districts that have a high percentage of low-income families as the per-pupil expenditure is lower compared to school districts with a low percentage of low-income students (Slavin, 1997). *A Nation at Risk* recommended schools set high expectations for all learners with a goal of developing the talents of all students to their fullest (National Commission, p. 5). NCLB legislation was developed on the same premise as *A Nation at Risk*, focusing attention on student populations that historically show evidence of low-achievement scores and less than rigorous curricula that challenge the intellectual growth of students, specifically identifying low-income and minority students (Futrell & Gomez, 2008).

Since educators are directed by NCLB requirements to meet achievement guidelines and provide supplementary education for low-income students in low-

performing schools, it is easy to understand why school reform focuses on time. The on-going belief that more time in school should result in more learning and improved student performance is the focus of many reform packages; however, the cost to implement and maintain can be extensive (Ornstein, 1989; Silva, 2007). In an attempt to maximize resources, school districts have focused on extending the school day or the length of the school year. In most cases, extension of time has been part of a larger reform package rather than an isolated variable (Silva). Silva stated that "there never has been a controlled or longitudinal study that measured the effects of extending time on student learning" (p. 2). However, as educators study the element of instructional time, it is necessary to make distinctions between the types of time. School time is categorized into four components: (a) allocated school time, (b) allocated class time, (c) instructional time, and (d) academic-learning time. Silva showed the correlation between time and achievement increases as more instructional time is provided. In addition, increasing the academic-learning time increases the correlation between time and achievement.

Instructional Time

Allocation of school time. A Nation at Risk was published in 1983. This report cited the importance of educating every child and the need to improve math and science curricula. American students needed to spend a greater amount of time in school if they were to remain economically competitive with other nations (National Commission). As a result of this study, educators and legislators focused on increasing instructional time as a means to improve student achievement. Whereas 37 states proposed legislation to increase the length of the school year in response to this study, only a few adopted any such practice (Prince, 2004).

Increasing the length of the school year creates many factors that state and local districts must address. The main issue facing school districts when considering increasing the length of the school year is employee salaries and benefits as well as facility management. Increasing the number of school days would have a direct effect on the state budget and the amount of funding provided to schools. In addition, the school district must take into account the community and how increasing the number of school days will affect families. At the time this report was published, many rural communities began school after Labor Day and dismissed in May. This calendar format helped the agriculture community as it allowed students to be available during planting and harvesting.

School time spent on instruction has decreased since 1940. Williams (1997) found the following:

> Of the more than 1,000 instructional hours per year mandated through public education, only 300 hours per year are quality instructional hours. The 300 instructional hours per year translates to 90 minutes of quality instruction per day (based on 187 school days). Studies that examine time and opportunity to learn have found that the amount of content covered predicts the amount learned by students. (p. 60)

This means that during a standard eight period day, each period can expect 12 minutes of quality instruction. Research has revealed that academic learning time receives the least amount of time during the school day (see Figure 2); however, through the implementation of the Start on Time program, teachers are expected to begin class when the tardy bell sounds. Beginning class immediately establishes the value and

importance of the lesson as well as reducing off task behaviors or teacher duties. Teacher duties and student behaviors contribute to a non-productive learning environment. Built within the Start on Time program is the expectation that teachers begin when the bell sounds by using short review activities to support previous lesson or check for comprehension, thus preparing the student so they can actively engage in the upcoming lesson. In theory, this format is designed to increase the academic learning time beyond the estimated 12 minutes per class.

David Berliner (1990) said the following:

> The fact is that instructional time has the same scientific status as the concept of homeostasis in biology, reinforcement in psychology, or gravity in physics. That is, like those more admired concepts, instructional time allows for understanding, prediction and control, thus making it a concept worthy of a great deal more attention that it is usually given in education and in educational research. (p.1)

Berliner continued within his 1990 article to distinguish between instructional time, examining nine time concepts that occur during a class period. Silva (2007) took these nine concepts and condensed them down to four concepts related to educational time.

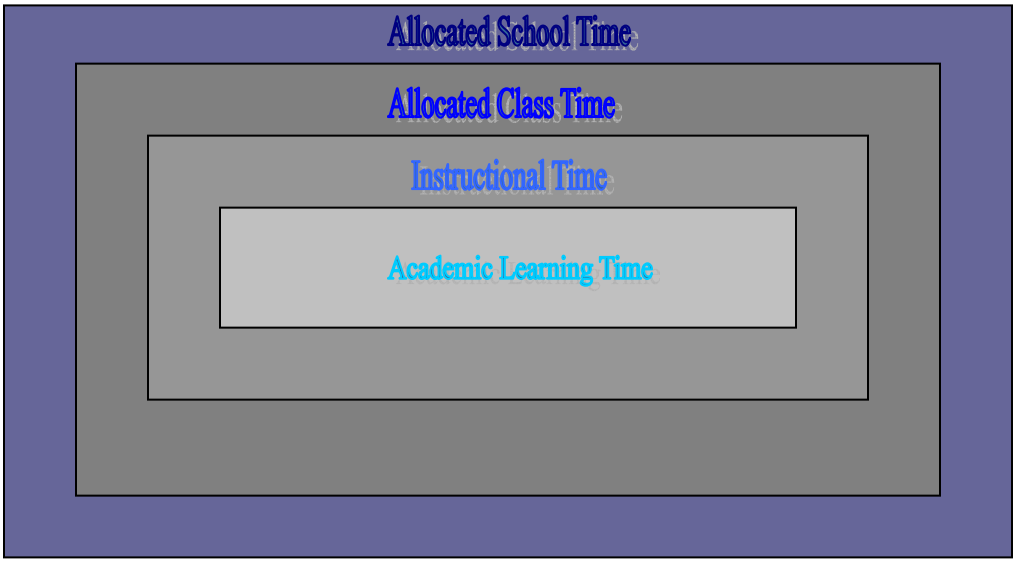

Figure. Allocation of a Typical School Day

Note. Concentric rectangle representing the time spent in a typical school day. Academic learning time represents the least amount of time during the school day. From "On the clock: rethinking the way schools use time," by E. Silva 2007, *Education Sector Reports,* p. 3.

Figure 2 denotes time allocation of a school day in diagram form. The greatest amount of time is naturally allocated to overall school time, when a student arrives until dismissal at the end of the day. Allocated school time takes into account recess, non-academic activities, and announcements. The second greatest amount of school time is given to allocated class time which is the total time in a specific class, but it also takes into account non-academic activities, such as taking attendance, accounting for tardies, and addressing student behavior issues. These are types of activities that must be accomplished but are not academic. Instructional time represents the time for formal instruction. Berliner added to this representation of instructional time by concluding there is no formal assessment or student engagement to check for comprehension or

understanding of material (p. 2). The inner rectangle of the diagram is representative of the smallest amount of time given to instruction—academic learning time. Academic learning time is the brief time when students are engaged in the learning process and teachers use summative evaluations to check for understanding. This time represents when the student has the greatest potential to gain and retain knowledge. As can be observed by Figure 2, the most important aspect of the school day receives the least amount of allocated time (Berliner, 1990;Silva, 2007). Ornstein (1989) defined instructional time as academic learning time stating it is "the actual amount of time the teacher spends in the various curriculum areas and is sometimes referred to as academic learning time or content covered" (p. 107). While the terms academic learning time and instructional time are closely related, researchers Silva, Berliner, and Ornstein agree that students are exposed to these two time frames the least amount of time during the school day.

Concerns regarding instructional time are not new. Instructional time is an important variable in the academic success of students. In a 2007 report published by the International Reading Association the document stated "literacy development thrives when it is integrated into content area instruction and content mastery improves as students become better readers. Schools simply need to ensure effective use of instructional time" (p. 14). Research conducted by the National Council of Teachers of Mathematics has determined that 60 minutes of math per day provides 50% more math instruction compared to a 40 minute period of math over the course of a school year. Additionally, the math council refers to the middle school years as an important time in math development since high school math is now taken by younger students; therefore,

short-duration courses should be avoided (2006). Both of these reports were contributions to a collaborative project emphasizing the importance of maximizing quality instructional time. As the reports indicated to impact student learning, academic learning time must be the focus. Whether integrating reading into content or extending the time for math instruction, how class time is used has the greatest impact on achievement.

This relationship has been apparent since as early as 1884 (Berliner, 1990). Currie (1884, as cited in Berliner, 1990) included the following passage in the teaching methods book *The Principals and Practices of Common School Education*:

> The art of teaching [consists] of the means by which the teacher sustains the attention of his class. By attention, we do not mean the mere absence of noise and trifling; or that inert passive state in which the class, with eye fixed on the teacher, [gives] no symptom of mental life; not that intermittent and almost unconscious attention bestowed on some casual topic which strikes their fancy; not the partial attention given by a few . . . in the immediate neighborhood of the pupil addressed. The only satisfactory attention is that which is given voluntarily and steadily by all during the entire instruction and in which the mental attitude of the class is actively engaged along with the teacher in working out their own instruction. (p. 224)

The passage by Currie as cited in Berliner focuses on the importance of time management, more specifically maximizing the instructional time or academic-learning time a teacher has with his or her students. This quote, while written in 1884, supports the importance of academic learning time as taking place when the students are attentive and participating.

In a 2006 report submitted to Virginia Beach Public Schools Board of Education, district researchers investigated impediments and strategies to maximize instructional time. By use of a random survey, results showed evidence that both students and administrators indicate student tardiness, as well as students arriving unprepared to class, as moderate or large impediments to instruction. The strategy that was identified by those surveyed to address this concern was implementing stricter tardy policies and increasing student accountability (Banicky & Janicki, 2006).

Tardiness is one of the most frustrating problems that face schools today. Valuable instructional time is lost when teachers are faced with students arriving late, which can create a disruption to a lesson. Student tardiness also presents additional management concerns. School administrators must examine the reasons for students arriving late to class. Through their examination, they will find students loitering in the halls, engaging in possible harassment or bullying activity, and participating in other misconduct. In many of these circumstances, the hallway activities are brought into classrooms, adding to the precious time lost for instruction (Sprick & Daniels, 2007).

Increasing school time. Ornstein, in his 1989 publication *Academic Time Consideration for Curriculum Leaders,* asserted, "If students have more time to learn specific skills or tasks, then they should learn more than students who have less time" (p. 103). This theory has merit; however, the greatest factor that prevented school districts from increasing the number of school days from 180 to 210 or the length of the school day as much as one hour was financing. State estimates vary with the projected cost to lengthen the school year ranging from $2.3 million to $121.4 million for each additional day. The state of California estimated a cost of $50 million annually for each district to

add a single instructional day. Increasing the school day appeared more practical as educators compared the cost factor between extending a school year and increasing the school day, and evidence clearly supported the use of before-school and after-school programming (Prince, 2004).

While lengthening the school day may have less of an impact on state funding to schools compared to extending the school year, there are drawbacks to increasing the number of hours a student attends school. School districts must take into account employee contractual agreements for salary and benefits. The district will have an immediate increase in their expenditures from the teacher fund resulting in possible reduction in payroll reserves. In the event the district employs hourly wage staff, the district will not only be affected by wage expenditures, but also by federal legislation governing fair labor regulations. Lengthening the school day will also affect the facilities, such as classroom cleaning, building repair, and utility costs. Potentially, lengthening the school day could impact extracurricular activities, such as athletics, intramurals, music or band, especially at the junior high and high school levels. The impact on these activities may include travel time or distance, scheduling, shared facilities, or student participation numbers. Recognizing these barriers exist strengthens the reasoning for school reform to consider the importance of maximizing instructional time within the allotted time per day.

Accepting instructional time as a component of school reform to improve student achievement is a logical methodology. The premise being the greater amount of time spent in school results in higher student achievement; although, time as a variable cannot be viewed solely as the greatest factor in increasing student achievement. Of equal

importance is the quality of the instruction during the additional instructional time (Prince, 2004; Silva, 2007). Research reveals superior teaching benefits all students; however, superior teaching built within extended time has notably benefited low-income students as well as those students who may not have opportunities to receive education support outside the school (Silva, 2007).

A large percentage of research is based on the assumption that more time in school will result in more learning and improved student performance. However, extending the school day and year not only leads to a greater expense to the school district, but this type of practice will also affect teachers, parents, employers and many industries that have established their businesses based on a traditional school schedule (Silva, 2007). Industry and local business for example sets operational hours and vacation time following a traditional school schedule. In the event the school district decides to increase the length of a school day or school year, employees may have to adjust work schedules based school start time or dismissal time, and on day care availability. Industry vacation planning will also be impacted due to fewer days available for an employee to take time off, creating the potential for a large number of employees taking off at similar times. Many high school students seek part-time employment after school and during the summer. With an increase in the length of the school day or school year, the opportunity for high school students to obtain part-time employment may be restricted.

For low socio-economic families, extending the school day can have a positive effect on their daily lives. In a study consisting of pre-service teachers placed in high poverty schools, teachers revealed that many students only have access to their courses

during the school day, citing limited out of school resources, family responsibilities, and tasks outside of school (Bennett, 2008).

Silva (2007) cited a study conducted by Slavin and Karwiet (1981). The study differentiated between scheduled class time and instructional time. In the study, students were tracked in 18 math classes in four elementary schools using pre- and post-test scores on the Comprehensive Test of Basic Skills as the measurement tool. The findings from this study revealed an increase in student-engaged time positively affected the CTBS post-test scores. Cotton and Savard (1981) analyzed 35 valid studies on the relationship between time and learning. Their analysis found a strong positive relationship between academic learning time and student achievement, concluding "the greater the amount of engaged time, the higher the levels of student achievement" (p. 4), and "of all measures of student learning time, the rate of academic learning time constitutes the biggest predictor of achievement" (p. 6).

Lengthening the school day is beneficial; for example, charter schools such as Knowledge Is Power Program (KIPP), located in North Carolina have shown that incorporating additional time during the instructional day benefits students. At-risk students especially achieved higher scores on math tests (Stoops, 2007).

Many American families and politicians believe that in order to compete with other countries, more time in school is the answer. Unfortunately, this is not the case. In a report submitted by the John Locke Foundation, a nonpartisan research institute found that a student in the United States receives an average of 4.7 hours per week or 169 hours per school year of math instruction compared to an average of 4.1 hours per week or 149 hours per year for students of other counties. Even with the increase of instructional time

in math, the United States ranked 27 out of the 39 countries who participated in the Program for International Student Assessment math exam given to fifteen-year-old students. Furthermore, this report revealed of the top five scoring countries, three provide less instructional time per year than the United States (John Locke Foundation, 2007). Data analysts offer opposing viewpoints regarding this data. First, a group of researchers from Pennsylvania State University determined that there is no statistically significant correlation between instructional time and math scores on international assessments. This lack of correlation is due to little variance in math instruction among the 37 participating countries, with most countries providing between three and four hours of math instruction per week (Stoops). However, research analyst DeRoche (as cited in Silva 2007) found a strong correlation exists between increased instructional time and higher scores on international assessments such as PISA (p. 5).

What becomes evident between both analysis groups is that variances in education processes exist between countries. Even though the amount of math instruction may be similar, the researcher must take into account variables such as instructional strategies, class size, and tutoring, textbook selection and curriculum objectives. DeRoche's analysis recommended the addition of 180 instructional hours of math per year for American students; however as test data revealed in these studies, it does not appear to be the length of time, but rather the quality of instruction within the academic learning time provided. This researcher believes that by maximizing actual learning time, student achievement scores will increase in all content areas.

The purpose of this study was to determine if increased instructional time increases academic achievement and academic growth of students who qualify for free

and reduced lunch. Instructional time continues to be a focal point of educators as state and district expectations increase. With school districts focusing on educational costs that continue to increase and NCLB standards that must be met, educators must consider effective strategies that maximize instruction. Research has been presented that both supports and refutes the inclination to increase the length of a school day. However, this researcher holds to the belief that structuring class time to increase actual learning time has the greatest potential to increase academic achievement for students of poverty. This belief is supported by research presented by Bennett (2008), who reported that many students, especially from low-socioeconomic families only have access to their courses during the school day due to limited out of school resources and family responsibilities (2008). Following this assumption, the educator must take full advantage of learning time to maximize the student's progress.

The final two sections of the review of literature will include research on poverty and the instructional environment. Specific topics include: (a) society's perception of poverty, (b) education risk factors of poverty, (c) academic research as it relates to poverty, and (d) instructional environment. Literature topics will review studies on lifestyle and educational value, a child's education while living in poverty, the relationship between socio-economic status and academic achievement, and placement in special education programs.

Poverty

Perception of poverty. Perception is defined as an understanding or knowledge gained through observation or belief (Kauffman, 1988). Within society preconceived ideas may exist regarding poverty and its lifestyles as well as educational limitations of

those individuals who live in poverty. What teachers might see as a lack of parental involvement may be related to a lack of resources or the responsibility of having multiple jobs, which results in less time for parents to attend school events with their children (Gorski, 2008). Teachers must remain cognizant of their student's family dynamics and changes that may occur, therefore it is important for the classroom teacher to develop a relationship with each family. A teacher who acts on preconceived ideas or misperceptions can have adverse effects on student achievement and motivation for school. These adverse effects can lead to poor attendance, behavior concerns, low test scores, and poor quality of homework.

Rector and Johnson (2004) cited the following:

> For most Americans, the word poverty suggests destitution: an inability to provide a family with nutritious food, clothing, and reasonable shelter. But only a small number of the 35 million persons classified as poor by the Census Bureau fit that classification. (p. 1)

Furthermore, Rector and Johnson illustrated a lifestyle that is different than is perceived by most Americans: (a) 46% of poor households owned their homes, (b) 76% of poor families had air conditioning installed in their homes, (c) 97% of poor families had a colored television set, and (d) 75% of poor families owned a car (p. 2).

Another misconception is the existence of poor nutrition among children of poverty. American families are not chronically undernourished. In fact, children from poor families consume more meat than high-income children. However, according to the United States Department of Agriculture (USDA) data in 2004, 13% of poor families do indicate they experience hunger at some point during the year (Rector & Johnson).

The perception of poverty in America is also divided in relation to the contributing factor leading to family poverty. In a study conducted in 2001, families categorized as low-income (a family earning less than twice the poverty level) identified drug use, medical bills, and too few jobs as contributing factors to poverty. Drug use was also indicated as the leading cause of poverty by those families living below the poverty threshold. Interestingly, middle-class families identified the number one contributing factor to poverty as being inferior public education (NPR, 2001).

Educators also have misconceptions regarding families of poverty and how their socio-economic status is related to their children's education. For example, there is a belief that poor parents are not involved in their children's learning since they do not value education. What has been found in follow-up studies is that low-income parents hold the same attitudes and expectations about education as those families who have a higher income. The misconception comes from the fact that many low-income families do not attend school events or volunteer for school activities. A reason for this perception is that low-income parents may have less access to school involvement. Specifically, low-income parents are more likely to hold multiple jobs, work evenings, or have a job that does not provide paid leave (Gorski, 2008).

In the book *A Framework for Understanding Poverty*, Ruby Payne identified individuals who are experiencing generational poverty as believing that society owes them. Families of generational poverty place a higher value on entertainment and immediate satisfaction rather than education (1996). This definition supported the poll conducted by National Public Radio (NPR) in 2001; similarly, poor quality of education was identified as an eighth factor that contributes to poverty (2001). Education is the key

to getting out of poverty and staying out of generational poverty. Payne makes two key points related to poverty; first, poverty is not associated with poor intelligence, and second, children of poverty may need systems in place to reduce their risk of low-achievement scores. In education, the term at-risk refers to factors that cause children to fail at school, and poverty is considered a major risk factor (Pellino, 2005; Seccombe, 2000).

Though the perception of poverty is one of devastation, teachers must maintain the perspective that poverty is not associated with intelligence; however, there are risk factors that must be addressed. Identifying educational risk factors followed by implementation of programs or policies that provide academic support will ensure all students have an opportunity to maximize their education. In addition, school districts must recognize the importance of building a positive school community. This can be achieved by providing opportunities for all parents to attend and participate in school functions. To accomplish this, schools must be creative and identify true needs, this means avoiding perceived needs. Possible initiatives that may assist low-socioeconomic families to attend school functions include, child care during parent conferences; coordinating with local industry and businesses to form partnerships to increase communication so employers have an increased awareness of school functions; provide multiple times for school programs, such as musicals; and increase communication through home visits, newsletters, and weekly updates accessible via computer or phone message service.

Education risk factors of poverty. As established in the prior section, the researcher has provided supporting evidence that poverty is not related to intelligence but

acknowledged that risk factors do exist that can inhibit a student's education. This section identifies the significant impact on a child's education living in chronic poverty can have and takes into account cognitive development, mental health, and physical health. Furthermore, researcher will present studies that demonstrate the importance of providing academic support and family support through the educational system as a strategy that has the greatest potential to increase student achievement.

Developmental risks in children, such as social development, cognitive development, and emotional development are associated with poverty and economically disadvantaged families. In the 2005 report *Duration and Developmental Timing of Poverty and Children's Cognitive and Social Development from Birth through Third Grade,* researchers cited studies that have shown that children who live in chronic poverty have less favorable cognitive and social development and poorer physical and mental health than do those who live in transitory poverty. This is due to the fact that transitory poverty represents a family that moves in and out of the poverty status, meaning that a child may be older when meeting the criteria for poverty, therefore not facing development delays. The study also pointed out that families living in chronic poverty have a less stimulating home with a greater risk of prolonged and extensive parent stresses *(*"Duration and Development", 2005). In the report *Effect of Child and Family Poverty on Child Health in the United States*, Wood concluded that adults with twelve or fewer years of schooling experience the greatest decrease in earning power (2003).

Ruby Payne (1996) identified two key points necessary for someone to leave poverty: education and relationships. The responsibility for establishing support systems

for student achievement falls onto the educational system; even so, the family support must be present for the student to adjust their educational value and work to obtain a higher level of achievement. Within school, the support system consists of role models who insist on high achievement and who demonstrate a caring relationship with students (Payne).

The importance of establishing support mechanisms for low-achieving students has been an accepted practice in education; furthermore, educators must remain cognizant of current research related to students from families whose income falls at or below the poverty threshold. However, as established by this researcher, family support is significant if a child is going to obtain a high level of achievement. As this review of literature continues, the researcher places emphasis on current educational studies and research related to academic achievement and poverty.

Academic research as it relates to poverty. When educators address the national issue of improving student achievement, they often forget that low achievement is closely correlated with lack of resources. A number of studies have shown through research a direct correlation between socioeconomic status and low achievement (Payne, 1996; Seccombe, 2000). This belief leads educators to rethink or adjust the methods used to present the information as well as to determine the type of assessment strategies that can provide an accurate account of student knowledge. For example, teaching power verbs such as describe, explain, infer, and contrast. Most assessments are written using these types of verbs. Students who may not been exposed to the meaning and use of these verbs have the potential to misunderstand the question, thus increasing the chance of an incorrect response.

A report published by the *Houston Chronicle* showed a strong correlation between low-income and poor-achievement scores. The study also demonstrated a relationship between school size and achievement scores of children of poverty. The study examined 6,288 schools in 960 districts in Texas, Ohio, Montana, and Georgia. The study used state test scores in third, fifth, eighth, and tenth grades to reach its conclusions. The results of the study confirmed that children of poverty produced lower than average scores on standardized tests. In addition, the study proved to researchers that school size is a factor in how well children of poverty perform on state assessments. In this study, data showed the larger the school, the greater the percentage of students who scored below average on tests compared to smaller rural schools (Gap, 2000). This study supported the knowledge that school districts must put systems in place to meet the needs of children of poverty. This researcher is not recommending reducing school size; however, academic systems include incorporating academic support such as peer tutoring, math study halls, literacy coaching, and building strategies to maximize student learning time. A possible strategy to increase student learning is common planning time. Common planning time allows similar content area teachers to collaborate; however, this can be a challenge for schools with limited resources and class offerings.

In a middle school study designed to show the effects of team planning on student achievement, the researchers compared high-poverty schools (60% and higher free and reduced lunch students) to low-poverty schools (less than 39% of the students participate in free and reduced lunch) in relation to teacher preparation by implementing team/common planning time. The final analysis of the data showed that low-poverty schools produced higher achievement scores on state assessments compared to the

students who attended high-poverty schools. The common factor was the implementation of common planning time. Common planning time allows for similar content teachers to collaborate to enhance students learning or develop common assessments. However, educators from the high-poverty schools recorded a greater amount of planning time compared to the educators from the low-poverty schools. As a result of this study, the researchers concluded that socio-economic status is an important predictor of student achievement (Mertens & Flowers, 2003). This study demonstrated that common plan time and collaboration did not result in the high-poverty school receiving higher assessment scores compared to the low-poverty school. However, this is only one variable that serves as a predictor of student achievement. Others may include lesson presentation, planning time, academic resources, and school environment.

In a 2008 article, the authors reported that disparities within education continue even after six years since the onset of NCLB. Ability grouping is still an accepted paradigm in education; as a result, grouping creates an educational environment that is not equal. In a study published by the National Center for Education Statistics in 2007, data that was gathered from 11 urban school districts who participated in the National Assessment of Educational Progress Trial Urban District Assessment suggested improvements are slight. From 2005-2007, the average reading score increased in 4 of the 11 school districts for eighth-grade students, and the average math score increased in 6 of the 11 school districts for eighth-grade students. Researchers attributed these results to the fact that NCLB assessments and state assessments are standardized, and the curricula used in teaching are not. Students who are viewed as having higher ability are often offered challenging content and are provided more techniques to learn and to focus on

content being taught. What has been confirmed is that low socio-economic students over-represent the lower-ability grouping sector in education today (Futrell & Gomez, 2008).

In a much broader study, which was conducted by the Center on Education Policy comparing reading and math growth, findings concluded that NCLB has had a positive impact on the academic development of students. While the report did not disaggregate data related to sub-groups, the data did reveal progress in raising student achievement and narrowing the achievement gap overall. The Center on Education Policy reached the following conclusions:

1. In most states with three or more years of comparable test data, student achievement in reading and math improved since 2002, with more states showing gains than declines in test scores (Azzam, 2007).
2. Some states showed a decrease in high-school math and reading achievement; however, the number of states with gains for high-school students exceeded the number of states with declining numbers (Azzam, 2007).
3. Achievement gaps, while still substantial, are narrowing. Data revealed that of the 38 states with sufficient data on subgroups, 14 states have narrowed the gap in reading between white students and African-American students. By comparison, of the 40 states with sufficient data on subgroups, 13 states have narrowed the gap in reading between white students and Hispanic students (Azzam, 2007).

Since the onset of NCLB, emphasis has been placed on assessment scores. As Futrell and Gomez (2008) indicated in urban schools participating in their study, ability grouping was evident, resulting in educational environments that may not be equal to programs offered within the same school district. This paradigm can have a significant

effect on low socio-economic students who have a greater risk for school failure, therefore may be in such classes resulting in advancement delays in reading and math. However, the study conducted by Azzam (2007), while not providing disaggregated data regarding poverty, did show NCLB data that reflected positive growth in math and reading scores in the schools studied. Even though there is no demographic information provided, this research can theorize that the reporting schools have mechanisms in place that assist all students succeed.

Research indicates that the effect of poverty on student achievement is greater for those children who live in chronic poverty compared to transitory poverty. The timing of poverty on student achievement is determined to have an effect as well. In a study conducted by the National Institute of Child Health and Human Development, child development researchers indicated that poverty in early childhood has a greater association with behavior concerns and low achievement than students who were considered at poverty level in middle childhood. The rationale is that a certain amount of child-rearing remains during a short period of income limitations. This means that during a time when family income may be limited, a transitory poverty family will maintain the family structure and expectations therefore the effects of transitory poverty are not as significant as chronic poverty. An important conclusion made through this study was that the acquired age of poverty had less of an educational impact on the elementary students compared to the length of time their families were earning below the poverty level (Duration and development, 2005).

Sirin (2005) reported:

> That as a child advances grade levels the impact of a low socio-economic status has less impact, indicating the cause to be one of two reasons: (a) schools provide equalizing experiences, and (b) studies show that a greater number of high-school dropouts come from low socio-economic families, thus reducing the magnitude of the correlation. (p. 420)

Payne (1996) conducted extensive research into the effects of poverty and the contributing factors that affect student achievement. When analyzing student data, the researcher must have knowledge of the students' *register of language*. Payne believed that in order to fully understand poverty, understanding of the aspects of language is necessary. Within the register, formal language is the expectation in the workplace and at school. Within this context, the student communicates in complete sentences and selects word choices appropriately. The problem for students of poverty is that they do not have the parent support to use the formal register; therefore, their developmental stages are behind. A reason for this delay could be attributed to reduced or no adult conversation. To develop the formal register, children must practice and incorporate the terms in their normal speaking daily. Unfortunately, state and district tests, such as the American College Testing (ACT) and the Scholastic Aptitude Test (SAT) are written using the formal register. It then becomes evident that assessment data may be skewed due to developmental delays in language acquisition and understanding (Payne).

Research conducted on low socio-economic families, involving educational practices to improve student achievement, has shown child-rearing strategies that may have an effect on cognitive development and the basic thought processes that pertain to

the family unit (Payne, 1996). The family socio-economic status (SES) at the student level shows a strong correlation with academic performance; however, the correlation between SES and academic performance is even greater at the school level (Sirin, 2005). Studies such as these indicate an association between low socio-economic status and student achievement. Sirin identified "the family socio-economic status contributes to students' academic performances by directly providing resources at home and indirectly by providing the social capital that is necessary to succeed in school" (p. 438). Family resources may include reading books, computer technology, and distraction free study area. Social capital may include school supplies, such as paper, pencil, binders, and calculators as well as appearance needs such as in-style clothes.

A student's socio-economic status can be a contributing factor to achievement; even so, there are steps that school districts can incorporate to reduce the risk of low-achievement scores. Educators must be aware of their curricula and how each aligns with state and district assessments. For example, teachers should question the format of assessments. Payne (1996) referenced the phrase register of language, referring to a formal language used in many assessments and texts. Teachers can increase the likelihood of higher achievement scores by providing students with example definitions and explanations of verbs used in questioning that will assist them in understanding how their responses should be prepared or determined.

While curriculum alignment and assessment preparation are important components to increasing student achievement, broader factors that impact instruction are teacher retention rates and school size. Studies have shown both have a direct impact on student achievement, specifically the achievement of students who come from low socio-

economic families. Teacher retention is significant to building a cohesive instructional setting. Maintaining quality teachers strengthens the instructional process of the school and provides stability in the school. This could benefit to a student who comes from low socio-economic family in forming family relations and understanding as well as assisting families understand and support the curriculum.

Instructional Environment

The traditional instructional process assumes that students' cognitive skills are developed and based on knowledge. If students are found to be lacking in this developmental process, they are tested and placed in a special education program (Payne, 1996). Payne identified children of poverty to have the highest risk of beginning their education lacking cognitive strategies. Cognitive strategies are the methods used to process information. Therefore, restructuring of the educational process would require the system to adjust these practices and provide instruction for the development of cognitive skills (pp. 119-120). Restructuring could be represented through the use of time for instruction. Knowing that some children may have delays developmental, teachers can differentiate instruction and structure class time to help the children improve performance.

The role of the teacher is invaluable; yet, maintaining experienced teachers in high-poverty schools is a challenge facing education. Schools must retain quality teachers who serve within the support system of the school and community and have established curriculum for development of cognitive skills for students who demonstrate delays. In areas of concentrated poverty, the possibility for high-teacher turnover is significant. Data shows that in school districts with high poverty rates, 50% of teachers leave

following their first year, and 70% leave after they have completed three years of teaching; therefore, the stability needed by students is not available (Cookson, 2005). This researcher believes that the reason for high teacher turn over is due to the combination of external factors, such as state assessment scores and internal factors such as curriculum development and district assessments as well as the lack of new teacher support and training at the building level. To combat this situation, districts must focus on the internal factors, emphasizing student learning. In doing so, providing professional development to assist and support teachers in lesson preparation and instructional strategies.

When researching poverty and student achievement, researchers across the country are comparing large districts with small, rural districts. Researchers believe that the smaller the educational environment, the less the impact poverty has on student achievement. A comparative study was conducted and published in 1998 which included Texas, Ohio, Montana, and Georgia. Nebraska followed this study at the completion of the 2002 school year (Howley & Bickel, 2002; Johnson, 2005). The studies used test data from reading scores and math scores as a measure of the power rating of poverty. The results from both studies concluded that school size and affluence had the greatest impact on student achievement. Taking into account levels of poverty, smaller districts showed less impact on student achievement. A definite decrease on academic achievement was found to exist in larger districts. As the researchers pointed out, this is not to determine that the results demonstrate a lack of performance at larger districts, but they do conclude that smaller districts with a population of less than 360 students can narrow the achievement gap and improve test scores (Howley & Bickel, 2002; Johnson, 2005). A

reason for this result may be class size or classroom structure that allows for teachers to differentiate instruction when needed. It may be possible for larger school districts to reach the same results, however their demographics differ in regards to student enrollment. Therefore, larger districts, such as the study district and study school must incorporate systems, such as Start on Time as a strategy to maximize the potential learning time.

Each state studied had some variance in poverty power rating. Even so, the results were similar. For example, the state of Georgia's large-school, poverty-power rating ranged from 49% to 79% compared to their smaller schools whose poverty-power rating ranged from 18% to 53%. Significant improvement was made in the middle-level grades where students were found to be at the greatest risk of dropping out of school. The implications of these two studies support the rationale that students from families of poverty have the ability to develop their cognitive learning skills and sustain their skill development throughout each grade level. This study also depicted the fact that small school settings, such as those in poorer rural communities, can have a substantial impact on the achievement level of students (Howley & Bickel, 2002; Johnson, 2005).

In a 1998 report published by the National Assessment of Educational Progress (NAEP), data revealed that some progress had been achieved in reducing the gap between high-poverty schools and low-poverty schools. In this report, high-poverty schools maintained a minimum of 75% free and reduced lunch qualifiers. Low-poverty schools were defined as 25% or fewer students receiving free and reduced lunch. This report used nine-year-old students in fourth grade, comparing content scores in math and reading. From 1992 to 1996, a six-point improvement was achieved in average math scores, thus

decreasing the gap from a 28 point difference to a 22 point difference. By NAEP guidelines, each 10 point difference represents one grade level. Therefore, at the time of this report, there still existed a two-grade level deficiency between high-poverty schools and low-poverty schools (Department of Education, 1999).

The NAEP report revealed a slight improvement in 4th grade reading scores. However, there still existed a three- to four-year grade level gap. The NAEP state assessment showed 27 states with a significant increase in the percentage of fourth-grade students from high-poverty schools scoring at or above the basic level in math from 1992 to 1996. During this same period, NAEP reading scores did not show any significant improvement across levels of school poverty. The reading study was limited due to NAEP reading assessment not being administered in 1996; as a result, the comparison was considered short term. Still, even with this limitation, only five states showed a significant increase in the percentage of students scoring at or above the basic level in reading (Department of Education, 1999).

Two key points brought to the forefront by this researcher are teacher retention and the school environment. School environment pertains to the size of the school or a specific class. This researcher has concluded that the size of the learning environment does impact student achievement. As demonstrated by the comparative study conducted in 1998 by districts in the states of Texas, Ohio, Montana, and Georgia and replicated in 2002 in Nebraska, evidence led researchers to conclude that school size and affluence had the greatest impact on student achievement. The accepted notion is that large learning environments do not provide adequate time for individual learning assistance or provide the potential for a reduction in instruction time due to management responsibilities.

Teacher retention has a significant role in the student's level of education. The school district has the responsibility to provide teacher support and training through professional development programs and building in-service opportunities.

Summary

Studies relating to instructional time and student achievement are documented as early as 1884 with the work of Currie. Maximizing academic learning time and student engagement is important as the means of enhancing academic progress. A correlation exists between student poverty, instructional time, and academic achievement.

Evidence supports the belief that students who come from low socio-economic families continue to face challenges in education due to the traditional education format and to family responsibilities. In the article "The Constraints of Poverty on High Achievement," the authors stated, "To gain the rigorous academic preparation needed for success, a student must have the opportunity and background preparation to do well, which is often absent in low-income households" (Burney & Beilke, 2008, p. 73).

Several viewpoints and studies focused on increasing the length of the school day or the number of school calendar days. However, with the potential increase in expenditures and the impact a change of this nature could have on families and community, educators must examine programs that have immediate impact on instruction. Flores (2007) provided the following decision making statement, "Finding a proper way to frame a problem gives us not only a better understanding of it but also impacts the ways in which we address the problem and make efforts to solve it" (p. 29). School districts need to follow this line of thinking when making decisions about student learning and instructional time.

While many researchers continue to examine instructional time in the context of increasing time, this researcher implemented a program that maximized allocated class time, giving teachers the opportunity to begin class when class was designated to begin.

Chapter III - Method

The school district of study established as district goals the following three strategic initiatives in 2004: (a) increase student achievement, (b) eliminate achievement disparities between groups of students, and (c) maximize resource efficiency. These three initiatives were the center of focus in the district's efforts to reduce achievement disparities among all student subgroups. To help meet these district goals as well as meet the accountability standards of NCLB, the study school, in the spring of 2005, chose to implement a school-wide system based approach to student behavior management, referred to as Positive Behavior Support (PBS). The systems base approach requires participating schools to identify areas of concern and investigate possible solutions or systems that could be incorporated to reduce the impact of the specific behavior on instruction (CPS, 2008a). In the spring of 2006, eighth- and ninth-grade students who attended the study school participated in a school climate survey (see Appendix A). The survey was designed to provide feedback to school administrators on the students' perspectives of school safety and instructional processes. Of the 20 questions posed, one question focused on the impact of late arriving students; and two questions sought information regarding students' preparedness to begin class. The survey questions and responses were:

1. Are students prepared to begin class following the tardy bell?

   Yes- 47.38% No- 48.91%

2. On average, how many minutes of instruction are lost by students not being prepared?

   1-2 minutes 42.53% 3-5 minutes 29.53% Exceeds 5 minutes 15.20%

3. When a student arrives late to class, what effect does this have on instruction? Aware they entered, but no loss of instruction-33.33%; Minor disruption, minimal loss of instruction-42.40%; Disruption, teacher had to repeat information-11.88%; Disruption, teacher had to address behaviors before continuing-9.96%.

The responses by the students who participated in the survey led building administrators and the PBS Leadership Committee to develop a strategy to reduce tardies and established the expectation of arriving on time and being prepared to begin class. It was apparent from student responses that late arriving students do have an impact on instruction. Of the reporting students, 64.24% reported some effect on instruction when a student arrives late to class. Additionally, student responses indicated a significant loss of instructional time when students are not prepared to begin class when the bell sounds. The results of this survey coincide with the 2006 report submitted to Virginia Beach Public Schools Board of Education. This district's researchers investigated impediments and strategies to maximize instructional time and found student tardiness as well as students arriving unprepared to class were moderate or large impediments to instruction (Banicky & Janicki, 2006). Sprick and Daniels (2007) referred to class tardiness as a problem in today's classrooms. The first four to eight minutes are viewed as a waste of time by many teachers as students enter following the tardy bell (Sprick & Daniels).

In the fall of 2006, the study school implemented a program to maximize the instructional time available in every period of a school day, and it continues at the time of this writing. The Start on Time program allows teachers to begin instruction when the bell sounds and reduces the number of students who are late to class (see Appendix B).

Prior to implementing Start on Time, students arriving late to class caused multiple effects to instruction such as interrupting the flow or delivery of the content, forcing the teacher to stop instruction, or repeat information for the late student, and causing the loss of valuable academic learning time for attending students.

Two respected faculty members of the study school commented on Start on Time after implementation. Their statements allude to the essence of the program and the positive effect that has resulted through its implementation process.

> Students know Start on Time supports their learning and their safety in our building, and it empowers them to make appropriate decisions to be ready to learn in classes each hour of each day. Teachers know administrators value the time needed to teach the curriculum; as a result, the program builds rapport and trust among all stakeholders. (L. Long, personal communication, January, 2009)
>
> The Start on Time Program is a win/win program for both students and staff. It is a precise and effective program designed to reduce tardies by setting specific expectations and consequences for students. The resulting reduction in tardies allows uninterrupted, full teaching time to teachers every hour, every day. The entire faculty supports the maintenance of the program, as it is specific, but not complex. (J. Russell, personal communication, January, 2009)

The school district of study has shown a steady increase in the number of students who qualify for free and reduced lunch over the past five years, increasing from 30.8% of student enrollment in 2004-2005 to 33.3 % of student enrollment in 2008-2009 (DESE, 2009b). Likewise, the study school has also shown an increase in the number of students who qualify for free and reduced lunch by 4.2% over the same period of time (DESE,

2009a). Recall from Chapter Two, Payne (1996) identified low socio-economic children as at-risk for academic failure. In addition, Payne emphasized the importance of implementing systems to support at-risk students. The Start on Time program was the support system implemented at the study school. With an increase in the percentage of students who qualified for free and reduced lunch, the researcher theorized that through this program implementation, students will increase their potential academic learning time thereby improving student achievement.

The purpose of this study was to determine if increased instructional time will increase academic achievement and academic growth of students who qualify for free and reduced lunch. Academic growth can be described as a measure of the rate of growth associated with a designated group over a period of time (Data Quality Campaign, 2006). With the steady increase over the past five years as shown by this data, the percentage of students who qualify for free and reduced meals will continue to increase, making this study even more relevant.

This study asked two questions:

1) Will students of poverty improve academically due to an increase of instructional time at a greater rate than non-poverty students?
2) Does a relationship exist between increased instructional time and academic achievement scores for students of poverty?

The researcher developed two hypotheses relating to the findings of this study.

Null hypothesis 1. There will be no relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Alternate hypothesis 1. There will be a relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Null hypothesis 2. Students who qualify for free and reduced lunch and increase their instructional time will not improve their academic achievement at a statistically greater rate than students who do not qualify for free and reduced lunch.

Alternate hypothesis 2. Students who qualify for free and reduced lunch and increase instructional time will improve their academic achievement at a greater rate than students who do not qualify for free and reduced lunch.

Start on Time Program Overview

Start on Time was an existing program developed by Dr. Randy Sprick through Safe and Civil Schools. The program is designed to make each teacher responsible for decreasing student tardies. This level of involvement in the program by the entire faculty demonstrates to students that there is value to punctuality and preparedness. The program is based on three components: sweep supervisors, class period teachers, and administrator/student processing.

Teachers who have a conference period are assigned a specific hall or zone to walk through after the tardy bell. These individuals are known as the sweep supervisors. Their role is to be present during passing time within their assigned zone, provide reminders to students to move on to classes, and to assist with students who may be disruptive or late to class. In the event students are discovered out of their classes, the sweep supervisor will escort them to the sweep room where their tardies will be processed by an administrator. When a student is ready to return to class, the sweep

supervisor will escort the student to the assigned class. The estimated time out of instruction to process the tardy and return the student to class is five to seven minutes.

The classroom teachers have the responsibility to be stationed outside the classrooms, monitoring behaviors within their classes as well as greeting students as they enter the rooms. As with the sweep supervisor, classroom teachers use pre-corrects and reminders to assist students in arriving on time to class. When the tardy bell sounds, the classroom teachers closes their doors, signaling to their students that class will begin. Closing the door also indicates to late students that they are tardy and must wait for the sweep supervisor. During the escort back to class by the sweep supervisors, students are reminded they must enter the room quietly to minimize disruption. To further emphasize the importance of arriving on time, the program calls for teachers to refrain from repeating information, and to move forward with the lesson, benefiting those who arrived on time to class.

The administrator has three responsibilities within this program. First, when a student arrives in the tardy room, the administrator processes the tardy, which includes having the student complete a parent notification form that consists of two questions for the student (see Appendix B). Second, the administrator reviews the response sheet and discusses positive alternatives or options to support the student's effort to arrive on time. Third, the administrator records the tardy and assigns consequences when necessary. Consequences include, but are not limited to, after school detentions, Saturday detentions, or in-school suspension. Since administrators address the tardy to class immediately, student expectations for arriving on time are re-enforced. Equally important is that by processing the tardy when it occurs, students are not requested by the office at a

later time to process the tardy, therefore decreasing the potential for loss of instructional time. For example, if a student is requested to report to the office, the estimated time out of class could be as high as 20 minutes, taking into account travel time and administrator wait time. Therefore, to reduce the effects of loss instructional time, the study school chooses to process the tardy at the time of its occurrence rather than at another time. (see Appendix B)

Subjects

The subjects were eighth-grade students who attended the study school and fell between thirteen and fourteen years of age. The study school's enrollment consists of both eighth and ninth grade students, however only the eighth-grade students participated in the assessments used in this study. The study school is one of three junior-high schools in the school district of study. This study did not randomly select an equal number of female or male students; instead, the researcher used the data from the entire 8^{th} grade population enrolled at the study school. Table 3 reflects gender demographic data based on lunch status for the study school students during the school years of 2003/2004-2007/2008.

Table 3

Study school; Free and Reduced Lunch Enrollment by Gender

School Year	Male	Female
2003-2004	58	51
2004-2005	45	54
2005-2006	61	53
2006-2007	64	55
2007-2008	73	71

Note. From CPS (2008c).

While this study did not reflect student achievement data from the other two junior-high schools located in the study district, demographic data related to each junior high's free and reduced meal status shows a difference between schools. This information is important to this study because the data reveals an increasing trend in free and reduced lunch enrollment for each of the three schools. Academic data was not retrieved from either of the other junior high schools in the study district because neither school implemented Start on Time or any other tardy reduction program during the time of this study. Table 4 illustrates the number of qualifying students who were enrolled in each of the three junior-high schools in the study district.

Table 4

Study School District, Junior High Free and Reduce Lunch by 8th Grade Enrollment

	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
School - 1	109	99	114	119	144
School - 2	138	127	169	174	157
School – 3	162	163	200	181	216

Note. From CPS (2008c).

The subjects for this study were eighth-grade students who were enrolled in the study school. The subjects were identified by free and reduced lunch qualifications. Free and reduced lunch qualifications revealed an interesting variable—difference in ethnic percentages. As illustrated in Figure 3, the African-American enrollment accounted for 52% of the free and reduced lunch enrollment on average during the school years of this study. Dynamic is the fact that enrollment of African-American students at the study school averaged 14.2% of the total school enrollment for the school years data was collected for this study (DESE, 2008a).

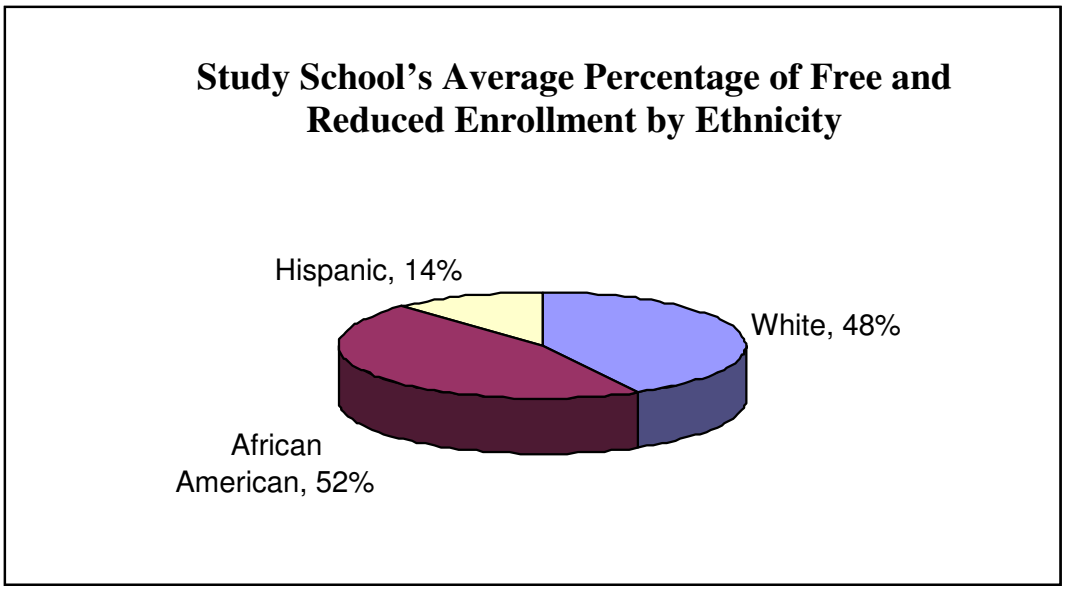

Figure 3. Study school: Average Percentage of Free and Reduced Lunch by Ethnicity, 2003/2004 – 2007/2008.

Note. From CPS (2008c).

The school district's surrounding area has a rich diversity. The community has been developed to reflect a suburban lifestyle; however, the school district extends it boundaries into the rural community as well. Industry is drawn to this region because of the employee pool potential, mainly due to higher learning institutions available. The study school mirrors the geographical diversity of the community within its building. With 24 countries represented by enrollment and its attendance area combining students from both the rural and urban boundaries, this study school reflects the growth and diversity of the Midwest United States.

Sampling Procedures

Sampling refers to the process of selecting individuals to participate in a study or refers to any group on which information is obtained. A sample is a definitive group

chosen as representation of a much larger population (Fraenkel & Wallen, 2000). In this study the sample was determined by grade level. Eighth-grade students who attended the study school between the school years of 2003/2004 through 2007/2008 were included in this study. Recall, as previously indicated in this chapter, ninth-grade students do not participate in the assessments used in this study, therefore, only eighth grade data was used. During this time period, the average enrollment for eighth-grade students was 476 students per year. Data for this study included all students and did not disaggregate based on gender, ethnicity, or age of the eighth-grade students.

Research Setting

The study school is a two-year school made up of eighth- and ninth-grade students. The average daily attendance rate for the school years 2003/2004 through 2007/2008 was 95.5% compared to the state average of 94.1% (DESE (2008a). As indicated by Table 5, the study school maintained a high yearly average attendance rate through the period of this study.

Table 5

Study School Enrollment Percentages

	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008
Enrollment Percentage	95.4	94.5	96.4	95.6	95.6

Note. From DESE (2008a).

The purpose of this study was to determine if increased instructional time will increase academic achievement and academic growth of students who qualify for free and reduced lunch. Increasing the available instructional time was the key variable to this study. Start on Time, a tardy reduction program, was implemented, thereby changing the responsibility of the teacher's daily management responsibilities to supervising the hall and greeting students as they enter class and closing the class door when the bell sounds, indicating it is time to begin class (see Appendix B). Prior to the implementation of Start on Time, the study school's policy and procedures were determined to have the following areas of concern: (a) no specific guidelines for hall supervision, (b) students received two free tardies per period/per semester, (c) inconsistent teacher action for tardy students, (d) inconsistent record keeping, (e) student accountability challenges, and (f) limited follow-through on tardy detentions.

Due in part to the inconsistency of record keeping, lack of hallway supervision, and no accountability measures, building data in 2005/2006 documented 1335 tardies accumulated by 264 students. Start on Time addresses each area of inadequacy as well as provides accurate usable data. Following the implementation of Start on Time, several adjustments were made to help students arrive on time to class including: (a) teachers stationed at their door during passing time, (b) teachers assigned to hall zones as sweepers, (c) administrators recorded tardies and assigned consequences immediately, and (d) building policy changed regarding the use of back bags (see Appendix B). Each of these changes in building management strategies served as a support mechanism for the students.

External Validity

External validity is defined as the extent to which the results of a study can be generalized (Fraenkel & Wallen, 2000). The sample group for this study consisted of eighth-grade students who were enrolled in the study school for the school years of 2003/2004 through 2007/2008. In as much as this study focused on one variable, the increase of instructional time, other variables may have existed that could have limited the usefulness of this study for other populations. As illustrated in Table 6, the relevant characteristics of the students who attended the study school were viewed as small and representative of the school enrollment. However, referring to Table 4 on page 45 shows the study school, represented as school 1, has the lowest number of students who qualify for free and reduced-lunch program compared to school 2 and school 3; therefore, even though the relevant characteristics are determined to be small and representative of the study school's enrollment, the limitations may not be reflective of other schools.

Table 6

Study School Demographic Data

	2005/2006	2006/2007	2007/2008
Enrollment	955*	953*	956*
Male	52%	55%	54%
Female	48%	45%	46%
Caucasian	75%	72%	73%
African-American	15%	17%	16%
Hispanic	5%	5%	4%
Asian/Pacific Islander	5%	6%	7%
American Indian/Alaskan	<1%	<1%	<1%
Free/Reduced Lunch	21%	20%	22%
IEP	12%	13%	9%
LEP	6%	7%	7%

Note. * represents enrollment at the end of the school year. Individualized Education Plan (IEP)- accommodation or modification changes made to instruction to help the student fully access the regular education curriculum. Limited English Proficient (LEP)-student whose native language is other than English (DESE 2009d). From CPS (2008c).

Instrumentation

The purpose of this study was to determine if there was a relationship between increased instructional time and academic achievement and academic growth as evidenced by the number of students who advance to a higher score category of students who qualify for free and reduced lunch. For example, students may advance from the lowest score category, below basic, to the next score category, basic. Determining which

study group increases their rate of advancement will demonstrate academic growth. This study incorporated two instruments of measure to determine academic achievement and academic growth, the MAP and the EXPLORE test. Both of these tests seemed suitable for this study for two reasons. First, both the MAP and the EXPLORE are administered to eighth-grade students, representing an assessment tool that provides on-going data as a student progresses through high school. Second, while the test formats may vary between the two assessments, they each test math and communication arts knowledge and application. A distinction between the two assessments is when they are administered during the school year. The EXPLORE test is given to students in the fall of the school year, and the MAP is given to students in the spring of the school year. Even though the tests have a different format, they both examine student knowledge and application in content specific areas of math and communication arts.

The MAP is designed to measure students' progress in meeting the Show-Me Standards, a set of academic goals adopted by the State Board of Education (DESE, 2008b). The MAP is representative of education reform mandated by the Outstanding Schools Act of 1993. This act "directed the Missouri Department of Elementary and Secondary Education (DESE) to identify the knowledge, skills, and competencies that Missouri students should acquire by the time they complete high school and to evaluate student progress toward those academic standards" (DESE, 2008b, p.1).

The MAP test is given during the spring of each school year to students enrolled in third grade through eighth grade and again during students' eleventh-grade year. Currently, the MAP tests knowledge in three content specific areas: communication arts, math, and science. For the purpose of this study, communication arts and math data were

the assessments used in this study because the science portion of MAP testing began in 2007 and no comparative data was available. “The MAP is designed around three types of test questions: (a) select-response items (multiple choice), (b) constructed response items, and (c) performance events. The constructed response portion requires students to supply the answer, giving assessment evaluators insight as to how the student arrived at the answer. The performance events portion allows for one or more approaches to arrive at a solution. This type of assessment provides insight to the student’s ability to apply knowledge and understanding in real-life situations” (DESE, 2008b, p. 1).

The EXPLORE test program is a national assessment that accounts for one-third of the Educational Planning and Assessment Program which also includes PLAN and ACT. The use of these three testing methods provide parents, students, and educators information to assist in course selection and career options available based on the student’s demonstration of content knowledge and application. EXPLORE consists of four sections: English, math, science, and reading. The test is designed to measure students’ curriculum knowledge and cognitive skills that are vital for further education and their future careers. The EXPLORE test procedures allow 120 minutes for students to complete the four sections of the test. The English portion consists of forty items regarding punctuation, grammar, sentence structure, and rhetorical skills such as organization and style. The math portion consists of thirty items, including algebra calculations, geometry, and statistics (ACT, 2008). As with the MAP, only math and communication arts will be included in this study.

The EXPLORE test is one of three common assessments used by students in planning for their future. Guidance Counselors use this data to assist students in course

selection as they develop four-year academic plans based on their career path. This assessment also helps parents in planning for post-high school education. The EXPLORE test is designed for students to explore options based on comprehensive knowledge. The second assessment, the PLAN test, is administered when a student is in their sophomore year of high school. The results of the PLAN test assist the student in preparing for completion of high school and a potential post-high school plan. Both the EXPLORE and PLAN assessments are recorded on the same scale score system. When students are administered the EXPLORE test during their eighth-grade year, the prediction is that they will score nearly the same on the PLAN test taken during their tenth-grade year. There are expectations that students have more knowledge and can answer more difficult questions. The validity of the EXPLORE test, as it is used in conjunction with PLAN, is a useful tool to test the academic achievement of students as they expand their knowledge through the secondary levels.

Research Design Procedures

The instruments used in this study include the MAP and the EXPLORE. Both assessments measure a student's knowledge and application in a specific content area. The subjects for this project were eighth-grade students who were enrolled at the study school. The purpose of this study was to determine if increased instructional time will increase academic achievement and academic growth as measured by the number of students who advance to a higher score category of students who qualify for free and reduced lunch. Since the differences already exist among the students as indicated by their socio-economic status, this study investigated the possibility of variables that cannot be manipulated. The variable in this study that cannot be manipulated is a student's lunch

status. This design reflected a correlational-comparative research design. A correlational-comparative research design investigates if a correlation exists between groups of individuals when compared to another variable; in this study, the additional variable was increased instructional time (Fraenkel & Wallen, 2000).

The purpose of the study was to determine if student achievement and growth will improve when teachers are given a full 50 minutes to provide instruction to their students. The researcher may also theorize that the number of student tardies will decrease, resulting in higher achievement scores due to fewer students missing class time. The implementation of the Start on Time program provided the system that gave the study school's faculty the capability to utilize a full period of student instruction by removing the hourly responsibility and management associated with student tardiness. Teachers were instructed to close the classroom door when the tardy bell sounded and begin the instruction. Instruction could include a review of the prior day's lesson, practice, or the introduction of a new lesson. Teacher accountability was maintained through classroom observations and team meetings.

Group	Independent Variable	Dependent Variable
I	C1 Free and Reduced Lunch Status	O Achievement scores/growth rate on MAP/EXPLORE
II	C2 Paid Lunch	O Achievement scores/growth rate on MAP/EXPLORE

Figure 4. Correlational-Comparative Design

Note. From *How to Design and Evaluate Research in Education* (p. 397), by J.R. Fraenkel, and N.E. Wallen (2000), Place of Publication: McGraw-Hill Companies.

The correlational-comparative design involved two groups that differed in a particular variable. The difference between the two groups associated with this study was the student's socio-economic status. Figure 4 illustrates the correlational-comparative design for this study. The letter "C" represents the characteristic (defined group) as represented in this study: the student's lunch status. The dash line indicates that the groups being compared were intact groups. The significance of this study using the correlational-comparative design was that the conditions already existed at the time of this study. Both the effect and the intervention had already occurred at the time of this study (Fraenkel & Wallen, 2000).

Statistical Treatment of Data

This study was conducted using the MAP and the EXPLORE assessment given to eighth-grade students from 2003/2004 through 2007/2008 who attended the study school. The study also incorporated student behavior data, specifically tardy data, on this same group of students during the same years. The Start on Time program was implemented during the fall of 2006 and focused on increasing instructional time by removing teachers' management responsibilities at the beginning of each class, allowing them to begin instruction when the tardy bell sounds and reducing the accumulation and frequency of student tardies. The analysis of the data included tardy data for students who qualified for free and reduced lunch as well as tardy data for students who were classified as paid lunch. This data is noteworthy as the two groups were compared relating to the frequency and the number of recorded tardies and the impact of instructional minutes gained since the implementation of Start on Time.

The MAP assessment is administered in April to eighth-grade students. The assessment results are available in September. As an example, eighth-grade students who participated in MAP in April of school year 2005/2006 received their results in September of the 2006/2007 school year. The EXPLORE assessment is administered in October to eighth-grade students. The eighth-grade students who participate in EXPLORE in October during school year 2005/2006 receive their results in January of the 2005/2006 school year. Even though the EXPLORE assessment is given in the fall, the data was vital for this study. This measurement tool provided data to compare with MAP results for the same group of students.

Eighth-grade students who attended the study school represented during the time of this study were representative of the population; therefore, this study used an inferential statistical analysis procedure. Inferential statistics uses quantitative data reported as scores or numbers. Educational research lends itself to inferential statistics because much of this kind of research is based on numbers and comparison of groups (Fraenkel & Wallen, 2000). This study, for example, compared students who qualify for free and reduced lunch to those who were considered paid lunch in relation to students' mean scores on MAP and EXPLORE composite scores. As indicated prior, the research design, defined as how the research is structured, is a correlational-comparative design (See Figure 5). However, within the design format, statistical analysis is necessary; therefore, an analysis of variance (ANOVA) was used. This test was chosen because two specific sample groups were compared: paid lunch and free and reduced lunch, structuring the data to allow analysis of variation both within and between each group studied.

There is a difference, however, as to how each of the assessments is reported. The EXPLORE test reports results in the form of a scale score. A scale score does not represent the number of correct or incorrect responses but rather mathematically translates the students' scores into a scale or range. These scale scores are presented to students in percentile rank compared to school, state, and national norms. "The scale score for the EXPLORE ranges from 1-25, with 25 representing the highest possible score" (ACT, 2008, p. 2). The MAP test also reports results based on a scale score; however, the range of scores is significantly different than the EXPLORE. MAP results are based on three types of test items: multiple choice questions, constructed response

questions, and performance events. Multiple choice questions are graded by a machine that marks incorrect responses and provides a number score of correct answers. The constructed response questions and the performance events require students to work through problems and explain how they reached their solutions. The latter two test items require students to apply what they know to real-life situations. These items are reviewed and read by two individuals per test and given a score. The three scores are combined, resulting in a scale score (DESE 2008b; DESE 2009c). The score range for MAP is different for communication arts and math. Table 7 illustrates the differences in scale score range and the achievement or performance level represented by the scale score.

Table 7

MAP Scale Score Range and Achievement Level

Achievement Level	Communication Arts	Math
Advanced	723 - 875	741 – 885
Proficient	696 - 772	710 - 740
Basic	639 - 695	670 - 709
Below Basic	530 - 638	525 - 669

Note. From DESE (2008b).

The inferential statistical analysis utilized in this study was the analysis of variance (ANOVA). The analysis of variance is a parametric technique to determine if there are significant differences between the means of two or more groups. This analysis is similar to a t-test; however, when applying an ANOVA, the analysis will provide data

within each group and between the groups. Since EXPLORE and MAP report levels of achievement differently, there was not an equal comparison between the mean scores; therefore, the students' mean scores were transformed to z-scores. "A z-score is the distance a raw score deviates from the mean when measured in standard deviations" (Heiman, 1996, p.148). The process allowed the researcher to use both the EXPLORE and the MAP as equal measures.

The overall purpose of this study was to determine if students who qualify for free and reduced lunch improved academically after implementation of the Start on Time program. If improvement was evident, did this improvement occur at a greater rate compared to students who do not qualify for free and reduced lunch? In order to determine if the results of this study were statistically significant, the level of significance .05 was used. This level of significance establishes the probability of obtaining the same outcome occurring 5 times (or less) in 100 (Fraenkel & Wallen, 2000). "It is customary in educational research to view as unlikely any outcome that has a probability of .05 ($p = .05$) or less" (Fraenkel & Wallen, 2000, p. 253). However, since only two groups were being compared, it was appropriate to interpret the F-value. The F-test measures variance or difference between scores to determine if significance exists. Identifying whether a significance exists is necessary to determine if the null hypothesis will be rejected (Heiman, 1996; Fraenkel & Wallen, 2000).

Summary

This study analyzed the impact of increasing instructional time for students who qualified for free and reduced lunch on two achievement tests—MAP and EXPLORE. Both assessments measure students' knowledge and application in content specific areas.

For the purpose of this study, the areas of math and communication arts were analyzed. Increasing the instructional time for students was achieved by the implementation of Start on Time, a systematic program that allows teachers to begin instruction following the tardy bell and provides accountability mechanisms for students. The Start on Time program was implemented at the study school for the fall semester of 2006.

This research project was important because it compared two static groups of students and investigated a strategy that potentially could have an impact on time management within classrooms. The findings from this study could guide professional development for school administrators and teachers of secondary buildings where students transition at the end of each period.

Chapter IV – Results

Prior to the 2006-2007 school year, the study school had an ineffective process to account for student tardiness to class; therefore, the accountability for teachers and students was low. This determination was derived through building administrator observation of the number of students remaining in the hall regularly following the tardy bell and inadequate data and record keeping regarding classroom tardies submitted by teachers. The researcher believes that both of these considerations; frequent tardies to class and a data collection and recording system had a direct impact on instruction, thereby affecting the academic achievement of students.

Specifically, this research investigation compared MAP math and communication arts mean scale scores and EXPLORE math and communication arts mean scale scores of students who qualified for free and reduced lunch with those of students who did not meet the criteria for the free and reduced meal program. Communication arts was not assessed by MAP for this grade level prior to 2005-2006; consequently, the data for this category will reflect three years of achievement data. Math data was presented as pre-2006 to present. This distinction reflects the change in terms associated with a student's level of achievement, not the test format or test results. Student mean scale scores were transformed to z-scores. The transformation allowed each test result to be viewed as an equal measure or relative number.

Data presented in this chapter reflects individual student test scores of both sample groups based on their socio-economic status. Group data in the form of the average mean scores and standard deviations over the period of this study are also presented. The purpose was to demonstrate whether increasing instructional time through

the implementation of a tardy-reduction program impacted student achievement. To demonstrate the effectiveness of the Start on Time program, tardy results for school years 2006/2007, 2007/2008, and 2008/2009 which represented the three years of implementation, are presented. Tardy data prior to implementation of Start on Time was inaccurate due to the lack of adequate accountability standards regarding tardy to class record keeping.

Individual data presented in this chapter was disaggregated by socio-economic status. Once the data was disaggregated by socio-economic status, the student's identification number was deleted. The mean scores were sorted in ascending order followed by transforming the mean scores into z-scores. There was no association between a student's identification number and a z-score.

Hypotheses

Null hypothesis 1. There will be no relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Alternate hypothesis 1. There will be a relationship between increased instructional time and academic scores for students who qualify for free and reduced lunch and for students who do not qualify for free and reduced lunch.

Null hypothesis 2. Students who qualify for free and reduced lunch and increase their instructional time will not improve their academic achievement at a statistically greater rate than students who do not qualify for free and reduced lunch.

Alternate hypothesis 2. Students who qualify for free and reduced lunch and increase instructional time will improve their academic achievement at a greater rate than students who do not qualify for free and reduced lunch.

Analysis of Data

The study school implemented Start on Time in Fall 2006. As Figure 5 shows, since then there has been a downward trend in the number of tardies school-wide. Even though the 2008/2009 school year reflects a significant increase in the number of tardies for the August/September data, there is a sharp decline in the number of tardies to class for the months of October through December. Figure 5 illustrates the potential for increased instructional time due to the decline in tardies.

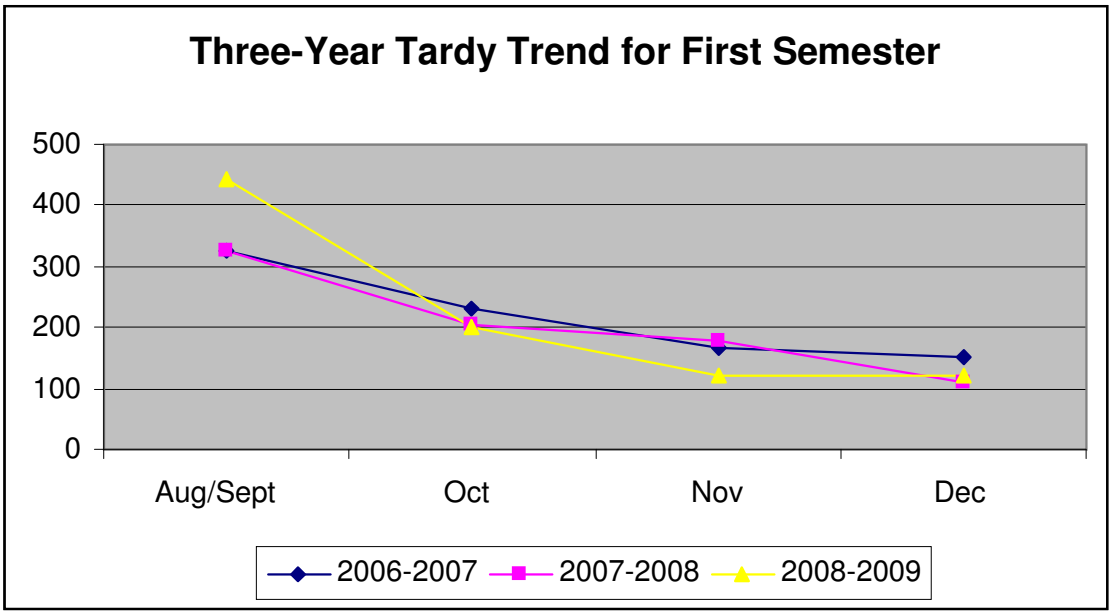

Figure 5. Three-Year Tardy Trend for First Semester

Note. From CPS (2008b).

Table 8

Tardy Reduction Over a Two-Year Period

2006/2007	1808 Total Tardies
2007/2008	1684 Total Tardies
	124 Tardy Reductions

Note. From CPS (2008b).

Table 8 demonstrates a reduction in tardies for the first two years of Start on Time. The reduction of 124 tardies represents the potential for an increase in student instructional minutes gained due to students arriving on time to class, equaling 868 total minutes in the second year of the Start on Time program. This calculation is based on allocating seven minutes to process the tardy and return the student to class. The study school employed 65 core academic teachers who classes would have gained these instructional minutes. Determination of the average reflects that approximately 13 minutes of instruction was gained per teacher. The researcher recognizes that 13 minutes of averaged gained time per teacher does not take into account the number of teaching periods per teacher or the number of tardies recorded per teacher. Tardy data per teacher is not available because the Start on Time program removes teacher record keeping; therefore only the period of day is recorded in the student data files.

The EXPLORE and MAP assessments were used. Because they are reported differently, z-scores were calculated for each student's mean scale score for each test. This transformation permitted the test results to be merged together by socio-economic

status groups for the analysis of variance test. Heiman (1996) refers to the analysis of variance as "a parametric statistical procedure for determining whether significant differences exist in an experiment containing two or more sample means" (p. 382). ANOVA was applied for both content area assessments. Group 1 represents students who participated in the assessment prior to implementation of Start on Time. Group 2 represents students who participated in the assessments after implementation of Start on Time (refer to Appendix C).

When applying ANOVA, the determination of statistical significance is determined by the *F* statistic. Whereas the greater the value of *F*, the greater the likelihood that statistical significance exists (Fraenkel & Wallen, 2000). "The *F* compares all sample means to determine whether two or more sample means represent different populations" (Heiman, 1996, p. 383). When *F* is greater than $F_{crit,}$ the null hypothesis is rejected; likewise, if F_{crit} is greater than F, the null hypothesis is not rejected. The critical value of *F* represents the "value of the sample statistic that marks the edge of the region of rejection in a sampling distribution; values that fall beyond it fall in the region of rejection" (Heiman, p. 598). Tables 10 and 11 represent ANOVA for math scores and Tables 12 and 13 represent ANOVA for communication arts scores.

Table 9

ANOVA Analysis: Math, Free and Reduced Lunch

SUMMARY

Groups	Count	Sum	Average	Variance
Group 1	556	5.32907E-14	9.58466E-17	0.998198198
Group 2	399	-5.33795E-13	-1.3378E-15	0.997487437

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	1.81899E-12	1	1.81899E-12	1.82281E-12	0.999999	3.851235
Within Groups	951	953	0.997901364			
Total	951	954				

Note. ANOVA: Single Factor. Explore/MAP Math Group 1 = F/R 03-05; Group 2 = F/R 06-07.

As observed in Table 9, the value of F is 1.82, and the value of F_{crit} is 3.85. Therefore, by applying the explanation of F, the null hypothesis is not rejected which means that there was no statistically significant differences between the means of Group 1 and Group 2 (free and reduced-lunch students) on the math assessments. The p value was .99 which was greater than the probability value of .05 which indicates the probability of a Type II error. A Type II error is defined as a "statistical decision-making error in which the closeness of the sample statistic to the population parameter described by the null hypothesis causes the null hypothesis to be retained when it is false" (Heiman, 1996, p. 605). To decrease the likelihood of a Type II error, the number of scores need to increase; therefore, more data would be needed.

Table 10

ANOVA Analysis: Math and Paid Lunch

SUMMARY	Count	Sum	Average	Variance
Group 1	2167	-0.179446209	-8.2809E-05	1.015244831
Group 2	1428	-9.067232434	-0.0063496	0.97323011

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.033804853	1	0.033804853	0.033853663	0.854029	3.844048
Within Groups	3587.81967	3593	0.998558216			
Total	3587.853475	3594				

Note. ANOVA: Single Factor. Explore/MAP Math Group 1 = Paid 03-05; Group 2 = Paid 06-07.

As observed in Table 10, the value of F is .03, and the value of F_{crit} is 3.84. Therefore, by applying the explanation of F, the null hypothesis was not rejected which means that there was no statistically significant differences between the means of Group 1 and Group 2 (paid lunch students) on the math assessments. The p value was .85 which was greater than the probability value of .05 which indicates the probability of a Type II error because of the comparison of groups. This reflects the probability that discrepancies between the sample statistics and the population parameter may be due to sampling error (Fraenkel & Wallen, 2000). As represented in Table 10, the value of F falls between the boundaries of F_{crit}; therefore, the F value is not in the region of rejection.

Table 11

ANOVA Analysis: Communication Arts, Free and Reduced Lunch

SUMMARY	Count	Sum	Average	Variance
Column 1	357	-77.6509	-0.21751	1.24619
Column 2	397	-1.8E-13	-4.5E-16	0.997475

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	8.892903	1	8.892903	7.974141	0.00487054	3.853854097
Within Groups	838.6437	752	1.115218			
Total	847.5366	753				

Note. ANOVA: Single Factor. Explore/MAP Communication Arts Group 1 = F/R 03-05; Group 2 = F/R 06-07.

Table 11 reflects the value of F is.7.97, and the value of F_{crit} is 3.85. Therefore, by applying the explanation of F, the null hypothesis was rejected which means that there was statistically significant differences between the means of Group 1 and Group 2 (free and reduced lunch) students on the communication arts assessments. The p value .004 was below the probability value of .05 which indicates the probability of the results being a result of a sampling error. Since the value of F falls outside the boundaries of F_{crit}, the F value is in the region of rejection; therefore, the null hypothesis was rejected and the alternate hypothesis was accepted.

Table 12

ANOVA Analysis: Communication Arts, Paid Lunch

SUMMARY

Groups	Count	Sum	Average	Variance
Column 1	1429	16.03072	0.011218	0.956985
Column 2	1422	-0.00017	-1.2E-07	0.972081

ANOVA

Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	0.089699	1	0.089699	0.092999	0.76042134	3.84472467
Within Groups	2747.901	2849	0.964514			
Total	2747.991	2850				

Note. ANOVA: Single Factor. Explore/MAP Communication Arts Group 1 = Paid 03-05; Group 2 = Paid 06-07.

As observed in Table 12, the value of F is .09, and the value of F_{crit} is 3.84. By applying the explanation of F, the null hypothesis was not rejected which means that there was no statistically significant differences between the means of Group 1 and Group 2 (paid lunch) students on the communication arts assessments. The p value was .76 which was greater than the probability value of .05, indicating the probability of a Type II error because of the comparison of groups. As previously stated, this reflects the probability that discrepancies between the sample statistics and the population parameter

may be due to sampling error (Fraenkel & Wallen, 2000). Since the value of F falls between the boundaries of F_{crit}, the F value was not in the region of rejection.

The second hypothesis reflected the impact of increased instructional time on the rate of growth. To determine if students who qualify for free and reduced lunch realized growth at a greater rate, the MAP test was the sole measurement tool used. The reason for the MAP assessment to be used as the tool of measure is due to the scale score range. The scores were able to be used without transformation to z-scores. While the z-score data used in the analysis of variance did not reflect statistically significant growth difference between students who qualified for free and reduced lunch and those who did not qualify for free and reduced lunch, apparent are the overall results for the MAP assessment since implementing Start on Time. Figure 6 illustrates academic growth for the area of communication arts without taking into consideration socio-economic status. The decrease of students whose scale scores placed them in the below basic and basic classifications is evident in Figure 6. In comparison, there was substantial growth in the proficient and advanced categories.

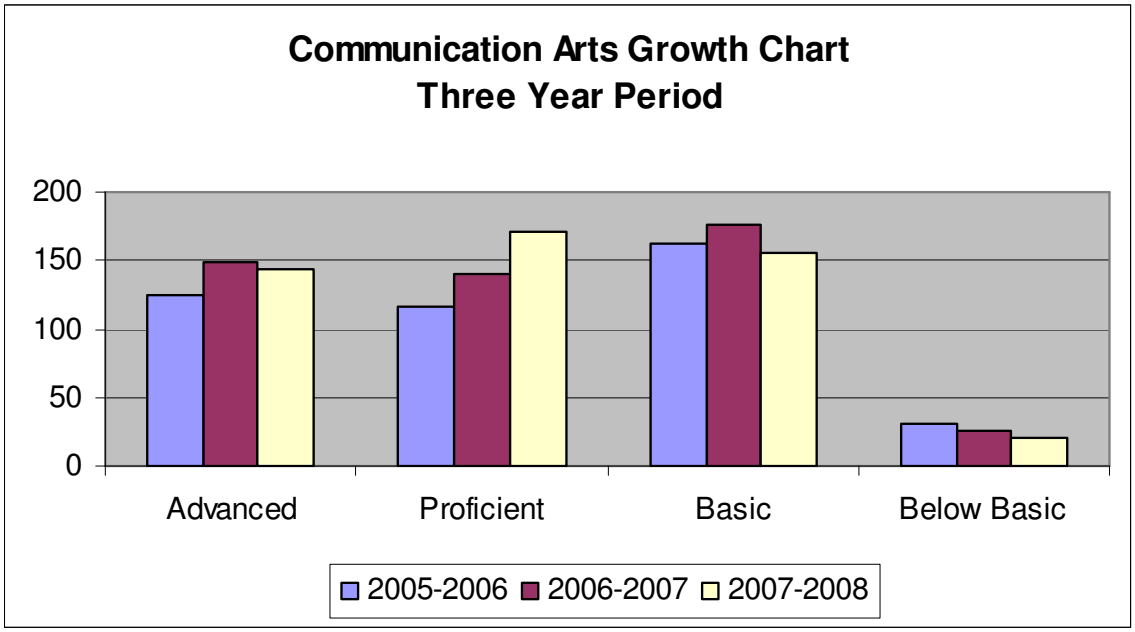

Figure 6. Three-Year MAP Communication Arts Growth Chart

Note. From CPS (2008c).

Table 13

MAP Percentages for Math/Communication Arts by SES

		Math		Communication arts	
		Adv/Prof	Basic/BB	Adv/Prof	Basic/BB
2006	F\RD	18.7%	81.3%	24.1%	75.9%
	Paid	63.6%	36.4%	63.0%	37.0%
2007	F\RD	14.9%	85.1%	20.7%	79.3%
	Paid	63.5%	36.5%	63.7%	36.3%
2008	F\RD	30.5%	69.5%	35.2%	64.8%
	Paid	66.3%	33.7%	69.1%	30.9%

Note. From CPS (2008c).

Table 13 disaggregates the MAP data by socio-economic status and by assessment type. As seen in Table 13, of the students who qualified for free and reduced lunch in 2006, 81.3% scored Below Basic or Basic on the math MAP assessment. However, after realizing another increase in 2007 of 3.8 %, 2008 saw a significant decrease in these categories by decreasing the percent of 8th grade students to 69.5%, reflecting a reduction of 15.6%. This growth difference can be observed in Figure 7 by comparing the gain to the Advanced and Proficient categories with the reduction in the Basic and Below Basic categories. Similarly, communication arts results also showed a decrease in the percentage of Basic and Below Basic students of 14.5% when comparing

years 2007 with 2008. As can be seen in Figure 8, the growth gains were seen in the Advanced and Proficient areas where these categories reflected a 14.5% increase.

The scores of free and reduced lunch students experienced less growth than paid lunch students. For example, during the three-year period, paid lunch students in the Basic and Below Basic category were reduced by 3.3% in the area of math and by 6.1% in the area of communication arts.

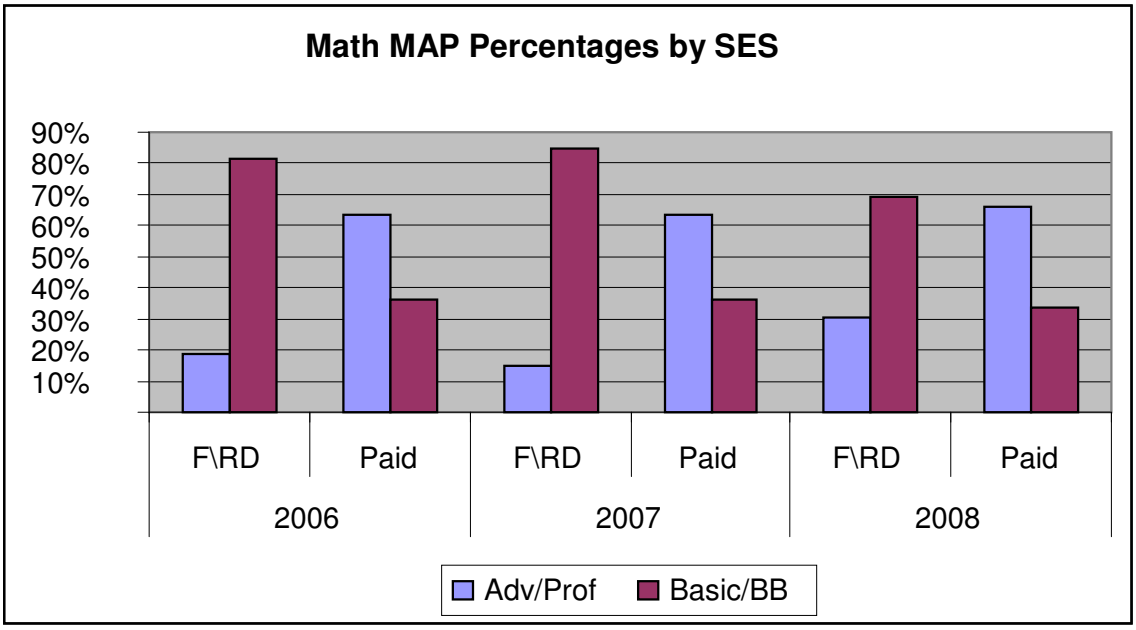

Figure 7. Three-Year Math MAP Percentages by SES

Note. From CPS (2008c).

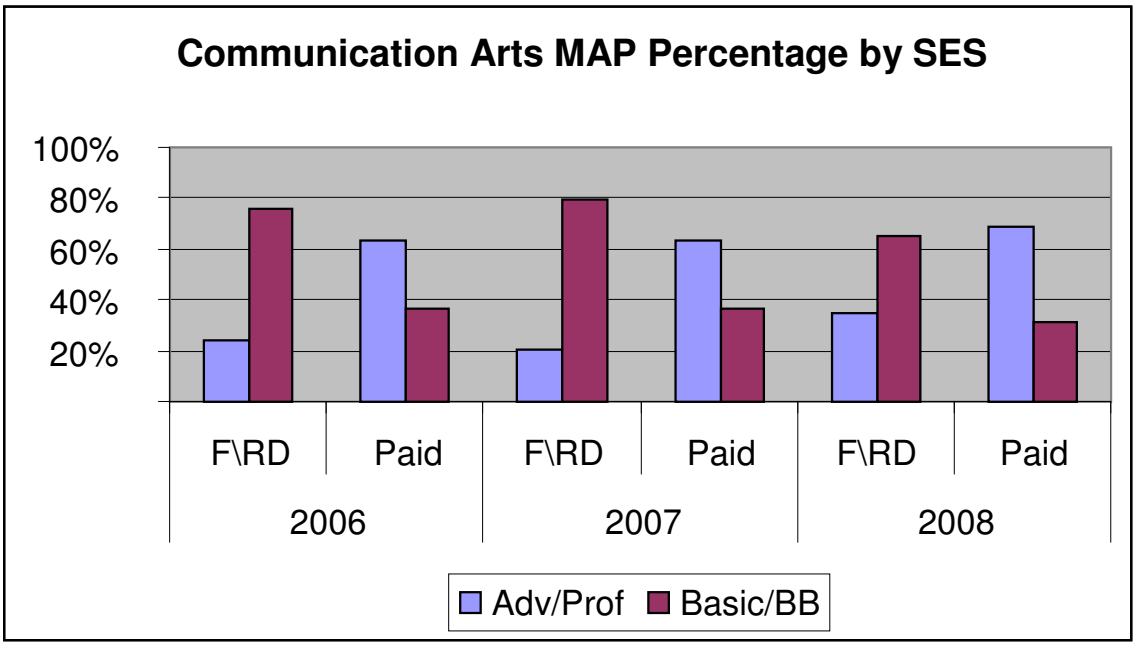

Figure 8. Three-Year Communication Arts MAP Percentages by SES

Note. From CPS (2008c).

The data in Table 13 displays the MAP scores by grouped categories: Advanced/Proficient and Basic/Below Basic for the study school's eighth-grade students by socio-economic status. The percentage scores showed an observable shift from Basic/Below Basic for free and reduced lunch students. The paid lunch students also realized gains; however, the percentage of students who moved from the lower two categories to the upper two categories was less.

Deductive Conclusions

Hypothesis 1. This study used the analysis of variance test to determine if student achievement increased by increasing instructional time. The results of the ANOVA for math (paid lunch and free and reduced lunch) and communication arts (paid lunch only) indicated the null hypothesis was not rejected. In other words, there was no relationship

between increased instructional time and academic scores. Not rejecting the null hypothesis was determined because the F value was smaller than the F_{crit} which means there were no statistically significant differences between the means of Group 1 and Group 2 in each ANOVA.

There was one test group that resulted in the null hypothesis being rejected. Communication arts z-scores for students who qualified for free and reduced lunch showed the value of F being greater than the F_{crit}. Since the value of F falls outside the boundaries of F_{crit}, the F value is in the region of rejection; therefore, the null hypothesis was rejected. In other words, there was a relationship between increased instructional time and academic scores for students who qualified for free and reduced lunch; therefore, the alternative hypothesis was accepted.

Hypothesis 2. To determine the rate of growth, MAP scores were examined from year 2006 to year 2008. During this three-year span, greater growth occurred for students who qualified for free and reduced lunch. The percentage of students who moved from Basic/Below Basic to Advance/Proficient was statistically significant; therefore, the null hypothesis was rejected in favor of the alternative hypothesis. In other words, students who qualified for free and reduced lunch improved their academic achievement at a statistically greater rate compared to students who did not qualify for free and reduced lunch.

Summary

This research investigation compared MAP math and communication arts mean scale scores and EXPLORE math and communication arts mean scale scores of students who qualified for free and reduced lunch with students who did not meet the criteria for

the free and reduced meal program. Since both assessment types report scale scores differently, the mean scale scores were transformed into z-scores, allowing both test scores to be applied to ANOVA as equal numerical values.

The null hypothesis was not rejected for three of the four applications of ANOVA to determine hypothesis 1. To summarize, there was no relationship between increased instructional time and academic achievement for students who qualified for free and reduced lunch and for students who do not qualify for free and reduced lunch in the assessment area of math. However, this finding was true only for the students who did not qualify for free and reduced lunch in the area of communication arts. For students who qualified for free and reduced lunch, a relationship existed between implementation of the Start on Time program and academic achievement in the area of communication arts.

The null hypothesis was rejected in hypothesis 2 because of the significance of the rate of growth for students who qualified for free and reduced lunch in both the MAP math and MAP communication arts. Therefore, the alternative hypothesis was accepted, meaning students who qualified for free and reduced lunch improved their academic achievement at a statistically greater rate compared to students who did not qualify for free and reduced lunch.

Chapter V – Discussion

The school district of study established three district goals: (a) increase student achievement, (b) eliminate achievement disparities between groups of students, and (c) maximize resource efficiency. In an effort to meet these goals, the study school implemented Start on Time, a tardy reduction program aimed at reducing late arrivals to class, therefore maximizing actual instructional time. Increasing instructional time was achieved by removing teacher responsibility for tardy management, allowing lesson instruction to begin when the tardy bell sounds. Recall from Chapter Two that the greatest potential for loss of instructional time comes at the beginning of each period (Ornstein, 1989).

The percentage of the study school's students who qualified for free and reduced lunch had increased over the five year period from 2004 to 2008 by 4.2%, increasing from 19.0% to 23.2%. This increase was slightly higher than the study district's increased percentage of students who qualified for free and reduced lunch of 2.5% over the same period of time. A report published by the *Houston Chronicle* (2000) revealed results from a study indicating a correlation between low-income and poor-achievement scores on standardized tests. This report suggested the importance of implementing systems to meet the needs of children who are in risk of low achievement. Therefore, with the study school's steady increase in students from low income families, it was necessary to examine instructional strategies to maximize students' learning. At the conclusion of the 2005-2006 school year prior to Start on Time, students who attended the study school were asked to complete a school climate survey. This survey provided feedback to school administrators and faculty on the impact of students arriving late to class on instruction.

The results from the survey indicated late arriving students have an effect on instruction by reducing instructional time by as much as five minutes. Following the assumption that the potential for this loss of time could occur for one student in each of seven periods on any given day, it is reasonable to acknowledge the loss of instructional time could be 35 minutes each day, which equates to 70% of a class period.

The study school implemented Start on Time as the systematic approach to increasing instructional time and improving academic achievement for all students. The purpose of this study was to determine if increased instructional time would increase academic achievement and academic growth of students who qualified for free and reduced lunch. Two measurements were used in this study to determine if student achievement improved by increasing instructional time. Student assessment data were collected from EXPLORE and MAP for a period of five years. This study used school years 2003/2004, 2004/2005, and 2005/2006 assessment scores representing years before implementation of Start on Time. School years 2006/2007 and 2007/2008 assessment scores represented data following Start on Time implementation. This study posed two research questions. The first research question asked, Will students of poverty improve academically due to an increase of instructional time at a greater rate than non-poverty students? The second research question asked, Does a relationship exist between increased instructional time and academic achievement scores for students of poverty?

The review of literature clearly revealed that a relationship exists between poverty and low student achievement. Recall from Chapter Two that both Payne (1996) and Seccombe (2000) found that while a relationship exists, there are many factors that contribute to low achievement scores for students who qualify for free and reduced lunch.

Payne referred to the language register, referencing the fact that many students who come from low-income families do not have the formal language development or exposure. This is significant because assessments such as MAP and EXPLORE are written using the formal register. This formality of language puts students at a disadvantage as they try to comprehend a question or wording in a requested response.

In response to the ongoing concern of schools' progress toward meeting NCLB expectations, educators direct their attention to methods of instruction and instructional time. Up to this point, the main focus of instructional time has been directed toward the length of the school day. These proposals bring with them additional concerns, such as implementation cost, teacher salaries, and family support. While a large percent of families appeared to accept an increase in the school day to improve academic performance, Stoops (2007) provided evidence that supports the notion that extending the length of the day does not improve assessment scores. In the study conducted by the John Locke Foundation, researchers found that the United States provides math instruction to students on average of 4.7 hours per week; however, the United States ranks 27th out of 39 participating countries. By comparison, countries that rank higher provide math instruction on an average of 4.1 hours per week. This supporting data demonstrates that increasing the length of the school day may have less impact on student assessment scores than the instructional strategies employed in the classroom.

It is time for education to shift from adding more time to the school day to maximizing the efficiency of the time allotted. By establishing programs or policies that teach the students to arrive prepared, on time, and ready to learn when the tardy bell rings, students will learn a life skill that maximizes their learning experiences. Students

arriving late to class not only create a disruption but, in many cases, cause their teachers to repeat information or delay lessons, which minimizes the education of those who are already engaged in the lesson. This parallels the study conducted by Banicky and Janicki (2006) as reported to the Virginia Beach Public Schools Board of Education showing evidence that students and administrators indicate student tardiness was considered a moderate to large impediment to instruction. The findings reported in the research are consistent with reports by Silva (2007), Berliner (1990), and Ornstein (1989) that indicate the time of instruction when a student has the greatest potential to gain knowledge and demonstrate comprehension receives the least amount of time during a class period. Recall Chapter Two, Figure 2 illustrated that academic learning time received the least amount of time during a typical school day. The relationship between these studies illustrates the impact on academic achievement as a result of decreasing the potential for instructional time, lending support for a tardy reduction program such as Start on Time.

The analysis of student MAP and EXPLORE mean scale scores were blended by transforming the student raw scale score in each assessment into a z score. The z score was applied to the analysis of variance (ANOVA) to determine the *F* value. The *F* value allows the researcher to determine if a level of statistical significance exists within the data. The results of the ANOVA for math (paid lunch and free/reduced lunch) and communication arts (paid lunch only) indicated there were no statistically significant differences between the means of Group 1 and Group 2 in each ANOVA. This was determined because the *F* value was smaller than F_{crit}; therefore, the null hypothesis was not rejected. In other words, there was no relationship between increased instructional time and academic scores.

The analysis of communication arts' z scores for students who qualified for free and reduced lunch indicated that statistically significant differences existed between the means of Group 1 and Group 2 as a result of ANOVA. This significance is shown by the value of F being greater than the F_{crit}. Since the value of F falls outside the boundaries of F_{crit}, the F value is in the region of rejection; therefore, the null hypothesis was rejected. This means that a relationship existed between increased instructional time and increased communication arts scores for students who qualified for free and reduced lunch.

In comparing the results from math scores and communication scores, the researcher expected these results because of the students application and understanding of the formal register as outlined by Payne (1996). This is significant because when comparing math to communication arts, math has its own language unique to itself, and it is practiced by everyone around the world in the same manner. However, communication arts incorporates a large variety of language, including action verbs that may be unknown to the student. In addition, standardized tests such as SAT and ACT are written using the formal register. Therefore, the increased instructional time provided additional time for students to be exposed to the formal register and to apply what had been learned. In other words, class periods do not begin with math instruction, they begin with communication arts instruction. This is achieved by the teacher greeting the students, stating the objectives, and setting the class expectations. Therefore, the students who qualified for free and reduced lunch may have demonstrated an increase in academic knowledge due to an increase in their communication arts instruction.

Implication for Effective Schools

In following the theory behind best practice, educators are aware of the importance of instructional strategies and applications that improve student knowledge and their abilities to apply what has been learned to real-life situations. The challenge educators face is how to achieve this objective for all students. The demand to maximize learning has caused educators to look at instructional time as a factor that can contribute to improved achievement. It is important for educators to realize that through the establishment of programs such as Start on Time, tardies can be reduced, minimizing class disruption and increasing the efficiency of the lesson.

The results of this study allow the researcher to make an inference regarding the positive impact of increasing instructional time through implementation of programs and school policies that allow teachers to use their instructional time efficiently. All students benefited from this approach; however, students who qualified for free and reduced lunch demonstrated a greater benefit. This approach to improving academic achievement may have similar results when applied to a larger population.

Informal data gathered from teachers of the study school following implementation of Start on Time revealed a high support rate of the implemented program. Even though teachers gave up as much as 10 minutes of their plan time, the overall response was favorable due to teachers' ability to begin class instruction when the tardy bell sounds as well as removing the tardy management responsibility from them as a daily duty. The study school's data revealed a decreasing trend in tardies per month over a three year period. Figure 9 reflects this downward trend in classroom tardies despite the two peak highs; one in August/September and the other in January. The

researcher believes the high peak in August/September is due to incoming 8th grade students and their lack of experience with lockers and transition between classes. The peak in January is believed by this researcher to be associated with returning following the winter break and the fact that the tardy count restarts each semester.

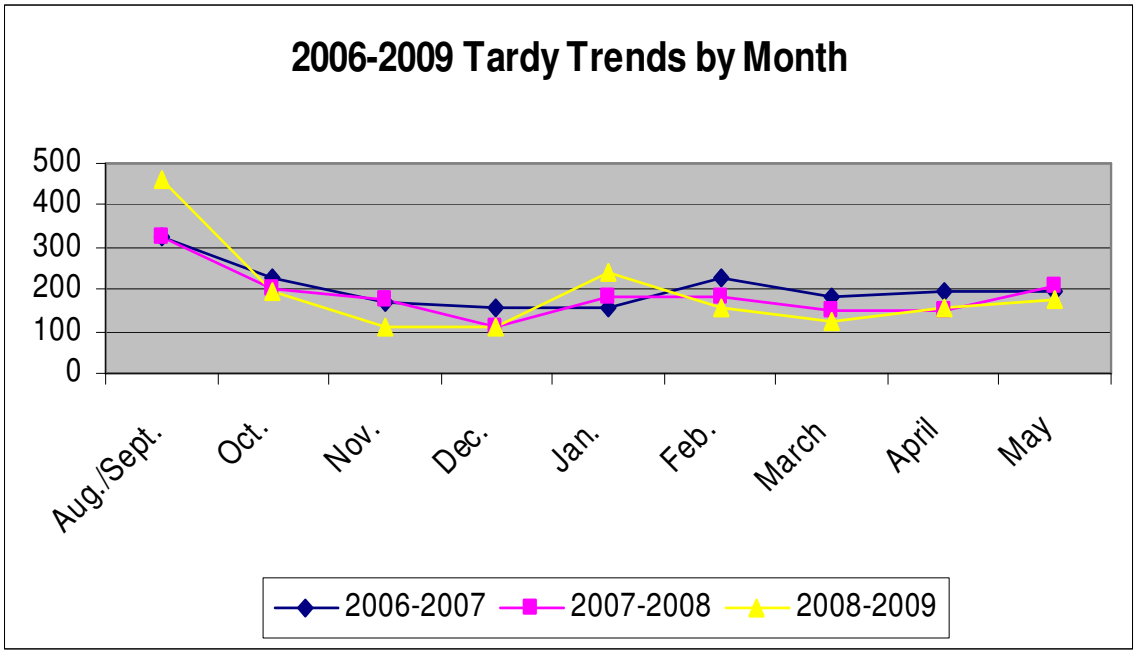

Figure 9. 2006-2009 Tardy Trends by Month

Note. From CPS (2009).

Recommendations

The results of this study have demonstrated that by restructuring how a school manages class tardies and establishing expectations for teachers to begin instruction immediately following the tardy bell, students' opportunities to increase their academic performances are enhanced. Recommendations to further the success of this practice include but are not limited to:

1. All schools should consider implementing Start on Time to increase student achievement and academic growth by increasing the potential for instructional time, especially for students who may be at risk for low academic achievement. This recommendation supports the study of Banicky and Janicki, (2006) illustrating the need to implement school policy aimed at reducing class tardies, thus increasing the potential for interrupted instruction. Silva (2007) cited research by Cotton (1989) who analyzed 57 existing studies on the relationship between time and learning and found that a strong positive relationship exists between academic learning time and student achievement.
2. The study school's transition committee should provide professional development to seventh-grade middle school teachers to assist in preparing students entering the study school. At the time of this study, the middle school of the study district followed the philosophy of escorting students to classes, requiring them to walk in an orderly line; therefore, the students did not practice transitioning between classes. This recommendation should prepare incoming eighth-grade students in self-management. Professional development of seventh-grade teachers may also increase the probability that students will arrive to class on time.
3. The study school's transition committee and administration should prepare an orientation program to assist incoming eighth-grade students with policy and procedures for the Start on Time program. Beginning the orientation process in the spring of the students' seventh-grade year will give them exposure to the established expectations and ease the transition from middle school to

junior high school. Payne (1996) cited the importance of incorporating support systems for children who are at risk of low academic achievement. Furthermore, Pellino (2005) and Seccombe (2000) referred to poverty as a major risk factor in education. This means that students who qualify for free and reduced lunch have a greater risk of low academic achievement. Recommendation two and three address transition support strategies for all students. Establishing professional development for faculty and a detailed orientation program for incoming eighth grade students will assist in the transition process from middle school to junior high and lower student risk for low achievement.

4. Administrators should monitor hallway supervision and manage the process to which teachers are expected to adhere. This means the administrator must provide clear expectations and professional development for the teachers on active supervision. Furthermore, in the event a teacher is not fulfilling this supervision responsibility, the administrator must document the incident and conference with the teacher.

To enhance the external validity of this study, it is recommended the study be repeated using the same research design at secondary schools outside the study district. In addition, it is recommended the study be repeated using different socio-economic levels, which could investigate schools with a much higher percentage of students who qualify for free and reduced lunch, for example 70% of the student population, compared to schools with low free and reduced lunch percentage, such as below 15%.

Recommendations for future research are to (a) investigate how teachers are using instructional time, (b) explore student perspectives regarding classroom climate before and after Start on Time, (c) examine the relationship between the learning environment and student tardiness, (d) investigate the relationship between academic achievement and instructional time based on grade period average reporting or different and unique sub-groups, and (e) describe and measure the effectiveness of instructional strategies that result in efficient use of instructional time that lend to an increase in student achievement.

Limitations

This researcher analyzed the effect of increased instructional time on academic achievement, specifically maximizing academic learning time within the course period. There are however other possible contributing factors that could have impacted the results. School year 2008-2009 brought 21 new faculty members to the study school. This could have contributed to the high number of tardy referral documented for the month of August/September as new teachers must learn that system as well as incoming students. Another limitation for consideration is the administrative response to each tardy referral. Students are aware that tardies referrals result in consequences and the Start on Time program has eliminated student opportunity to avoid a tardy.

Summary

The purpose of this study was to analyze the effect of increased instructional time on academic achievement of eighth-grade students who qualified for free and reduced lunch compared to students who were classified as paid lunch. The two measurement tools used in this study were the EXPLORE and MAP assessments. Increased instructional time was achieved through the implementation of a tardy-reduction program

titled Start on Time. The program was designed to provide adequate hall and classroom supervision between class periods and to establish the expectation that students arrive on time and are prepared to begin class. In addition, teachers adhered to the expectation they would begin the lesson immediately following the tardy bell, re-enforcing with their students the importance and validity of the lesson content.

The researcher found that students who qualified for free and reduced lunch demonstrated a greater rate of growth in math and communication arts than students who did not qualify for free and reduced lunch following the implementation of Start on Time in the Fall of 2006. In addition, students who qualified for free and reduced lunch demonstrated higher assessment scores in the area of communication arts following the implementation of Start on Time. Payne (1996) referred to register of language when describing deficiencies in language development for children who live in poverty. Payne stated that standardized tests are written in this formal language, meaning that if a student has not been exposed to a word or phrase, the assessment results may not reflect true comprehension of content knowledge. This result is significant as it demonstrates how improved assessment scores can be achieved by maximizing potential learning time, especially at the beginning of the class period, which has the greatest potential for loss of instructional time (Ornstein, 1989).

Educators should expand the understanding of instructional time, accepting the fact that instructional time refers to extending the length of the school day or school year as well as gained instructional time by making practical use of the allotted time during the school day, especially at the beginning of the class period. As this study demonstrated, maintaining the current learning time but improving its efficiency can

improve academic performance. With No Child Left Behind serving as the driving force behind educational decisions, administrators and teachers should realign current practices and implement procedures that both manage costs and academic success.

References

ACT. (2008). Using your EXPLORE results [Brochure]. Iowa City, IA.

Azzam, A. M. (2007, October). The intervention called NCLB. *Educational Leadership 65*, 92-93.

Banicky, L. A., & Janicki, H. L. (2006, May). *Maximizing instructional time: identifying impediments and strategies* (Virginia Beach City Public Schools). Virginia Beach, VA: Department of Accountability.

Bennett, M. M. (2008, July/August) Understanding the students we teach: poverty in the classroom [Electronic Version]. *The Clearing House 81*, 251-256.

Berliner, D. C. (1990). *What's all the fuss about instructional time?* Retrieved on December 5, 2008, from http://courses.ed.asu.edu/berliner/readings/fuss/fuss.htm

Burney, V. H., & Beilke, J. R. (2008). The constraints of poverty on high achievement. *Journal for the Education of the Gifted, 31,* 171-199.

Clark, M., Shreve, K., & Stone, C. (2004). Taking stock in children: collaborating to promote success for low-income secondary students. *NASSP Bulletin, 88*, 61-73.

Columbia Public Schools. (2008a). *Positive behavior support.* Retrieved December 4, 2008, from http://www.columbia.k12.mo.us/staffdev/CPSPBS/

Columbia Public Schools. (2008b). *Student management system, 2008* [Data file]. Available from http://school.columbia.k12.mo.us/websms

Columbia Public Schools. (2008c). *Tetra data warehouse, 2008* [Data file]. Available from http://www.tetradata.columbia.k12.mo.us/ease-e/

Columbia Public Schools. (2009). *Student management system, 2009* [Data file]. Available from http://school.columbia.k12.mo.us/websms

Cookson, P. Jr. (2005). A community of teachers. *Teaching PreK-8*, 35, 12-14.

Cotton, K., & Savard, W. G. (1981). Time Factors in Learning. Research on School Effectiveness Project: Topic Summary Report. Retrieved September 28, 2009, from http://www.eric.ed.gov/ERIC/WebPortal/custom/portlets/recordDetails/detailmini.jsp?_nfp

Cruse, C., & Powers, D. (2006). *Estimating school district poverty with free and reduced-price lunch data.* Retrieved January 23, 2008, from http://www.census.gov/hhes/www/saipe/asapaper /crusePowers2006asa.pdf

Data Quality Campaign. (2006). *The Power of Longitudinal Data: Measuring Academic Growth.* Retrieved September 28, 2009, from http://www.dataqualitycampaign.org/files/Publications-Newsletter_Jan06.pdf

Department of Education. (1999). *School poverty and academic performance: NAEP achievement in high poverty schools*. Available from: www.ed.gov.

Department of Elementary and Secondary Education. (2005). *Questions and answers about no child left behind.* Retrieved January 20, 2009, from http://dese.mo.gov/divimprove/nclb/QandA.html

Department of Elementary and Secondary Education. (2008a). *Columbia school district profile.* Retrieved December 4, 2008, from http://dese.mo.gov/planning/010093.html

Department of Elementary and Secondary Education. (2008b). *Guide to interpreting results*. Retrieved January 24, 2009 from http://www.dese.mo.gov/divimprove/assess/tech.html

Department of Elementary and Secondary Education. (2009a). *Columbia school district*

profile. Retrieved January 7, 2009, from http://dese.mo.gov/planning/profile/building/arsd0100932075.html

Department of Elementary and Secondary Education. (2009b). *Columbia school district profile*. Retrieved February 21, 2009, from http://dese.mo.gov/planning/profile/arsd010093.html

Department of Elementary and Secondary Education. (2009c). *Score use, meaningfulness, and dependability, Appendix D.* Retrieved January 20, 2009, from http://www.dese.mo.gov/divimprove/fedprog/Discrestionarygrants/ReadingFirst/DMAP.pdf

Duration and developmental timing of poverty and children's cognitive and social development from birth through third grade. (2005). *Child Development, 76*, 795-810.

Federal Register. (2008, April 9). *Child nutrition programs-income eligibility guidelines* United States Department of Agriculture, Food and Nutrition Services.

Flores, A. (2007, October/November). Examining disparities in mathematics education: achievement gap or opportunity gap [Electronic Version]. *The High School Journal, 91,* 29-43.

Fraenkel, J. R., & Wallen, N. E. (2000). *How to design & evaluate research in education.* McGraw-Hill Companies.

Futrell, M. H., & Gomez, J. (2008, May). How tracking creates a poverty of learning. *Educational Leadership, 65*, 74-78.

Gap can narrow between students from poor, affluent areas. (2000, February 4). *Houston Chronical*. Available from http://elibrary.bigchalk.com.

Gorski, P. (2008, April). The myth of the "culture of poverty". *Educational Leadership, 65*, 32-36.

Heiman, G. W. (1996). *Basic statistics for the behavioral sciences.* Boston MA: Houghton Mifflin Company.

High-Performing, Lower-income students face disadvantages early on. (2008, May). *NewsLeader, 55*, 6.

Howley, C., & Bickel, R. (2002). *Smaller schools counter effects of poverty on student achievement*. Available from: www.ruraledu.org.

International Reading Association. (2007, June) *Making Every Moment Count.* Retrieved September 28, 2009, from www.reading.org

Institute for Research on Poverty. (2008, September). *What are the poverty thresholds and poverty guidelines?* Retrieved December 16, 2008, from http://www.irp. wisc.edu/faqs/faq1.htm

John Locke Foundation. (2007, August). *Better education, not more time* (No. 328). North Carolina: Stoops, T.

Johnson, J. (2005, October 18). How poverty and the size of school systems affect school performance in Nebraska. *The Rural School and Community Trust.*

Knapp, M., & Shields, P. (2005, July 18). *Preconceiving academic instruction for the children of poverty.* Available from www.enc.org.

Meacham, J. (1993, November). Down and out. *Washington Monthly, 25*, 24-31.

Mertens, S., Flowers, N. (2003, September). Middle school practices improve student achievement in high poverty schools. *Middle School Journal, 35*, 33-43.

National Commission on Excellence in Education. (1983, April). *Nation at Risk.*

Retrieved December 16, 2008, from http://www.ed.gov/pubs/NatAtRisk/risk.html

National Council of Teachers of Mathematics. (2006, August). *Math Takes Time*. Retrieved September 28, 2009, from http:www.nctm.org/about/content.aspx?id=6348

National Public Radio. (2001). *Poverty in america*. Available from www.npr.org

O'Donnell, R. J., & White, G. P. (2005, December). Within the accountability era: principals' instructional leadership behaviors and student achievement. *NASSP Bulletin, 89*, 56-71.

Ornstein, A. C. (1989, September). Academic time considerations for curriculum leaders. *NASSP Bulletin, 73,* 103-110.

Payne, R. (1996). *A framework for understanding poverty* (Rev. ed.). Highlands. TX: aha! Process, Inc.

Pellino, K. (2005 July 16). *The effects of poverty on teaching and learning*. Available from www.teach-nology.com.

Prince, C. D. (2004). *Changing policies to close the achievement gap.* Maryland: Roman & Littleman Publishing Group.

Rector, R., & Johnson, K. (2004, January). *Understanding poverty in America*. The Heritage Foundation.

Safe & Civil School. (2009, September 24). *Marshall Middle School: Results of Start on Time Implemenation.* Retrieved on September 24, 2009, from http://www.safeandcivilschools.com/scs_efficacy/marshall.php

Seccombe, K. (2000, November). Family in poverty in the 1990s: trends, causes, consequences, and lessons learned. *Journal of Marriage and the Family, 62,*

1094-1113.

Silva, E. (2007, January). On the clock: rethinking the way schools use time. *Education Sector Reports*, 1-14.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: a meta-analytic review of research. *Review of Educational Research, 75,* 415-453.

Slavin, R. E. (1997, December). Can education reduce social inequity? *Educational Leadership, 55*, 6-10.

Sprick, R., (2003). *Safe Transitions and Reduce Tardies, START on Time.* Pacific Northwest Publishing.

Sprick, R., & Daniels, K. (2007, October). Taming the tardies, every minute counts. *Middle Ground, 11*, 21-23.

The Annie E. Casey Foundation Kids Count Data Center. (2007). Retrieved March 26, 2009, from http://datacenter.kidscount.org/compare.jsp

United States Department of Agriculture. (2009). *The National School Lunch Program Background and Development.* Section 2. Retrieved on September 27, 2009, from http://www.fns.usda.gov/cnd/lunch/AboutLunch/ProgramHistory_5.htm

United States Department of Health and Human Services. *What are the differences between the poverty guidelines and the poverty thresholds?* Retrieved on January 23, 2008, from http://aspe.hhs.gov/poverty/08Poverty.shtml

United States Census Bureau. (2004). *Poverty: 2004 Highlights*. Retrieved February 21, 2009, from http://www.census.gov/hhes/www/poverty/poverty04/pov04hi.html

Williams, W. M. (1997, March). Trends in environmental influences upon the intellectual development of young people. *NASSP Bulletin, 81,* 59-68.

Wood, D. (2003). Effect of child and family poverty on child health in the United States. *Pediatrics, 112*(3), 707-711.

Appendix A

Study School

Climate Survey

2005-2006

1) Where did you attend middle school?
   A) Middle School 1
   B) Middle School 2
   C) Private School 1
   D) Middle School outside of study district

2) Indicate your present grade level and gender
   A) 8th grade female
   B) 8th grade male
   C) 9th grade female
   D) 9th grade male

3) Please identify your ethnicity
   A) White/Caucasian
   B) African-American
   C) Hispanic
   D) Asian
   E) Native American

4) How do you perceive yourself academically as a student?
   A) A/B student
   B) B/C student
   C) C/D student
   D) D/F student

5) How often do you participate in West Walk during a week?
   A) 5 days during the week
   B) 3-4 days during the week
   C) 1-2 days during the week
   D) I do not participate in West Walk

6) Select the choice that best describes your reason for participating in West Walk
   A) Opportunity to visit with friends
   B) Opportunity to walk for exercise
   C) Provides an activity before school
   D) All of the above

7) Of the list below, select an option you would participate in before school
   A) Students sit in gym/cafeteria from 7:30-7:55
   B) Students participate in West Walk
   C) Students report to Media Center
   D) Students report to a classroom for tutoring

8) If you were not to participate in West Walk, what best describes the reason?
   A) Opportunity to receive tutoring
   B) Crowded/congested hallways
   C) Intimidating/harassing behavior of others
   D) Uncooperative students slowing down others

9) Should the study school continue West Walk?
   A) Yes
   B) No

10) Do you consider safety to be a concern during West Walk?
   A) Yes
   B) No

11) If you consider safety to be a concern during West Walk, which of the following best indicates your concern?
   A) Safety is not a concern
   B) Intimidating/Harassing behavior of others
   C) Lack of adult supervision
   D) Crowded/Congested hallways

12) Should the courtyard be open during West Walk?
   A) Yes, for every student
   B) Yes, as a benefit for earning a Viking Card
   C) No

13) Inappropriate student behavior in classrooms occurs
   A) Hourly in every class
   B) Daily in more than three of my classes
   C) Daily in less than three of my classes
   D) Occasionally, only a few times per week

14) Generally, are students prepared to begin class following the tardy bell?
    A) Yes
    B) No

15) On average, how many minutes of instruction are lost by students not being prepared to begin class when directed?
    A) No minutes lost, students prepared for class
    B) 1-2 minutes
    C) 3-5 minutes
    D) Exceeds 5 minutes

16) Select the area that would identify a location you try to avoid during passing time.
    A) Science Wing "T"
    B) Health Class hallway
    C) North stairs near Media Center
    D) Main hall near Office

17) Choose the best selection below that describes the reason you would avoid an area during passing time.
    A) Overcrowded hallway-two way traffic
    B) Students visiting, creating congestion
    C) Harassing/intimidating behavior
    D) Lack of adult supervision

18) During passing time, what activity do you participate in on a regular basis?
    A) Talking to friends by lockers
    B) Walking directly to class
    C) Play in hallway (dance, chase, horseplay)
    D) Harass or bother other students

19) On average, how many times are you tardy to classes in a week?
    A) 0
    B) 1-2
    C) 3-4
    D) 5 or more

20) Select the best description that represents you perception of: a student arrives tardy or late to class. What effect does this arrival have on teaching and learning?
    A) Aware student entered, but class continues without loss of instruction.
    B) Creates a minor disruption; minimal loss of instruction.
    C) Creates a disruption; teacher has to repeat information before continuing with the lesson.
    D) Creates a disruption; teacher has to repeat information and address student behaviors before class continues.

Appendix B

Start on Time Program

Study School

Start on Time

Start on Time is a program designed to increase hallway supervision, decrease tardies to class, reduce hallway altercations, and increase instructional time. The program was designed by Robert Sprick as part of a series of programs to enhance the learning environment by providing strategies for a safe learning environment. The study school adopted Start on Time in the fall of 2006 as a response to the overwhelming feedback from students and faculty to reduce the number of students in the halls after the tardy bell sounded and to reduce class interruptions by students arriving late.

Overview

The Start on Time program is designed for all teachers to be stationed at their classroom doors greeting students as they enter and provide a physical presence in the hallway during passing time. Proper positioning allows teachers to observe their classrooms and the hallways at the same time. The process begins when the dismissal bell sounds at the end of a class period. Listed below are the phases of the Start on Time program.

- Teachers position themselves at their doors, supervising their classrooms and the hallways.
- Each hall zone has a supervisor assigned known as the “sweep supervisor”. Hallway sweep supervisors are selected based on their scheduled conference periods. The sweep person has four responsibilities: (a) to be present throughout

the assigned zone, (b) assist classroom teachers if a hall problem develops, (c) escort students who are tardy to class from their assigned zone, and (d) escort students back to their classes following administrative processing.

- The study school is a two-level building. Each level has an administrator assigned during each passing period. The assigned administrator walks throughout the hall, maintaining student visibility, providing added supervision, and assisting sweep supervisors with student escorts.
- When the tardy bell sounds, teachers close their classroom doors and begin instruction. The administration has established this expectation for all faculty members.
- Students who are not in their classrooms when the bell sounds are escorted by a hall zone sweep supervisor to the sweep room. The sweep room is a designated room where school administrators process the student tardy.
- Students who are escorted to the sweep room will meet with their grade-level administrator. When a student arrives to the sweep room, the student will
    - complete a parent response sheet;
    - discuss the reason for being late to class with the administrator;
    - receive a consequence if applicable; and
    - receive a consequence, if three or more tardies have been accumulated.
- Students are escorted to their classes by the designated sweep supervisor. To limit the potential for class disruption, the sweeper will open the door and make eye contact with the teacher indicating the swept student is prepared to enter class.

- During the return escort, sweep supervisors conference with the students reviewing the best route to avoid future tardies and remind them how to appropriately enter a classroom to minimize disruption.
- When a student enters a class following a tardy, he or she is expected to enter quietly and be prepared for class.

After the students are returned to classes, the sweep supervisors have the remainder of their conference period to grade papers, make parent contacts, or prepare for upcoming lessons. This structured process takes approximately five to seven minutes to accomplish; however, the trade-off is worth the time. During these seven minutes, the students are escorted to the sweep room where they meet with their administrator and receive a consequence, if applicable, and then escorted back to class. During this time, the classroom teacher is instructing as opposed to dealing with tardy management.

Summary

The Start on Time program has proven to increase time of instruction and provide students with the expectation they are to arrive on time, and are prepared to begin class. However, the benefits of the program go beyond those two aspects. The Start on Time program leads to secondary benefits as well such as: (a) building school community among faculty, (b) enhancing teacher/student relations, and (c) reducing hallway altercations. The program is credited with having a substantial impact on the transformation of the school climate.

Appendix B consists of components of the program the study school faculty receive to support their efforts to maintain the efficiency of the Start on Time program.

At the beginning of each school year, the faculty participates in professional development on Positive Behavior Support, including Start on Time.

Start on Time Guide Sheet

This guide sheet is designed as an outline for hallway supervisors, positive sweep supervisors, and assigned administrators. Following these guidelines will ensure the program is implemented correctly. Start on Time will as established by the building administrator.

Hallway Supervisors

REMINDER- The study school structures hallway supervision through two approaches. Hallway supervision before school and after school is based on a hallway team design. Each team has a leader who will develop a supervision schedule for before school and after school as students prepare to exit the building. The supervision team schedule allows for shared responsibility for hallway supervision before school and after school. Between passing periods, the expected practice for all faculty members is to be at their doors greeting their students and be prepared to begin class when the bell tone sounds by closing the classroom door. This approach provides the following benefits:

- Allows for active supervision both in the hall and classroom
- Encourages students to arrive on time to class
- Builds relationships with students
- Maintains steady student traffic flow and reduces congestion
- Minimizes opportunity for student altercations or conflicts

Procedure for classroom teachers:

- Station yourself outside your classroom, in a position that provides a visual of hallway traffic and your classroom
- Address minor hall misconduct immediately
- Utilize a verbal response as a corrective action
- Be visible to the students and remain positive, personable, and calm
- Identify (know) the positive sweep supervisor
- Should an incident occur that requires assistance, signal your positive sweep supervisor or the assigned administrator, indicate the infraction or incident and ask this person to escort the student(s) to the office when applicable
- When the tardy bell sounds, shut your classroom door and begin your lesson. This is a step that all teachers must follow
- Student(s) who are tardy will be escorted back to your class following processing

Positive Sweep Supervisor:

- Refer to your PBS notebook to identify positive sweep assigned time and area
- Be visible to the hall supervisors on duty
- Walk in your assigned area, directing student(s) to report to class
- Address minor hall misconduct immediately
- When the tardy bell sounds, instruct student(s) in your area to walk with you to the sweep room.
- Sweep Room- Café B period 1, 2, 3, 5, 6, 7
- Sweep Room – Room 203/204 A Lunch, Period 4, B Lunch, C Lunch

- Escort student(s) to the designated sweep room and instruct students to report to their grade level administrator
- Wait for student(s) to complete student response/parent notification
- Escort student(s) to class
- Remind student(s) of expectation when entering class
- Be visible to classroom teacher when student enters. Make eye contact. Classroom teacher(s) will know that student has completed processing of tardy
- Remain positive, personable, and calm
- When possible, conference with the student as to best route, locker visits, etc. to avoid additional tardies

<u>When a student incident or conflict occurs, the Hall Supervisor signals for Positive Sweep Supervisor</u>

- Positive Sweep supervisors will be asked to assist hall supervisor with incident or infraction
- Explain to student that they are to walk with you to the office to meet with an administrator (this will allow classroom teacher to begin lesson on time)
- Escort student to the designated sweep room. Report to grade-level administrator and indicate an infraction occurred
- Escorting teacher (supervisor) will be asked to complete a referral form

<u>Student refuses to walk or cooperate with Positive Sweep Supervisor</u>

- Remain aware of student behavior
- Position yourself to avoid being drawn into a verbal confrontation with student
- Notify floor administrator of inappropriate behavior

- Write a major referral to be given to grade-level administrator
- Refrain from discussing behavior with student at this time
- Administrator will assist with escort of student to office

Assigned Administrator:

- Report to assigned floor
- Walk throughout hall. Do not stop in a specific area
- Remain visible to hall supervisors and students
- Address minor hall misconduct immediately
- Support Hall Supervisors and Positive Sweep Supervisors
- When tardy bell sounds, check hall areas
- Assist Positive Sweep Supervisors, if needed
- Report to designated sweep room

Building Administrators:

- Have student(s) respond to questions on parent notification sheet
- Discuss with student options to avoid additional tardies to class
- Assign student consequences per tardy procedure
- Provide attendance secretary the tardy sheet to document in eSchool (SIS system)
- Enter tardy with consequence in SWIS database
- Schedule consequence on calendar
- Parent contact

Positive Sweep Teams 2008-2009

Process: When the tardy tone sounds, walk through your assigned area. All classroom doors should be shut. Any student who is in the hall should be approached and asked to accompany you to the sweep room. If no students are in your hall area, you still need to report to the sweep room. Be aware of those who may wait in stairwells or restrooms for you to leave area. Escort your student(s) to sweep room. Wait for completion of processing, then escort student(s) to their classes in your zone.

PERIOD 1

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room- Café B

PERIOD 2

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room- Café B

PERIOD 3

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room- Café B

PERIOD A4 (10:44)

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room- Room 204

(11:06-11:10) RETURNING FROM A LUNCH (Sweep Rm. 204)

(11:34-11:38) ARRIVING TO B LUNCH (Sweep Rm. 203)

(12:28-12:32) ARRIVING TO C LUNCH (Sweep Rm. 204)

All zones will be covered by Administration.

11:06-11:10-	Zone 2
	Zone 1
Administrative	Zone 3-8

A flexible schedule will be created for Administration responsibility during these times.

Please Note.

Classroom teachers are to instruct students that if door is closed following the tardy bell tone, they are to report to the office. (This will speed up the sweep process as only one person will be walking each floor)

Students will return with an office pass for admittance or be escorted by an administrator.

PERIOD 5 (12:05)

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room: Café B

PERIOD 6

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room Café B

PERIOD 7

Zone 1

Zone 2

Zone 3

Zone 4

Zone 5

Zone 6

Zone 7

Zone 8

Administrator:

Ground Floor

Main Floor

Sweep Room- Café B

Hall Zones for Positive Sweep Teams

ZONE 1
201A, 202, 203, 204, 205, 206, 207, 208, 209

ZONE 2
211, 212, 214, 215, 216, 217, 218, 219, 220

ZONE 3
GUIDANCE, 226/228 (GYM), 227, 229, CAFÉ A/B

ZONE 4
101, 102, 103, 104, 105, 106, 107, 108, 109, 110

ZONE 5
112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 123

ZONE 6
124, 125, 126, 127, 128, 129, 130, 131, 132, 133

ZONE 7
134, 135A, 135B, 136, 137, BOYS LR, GIRLS LR

ZONE 8
ANNEX- A, B, C, D, E, F, G, H

The study school
Tardy to Class Parent Notification

Student Name: _____ Student ID# _____

Date: _____ Class Period _____

Tardy #_____

<u>Student Response</u>
Please explain to your parents/guardian the reason you were late to class.

Identify the steps you can take to prevent being tardy in the future.

Student Signature: _____

Dear Parent/Guardian

The study school views instructional time as a precious resource. Therefore, we view classroom tardiness as a serious concern. With each tardy incident, you will receive this notification along with additional consequences assigned by your student's administrator. Thank you for your support in ensuring your student makes maximum use of class time by being punctual to class.

Administrator Action _____

Sincerely,

Mr. Jeff Beiswinger
Assistant Principal

Appendix C

Z Score Calculations

Z scores represent the distance a raw score deviates from the mean. In this study, the students' raw mean scale scores were transformed to z scores allowing both measures to be compared on an equal numerical format. Z scores are unique because they can also be calculated for entire populations if the populations mean and the standard deviation is known. The formula for calculating a z score is:

$$Z = \frac{X - \overline{X}}{Sx}$$

Illustration

Student A has a math mean scale score of 541. The sample math mean scale score is 682. The standard deviation for the sample is 45.2.

$$Z = \frac{541 - 682.6}{45.3}$$

$$Z = -3.13$$

Appendix D

Approval Forms

Petition for Doctoral Capstone Experience Committee

Date 10-18-07 **Name of Student** Jeff Beiswinger **Email** jbeiswin@columbia.k12.mo.us
Indicate XX **New Petition or** _____ **REINSTATEMENT PETITION (semester last attended:**_____)

Tentative Capstone Experience Title: (if New Petition)
Increased Instructional Time-Effect on Academic Achievement for Students of Poverty at the Junior High Level

**If New Petition, YOU MUST FILL OUT FIVE CHOICES, OTHERWISE the Assignment Committee will assign advisors based on availability. REINSTATED STUDENTS are not guaranteed their previous advisor. **
Please attach professional vita for persons external to Lindenwood University who will serve as a committee member.
Distribute to: Student, Capstone Experience Chair, and EdD Advisor.

Priority Request for Capstone Chair : Dr. Cindy Vitale, Assistant Dean of Graduate Education
Rationale: Current Academic Advisory for my Doctoral Program.
Capstone Chair Signature: Cindy Vitale **Date:** 10/22/07

First Priority Request for Capstone Committee Member: Mr. John Feely, Dean of Graduate Studies Initiatives
Rationale: Mr. Feely served as my advisor for my Masters in Educational Administration and my Educational Specialist Degree.
Committee Member Signature: John L. Feely **Date:** 10/22/07

Second Priority Request for Capstone Committee Member: Dr. Wanda Brown, Assistant Superintendent, Columbia Public Schools

Rationale: Dr. Brown currently serves as the Assistant Superintendent for Secondary Education for the school district I am employed.
Committee Member Signature: Wanda Brown **Date:** 10/19/07

Request for Capstone Peer Committee Member: Dr. Sandra Logan, Principal
Rationale: Dr. Logan currently serves as my principal, West Junior High School
Committee Peer Signature: Sandra Logan **Date:** 10/19/07

Request for Capstone Peer Committee Member: Ms. Jana Thornsberry
Rationale: Ms. Thornsberry serves as the Assistant Principal of Sullivan High School and is a member of my Capstone II class.
Committee Peer Signature: Jana Thornsberry **Date:** 10-22-07

Student Signature: Jeffrey S Beiswinger Date 10/18/07 Anticipated Completion Date: Dec - 2008

APPROVALS: EdD Advisor: _____ Date: _____

Division/Program Dean: _____ Date: _____

COLUMBIA PUBLIC SCHOOLS

Administration Building
1818 West Worley Street ☙ Columbia, MO 65203
(573) 214-3400 Fax: (573) 214-3401

Request for Research

Request made by: Jeff Beiswinger **Date:** November 12, 2007

Mailing Address: 17152 Case Hill Ct.

City/Zip: Boonville, MO 65233 **Phone:** 660-882-6299

Advisor: Dr. Cindy Vitale

Department: Education Department, Lindenwood University

Title of Research: Improving Academic Achievement at a Greater Rate With Increased Instructional Time For Students Who Qualify For Free and Reduced Lunch

Project Period: **From:** December 2007 **To:** December 2008

Lead Researcher Signature: J Mark Beiswinger

Briefly state the purpose of the research:

The purpose of this study will be to determine if increased time of instruction through implementation of student management programs will improve average Explore scores and average MAP scale scores of 8th grade students who qualify for free and reduced lunch programs.

Briefly describe the research and how and to what extent the Columbia Public Schools would be involved if the request is granted:

Data will be collected:

- From average MAP scale scores for students who qualify for free and reduced lunch during the school years of 2003/2004 - 2007/2008.
- From average Explore scores for students who qualify for free and reduced lunch during the school years of 2003/2004 - 2007/2008.
- On average instructional time lost prior to program implementation.
- On average instructional time lost after program implementation

Hypothesis's;

- An increase of instructional time will result in improved average Explore scores and average MAP scale score for 8th grade students who qualify for the Free and Reduced Lunch Program.
- Instructional time will increase through the implementation of Positive Behavior Support.

Description of school population needed:

Students will not be recruited for this study. The study will use data from students who attended West Junior High School during the 8th grade and participated in the MAP and Explore tests.

Form revised 9/6/07

Number of Students: N/A

Number	_____	*Grade Level*	_____	*Number of Sessions*	_____
Number	_____	*Grade Level*	_____	*Number of Sessions*	_____
Number	_____	*Grade Level*	_____	*Number of Sessions*	_____
Number	_____	*Grade Level*	_____	*Number of Sessions*	_____
Number	_____	*Grade Level*	_____	*Number of Sessions*	_____
Number	_____	*Grade Level*	_____	*Number of Sessions*	_____

Amount of time per session:N/A

Length of time between sessions: N/A

Will the researcher and/or his/her assistant(s) be conducting the sessions with students?

Yes _____ No XX

Are any Columbia Public School employees to be involved?

Yes _____ No XX

If *"YES,"* in what way?

When will each student be involved? N/A

How will each student be involved? N/A

Describe any data records you require for this research. (Nondisclosure Form required.)
Data will be collected:

- **From average MAP scale scores for students who qualify for free and reduced lunch during the school years of 2003/2004 - 2007/2008.**
- **From average Explore scores for students who qualify for free and reduced lunch during the school years of 2003/2004 - 2007/2008.**
- **On average instructional time lost prior to program implementation.**
- **On average instructional time lost after program implementation.**
- **From SWIS data, developed by University of Oregon, eSchool data (SIS data base for Columbia Public Schools), West Junior High discipline data, and data collected from the Department of Elementary and Secondary Education.**

The data used in this study will be building data, not individual specific data. The content of the data presented will be average 8th grade assessment scores for students who meet the criteria for free and reduced lunch programs.

Approved by:

Principal/Coordinator Signature	*Date*	*Assistant Superintendent Signature*	*Date*

Form revised 9/6/07

Columbia Public Schools
1818 West Worley Street
Columbia, MO, 65203

Statement of Nondisclosure for Columbia Public Schools Educational Data

Date: November 12, 2007

Name: Jeff Beiswinger

Organization: West Junior High School

Title: Assistant Principal

Address: 401 Clinkscales

Phone: 214-3237

Description of Data: **The data used in this study will be building data, not individual specific data. The content of the data presented will be average 8th grade Explore scores and average MAP scale scores for students who meet the criteria for free and reduced lunch programs.**

I acknowledge that the data records for which I am being granted access may contain confidential individually identifiable information as covered by the provisions of the Family Educational Rights and Privacy Act of 1974 and by Columbia Public Schools policies. I understand that:

1. Records may not be used for any purpose other than statistical analyses conducted to answer mutually agreed upon research questions.
2. I shall not make any release or publication whereby a person, building, or the district could be identified or for which the data furnished by or related to any particular person, building, or the district would lead to identification.
3. I may not release information that identifies individual students, teachers, schools or the district to anyone who has not completed a non-disclosure agreement (this form).
4. I will maintain the information in a secure physical and computing environment.
5. I agree to indemnify and hold the Columbia Public Schools harmless from any and all liability resulting from my use of the Records and acknowledge that the Columbia Public Schools may enforce this agreement in law and in equity. I agree to pay all costs associated with the enforcement of this agreement including, but not limited to attorney's fees and other costs of litigation.
6. I agree to promptly return all copies of Records in my possession and to discontinue use of Records in my possession upon the request of the Columbia Public Schools. This agreement and my right to possess and use Records may be terminated at any time.

Jeffrey J Beiswinger
Signature

Jeffrey S. Beiswinger
Printed Name

COLUMBIA PUBLIC SCHOOLS
www.columbia.k12.mo.us

Dr. Phyllis A. Chase
Superintendent of Schools

ADMINISTRATION BUILDING
1818 West Worley Street (573) 214-3400
Columbia, Missouri 65203
Fax: (573) 214-3401

Dr. Sally Beth Lyon
Assistant Superintendent

November 12, 2007

Mr. Jeff Beiswinger
17152 Case Hill Court
Boonville, MO 65233

Dear Mr. Beiswinger:

Your research proposal entitled *"Improving Academic Achievment At A Greater Rate With Increased Instructional Time For Students Who Qualify For Free And Reduced Lunch"* has been approved. Dr. Sandra Logan, West Junior High School Principal, will serve as your district contact for the study. You may contact Dr. Logan at 214-3230 regarding details of your study.

Best wishes for success in your research.

Sincerely,

Sally Beth Lyon

Sally Beth Lyon
Assistant Superintendent

sk

c: Dr. Sandra Logan

Vitaé

Jeff Beiswinger was born in 1959 in St. Louis, Missouri. He graduated from Mehlville High School in May of 1977. Mr. Beiswinger attended Central Methodist College located in Fayette, Missouri, in the fall of 1977. Mr. Beiswinger participated in football during his freshman and sophomore years and baseball during his freshman year. He joined the Central Rugby Club in the spring of his sophomore year and participated in the activity for the remainder of his college enrollment at Central Methodist College. Mr. Beiswinger successfully earned his Bachelor of Science in Education in May of 1982. He continued his professional education by earning his Masters in School Administration in 2001 and the Education Specialist in Administration degree in 2005 from Lindenwood University.

Mr. Beiswinger met his wife, Vonciel Dodson, while attending Central Methodist College. They were married in the fall of 1982. The have two sons, Steven and Matthew, and one granddaughter, Alexis. They currently reside in Boonville, Missouri, where their children attended school.

Mr. Beiswinger has accumulated 15 years experience as a classroom teacher, providing instruction in science, health, and physical education. He served as a classroom teacher and athletic coach for the Columbia Public Schools for nine years prior to beginning his duties as an administrator. He began his current career as a school administrator in 2000. He has served as an Assistant Principal for nine years with the Columbia Public Schools.