A DESCRIPTIVE STUDY OF THE EFFECT OF TRADITIONAL AND YEAR-ROUND CALENDARS, SOCIO-ECONOMIC STATUS, AND TEACHER TENURE STATUS ON STUDENT ACHIEVEMENT IN TWO RURAL SCHOOL SYSTEMS IN TENNESSEE

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A Descriptive Study of the Effect of Traditional and Year-Round Calendars, Socio-Economic Status, and Teacher Tenure Status on Student Achievement in Two Rural School Systems in Tennessee

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Abstract

Scott Trent. A DESCRIPTIVE STUDY OF THE EFFECT OF TRADITIONAL AND YEAR-ROUND CALENDARS, SOCIO-ECONOMIC STATUS, AND TEACHER TENURE STATUS ON STUDENT ACHIEVEMENT IN TWO RURAL SCHOOL SYSTEMS IN TENNESSEE. (Under the direction of Dr. Clarence Holland) School of Education, March 2007.

This study examined the relationship between student achievement on different academic calendars in mathematics and reading as measured by the Tennessee Comprehensive Examination over a three year period. The sample group consisted of 244 students enrolled in two different school systems utilizing two different academic calendars. All schools involved in the study were classified as high poverty as well as rural and had small enrollments. The variables examined were academic calendar configuration, status of qualification for the National School Lunch Program, and the tenure status of the teachers. Six hypotheses were tested using independent sample *t*-tests. Analyses showed that significant differences existed between low socio-economic and non-low socio-economic groups in mathematics and reading. Significant differences of <.05 existed between the groups, which suggested that the entry level scores of low socio-economic students were lower and remained lower than more affluent counter parts over the three year testing period.

Dedication

This dissertation is dedicated to my family; my beautiful wife Jacinda, and my four wonderful children Kinsey, Morgan, Collin, and Kinley. Throughout this entire process all five have been a tremendous source of inspiration and encouragement. Praise be to God that I have the privilege of being your husband and father.

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Chapter 1

Introduction

Educators and lawmakers have made education improvement one of the nation's top priorities (Black, 1994). The 1983 landmark report, *A Nation at Risk* (The National Education Commission on Excellence in Education, 1983), addressed to educational leaders as well as the general public the importance of time utilization for increasing student achievement. The National Education Commission on Time and Learning (1994) examined the amount of quality time students spend learning in the United States. The commission explained the growing challenge:

> By relying on time as the metric for the current traditional school organization and curriculum, we have built the traditional learning enterprise on a foundation of sand, on five premises we know to be false: the first is the assumption that students arrive at school ready to learn in the same way, on the same schedule, all in rhythm with each other. The second is the notion that academic time can be used for nonacademic purposes with no effect on learning. Next is the pretense that because yesterday's calendar was good enough for us, it should be good enough for our children--despite major changes in the larger society. Fourth is the myth that schools can be transformed without giving teachers the time they need to retool themselves and reorganize their work. Finally, we find a new fiction: it is reasonable to expect world class academic performance from our students within the time-bound system that is already failing them. These five suggestions are a recipe for a slow-motion social suicide. (p.1)

For the past 150 years, American public schools have held time constant and allowed learning to vary. Using time as the prism through which education is viewed, schools are responding to the increased demands by experimenting with the reorganization of time (Anderson, 1994). Since the turn of the twenty-first century, federal mandates under *No Child Left Behind* (NCLB), which requires schools to raise the achievement of all students and close existing gaps, and reports issued by the National Assessment of

Educational Progress (NAEP) have motivated educational leaders to look closely at the issue of increasing student academic performance (Barton, 2003). Educational leaders are confronted with the task of deciphering the research to determine what factors will maximize effectiveness for the learning process.

The traditional school-year calendar in the United States has been challenged by critics both in and outside of the educational community. The traditional school calendar has governed how families organize their lives, administrators oversee their schools, and teachers plan their curriculum and instructional time (Rasmussen, 2000). It is the same school calendar used by our grandparents, parents, and ourselves. Though tradition is important, some question whether the traditional nine-month agrarian calendar utilized by a majority of the nation's school districts could adequately meet the needs of society and fully enhance the potential for student learning (Adelman, Haslem, & Pringle, 1996). Therefore, year-round programs, which reconfigure the school calendar, were adopted by some schools in an effort to better address the needs of stakeholders and the relationship between time, learning, and student achievement.

Despite this claim, proponents of the traditional school calendar insist that the longer summer break is a necessary component of childhood and also maintain that current educational research does not support an increase in academic success by altering the traditional calendar (Summer Matters, 2004). As schools and school systems look for avenues to increase learning, the debate on the school calendar continues. It is apparent that additional studies are needed to ascertain the effective utilization of the allotted school days.

Two types of year-round calendars are available for administrators; single-track and multi-track. A plethora of choices is available for administrators to select the best design to suit their environment. With the use of these tracks, the school year is commonly divided into two periods (90/30 plan), three periods (60/20 plan or 60/15 plan), or four periods (45/15 plan or 45/10 plan).

In schools with a single-track year-round calendar, all students are in school and on breaks at the same time, therefore there are times when regular school sessions are not being held. Creative organizations develop intersession-- learning experiences to enhance students' educational opportunities often during these vacant facility periods. This period of intersession may be used for the purposes of remediation, intervention, and enrichment.

To maximize the use of a system's choice of learning days, the multi-track year-round education program has been implemented. In multi-track systems, not all students attend and take breaks at the same time. Because less than all students are in attendance at any given time under such a multi-track program, the stress due to overcrowding is reduced.

Efficiency is not the only benefit to year-round education. The enhancement on student learning and development are long held reasons for the adoption of the year-round schedule. According to year-round education proponents, the traditional summer break does not accentuate prior learning, rather it eliminates what has been taught. The use of a year-round calendar allows for continuous learning and reduces the classroom time generally required for review of material that was taught in the previous session (White, 1998). Those who advocate a year-round schedule on these bases suggest that

the calendar benefits students from economically disadvantaged backgrounds (Campbell, 1994). White (1998) states that these children do not have access to enriching, out-of-school learning activities during the vacation breaks and those year-round education enrichment activities could assist in closing the learning gaps. Prohm and Baenen (1996) suggest that the shorter breaks associated with the year-round calendar make it more feasible to offer enrichment activities and remedial instruction.

Some supporters of the year-round calendar state that attendance rates among students increase because more frequent breaks eliminate burnout associated with the traditional calendar, as well as provides opportunities to stay on pace with school system curriculum guides. Advocates have also suggested that teachers are likely to be more effective when teaching in a year-round program since they have time to plan throughout the school year and are less likely to suffer from burnout (Campbell, 1994). Furthermore, others have argued that a more positive school climate and a higher level of morale among students and parents can be achieved by utilizing a year-round calendar (Campbell). Year-round education may provide some relief for overcrowded buildings in areas where adequate expansion funds are not available (Fahy, 1990). Although these assertions are individually supported, they may not all apply to any particular school system.

The best approach to maximize student achievement continues to be debated. The National Education Commission on Time and Learning (1994) released *Prisoners of Time* describing the traditional calendar as a waste of time and under-serving the children of America. In contrast, Charlie Naylor (1995) argues that changing the school calendar has no effect on student achievement. Since the research concerning the benefits of

implementing year-round education to increase student achievement is not definitive, stakeholders in education are calling for more research on year-round education and other topics related to the enhancement of student learning (Cooper, Valentine, Charlton, & Melson, 2003). Despite these mixed results, the number of schools implementing year-round education in the United States has continued to increase in recent years.

Statement of the Problem

The purpose of the study was to examine and compare the effects of the year-round school calendar and the traditional school calendar, socio-economic status, and teacher tenure status on the mathematics and reading achievement of eighth grade students in two rural, high poverty school systems in the state of Tennessee. *No Child Left Behind* (NCLB) reauthorized the Elementary and Secondary Act of 1965 and updated the federal Title I program. Title I, which is the largest federally funded program for elementary and secondary schools, provides federal funds to schools with high concentrations of children living in poverty that are not achieving academically. Federal mandates under NCLB require that schools raise the achievement of all students and close existing achievement gaps between specified student subgroups including minorities, students with disabilities, the economically disadvantaged, etc. (U.S. Department of Education, 2003). Additionally, the act requires annual testing to measure student progress and holds schools accountable for their results.

A variety of methodologies and techniques are facilitated in schools across the United States to increase student learning and academic achievement. Learning, one of the most precious of all human activities, is central to educators' responsibilities as well as the effective use of time (Anderson & Walberg, 1993). The past three decades have

seen an increased emphasis on both (National Education Commission on Time and Learning, 1994). Effective time utilization in schools has been approached in many different ways and includes the use of year-round education. Students labeled “at-risk”, including those with low-socioeconomic status, have presented a significant challenge for schools in their efforts to meet state and federal goals. As educators, schools, and school systems work to meet the needs of these children, time on task, instructional time, and even additional time are areas to consider for improved academic achievement. Altering the calendar to improve academic success is one methodology used across the United States and has been recently implemented in several school system across the state of Tennessee (National Association for Year-Round Education, 2004). This study examined the difference in student mathematics and reading achievement based on Terra Nova scores of high poverty eighth grade students in Tennessee while attending schools utilizing different types of academic calendars.

Importance of the Study

Across the nation and in the state of Tennessee, the number of schools offering year-round education continues to increase. This regional movement, regardless of how widespread it may become, could have long-term implications on the entire educational system. The data gathered through this study provided a needed examination of how two aspects of schooling, student achievement and academic calendar, are viewed as they relate to one another. Additionally, the information provided by this study can be used by students, parents, teachers, administrators, and school boards in a consorted effort to increase student achievement. The study will add to the current body of knowledge related to various academic calendars and their impact on student achievement.

The purpose of this study was to investigate the difference in student achievement when students attend schools utilizing different types of academic calendars. This study of three years of test scores from the Terra Nova Achievement Test, mandated by the state of Tennessee for all children in grades three through eight, will add to the body of knowledge concerning academic calendars, student socio-economic status, and teacher tenure status and their effect on learning. In their meta-analytical study, Ross, Stringfield, Sanders, & Wright (2003) indicated more research on the theoretical impact of altering the traditional 180-day school calendar is required.

Research Questions

To examine grade eight mathematics and reading achievement scores of students, as based on the Tennessee Terra Nova Achievement Test, the following research questions were examined in this study:

1. Is there a statistically significant difference in mathematics achievement between eighth grade students in a school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar?
2. Is there a statistically significant difference in reading achievement between eighth grade students in a school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar?
3. Is there a statistically significant difference in mathematics achievement between eighth grade students who qualify for the National School Lunch

Program compared to eighth grade students who do not qualify for the National School Lunch Program?

4. Is there a statistically significant difference in reading achievement between eighth grade students who qualify for the National School Lunch Program compared to eighth grade students who do not qualify for the National School Lunch Program?
5. Is there a statistically significant difference in mathematics achievement between eighth grade students who had tenured teachers and eighth grade students who had non-tenured teachers?
6. Is there a statistically significant difference in reading achievement between eighth grade students who had tenured teachers and eighth grade students who had non-tenured teachers?

Operational Definitions

1. *School Calendars*-- School calendars are referred to as traditional, year-round, alternative, balanced, modified, single-track, and multi-track. Regardless of the type of calendar, all include 180 instructional days.
2. *Traditional Calendar*-- A traditional calendar is the most used calendar by school systems in the United States. Students attend school for 180 days (September to June) followed by an extended summer session of approximately three months (Glines, 1992).
3. *Year-Round Calendar*-- A calendar concept of a 180-day school year divided into instructional periods with each instructional period followed by an intersession or

vacation (sometimes referred to as a modified calendar). The 180-days are reorganized to provide more continuous learning (Kneese, 1996; Serifs, 1990).

4. *Single-Track Calendar*-- A single-track calendar allows all students and school personnel to follow the same schedule and permits schools to offer intersession during allotted breaks (Mussatti, 1981, Glines, 1992).

5. *Multi-Track Calendar*--A year-round calendar implemented to address over crowded schools, academic challenges, or facility needs (Mussatti, 1981, Glines, 1992).

6. *Extended Year Calendar*-- An academic calendar consisting of 220 to 230 school days rather than the traditional 180-days (NAYRE, 2004).

7. *Balanced Calendar*-- A balanced calendar is the reallocation of days across the calendar by reducing the summer vacation and redistributing those vacation weeks throughout the year. Most balanced calendars have nine weeks of instruction with a two or three week break between sessions. The curriculum and number of days of instruction are generally identical to the traditional calendar. A balanced calendar is often described as a modified, alternative, or alternate calendar.

8. *Intersession*-- Intersession is the time between school sessions. Intersession can range from one to several weeks. Time during intersession can be used for vacation, remediation, and/or enrichment activities (Kneese, 2000).

9. *National Curve Equivalent (NCE) scores*-- Nationally norm grouped standard scores with a mean of 50, a standard deviation of 21.06, and a range of 1 to 99 (Bernhardt, 2004).

10. *Socioeconomic Status*-- Annually adjusted income guidelines used in determining the eligibility for the National School Lunch Program. According to the U.S. Department of Agricultural (2004), the income for a family of four during the 2004-2005 school year could not exceed $2,043 per month for children to receive free lunch and $2,907 per month for children to receive reduced-priced lunch.
11. *Rural*-- Any non-metropolitan area where agriculture and related industries are the major income-producing occupations.
12. *Mathematics Achievement*-- Student math scores from the spring 2003 to spring 2005 Tennessee Terra Nova Achievement Test.
13. *Reading Achievement*-- Student reading scores from the spring 2003 to spring 2005 Tennessee Terra Nova Achievement Test.
14. *Tennessee Value-Added Assessment System (TVAAS)*-- An assessment program gauging a teacher's effect aggregated over a three-year period using academic growth scores from the teacher's students. The academic growth of each teacher's students are compared to state and district growth (Tennessee Department of Education, 2005).
15. *Terra Nova Achievement Test*-- A criterion and norm-referenced test, published by CTB/McGraw-Hill, administered each spring to all Tennessee students in grades three through eight. The Terra Nova Achievement Test is ranked very high in terms of reliability and validity (Teacher's Guide to Terra Nova, 1997).

Organization of the Study

Chapter 1 establishes the background and need for the study. Chapter 2 contains a review of relevant literature and research regarding school calendars and the effect of

time and learning on student achievement. Chapter 3 explains the methods and procedures that were used to gather and analyze the data. Chapter 4 presents the statistical analyses of the data gathered. Chapter 5 reports conclusions, recommendations, and implications of the study.

Chapter 2

Review of Related Literature

Time and Learning

American education has recently focused on the utilization of time as it relates to academic achievement. Time utilization is viewed as a major component in meeting the demands of increasing state and federal accountability, as set forth by *No Child Left Behind* (NCLB). The National Education Commission on Time and Learning (1994) acknowledged that teachers have too much to teach and not enough time to teach it. Furthermore, John Carroll's theory of school learning in 1963 illustrated the importance of students being successful learners if there is sufficient time spent on what is to be learned. Theoretically, year-round education would provide the needed time for additional learning through schedule variations such as a balanced calendar or the 45/15 model (Kneese, 2000; Stenvall, 2000), the extended school day (Glines, 1992), providing remediation and enrichment opportunities through the use of intersession (Kneese, 2000), and even an extended school year (Bradford, 1996).

In the early 1990's, the National Commission on Time and Learning (1994) reported, from the U. S. Department of Education 1993 data, that students from France, Germany, and Japan allocate twice as much time in core academics as students in the United States. According to the research, students in the United States spent 1,400 hours in academic time compared to 3,260, 3,628, and 3,170 hours for students in France, Germany, and Japan, respectively. These foreign country schools allocate more instructional time than American schools. The additional instruction time leads to

improved learning. According to *A Nation at Risk*, as reported by the National Commission on Excellence in Education (1983), students in America perform at a lower level than students from foreign countries. Many believe the lack of instructional time provided by the American educational system will continue the trend of students from foreign countries outperforming American students (National Commission on Time and Learning, 1994).

Educational psychologists have long held the belief that all children can learn if given enough time (Davidson, Seo, Davenport, Butterbaugh, & Davidson, 2004). The traditional school calendar utilized by a majority of American schools does not provide the additional time needed for some children to keep up with their fellow students (Davidson et al.). Researchers for the National Association for Year-Round Education (2004) propose that modifying the current traditional academic calendar is the answer for appropriate time utilization. "At-risk" students, minority students, and high poverty students enter school without the necessary skills to achieve at mastery level and remain behind due to the lack of additional time required to address this deficiency. The National Commission on Time and Learning (1994) suggests that the issue of time utilization should be adjusted to meet the individual needs of the students rather than the administrative convenience of adults.

Research provides three basic findings concerning time and learning (Adelman, Haslem, & Pringle, 1996). First, there is little or no relationship between allocated time and student achievement; second, there is some relationship between engaged time and student achievement; third, there is a greater relationship between engaged learning time and student achievement. Student academic achievement will increase by extending the

school day or year with engaged learning activities. Classroom time can be underutilized due to factors such as poor classroom management, inappropriate curriculum, student absence, or poor instructional techniques. One study estimated that almost 70% of U. S. teachers need to improve their classroom management skills (Chaika, 1999). Appropriate time management in the classroom could increase the amount of time spent on core academic subjects. Aldelman et al. (1996) suggest that both time management and student motivation can play an instrumental element in improving student learning. A student working on a skill that has already been mastered is as futile as assessing students on material in which students have not acquired the appropriate background knowledge necessary for mastering. Increasing time, without time being well utilized, will not produce significant improvement in student academic achievement. Therefore, the priority should be to improve the quality of instruction time currently allotted to classroom instruction (Chaika). With this in mind, variations of school calendars must be assessed to properly aid in the educational development of the nation's children so that ample time and resources can be utilized with best educational practices.

History of School Calendars

The prevailing traditional school calendar utilized in America originated to accommodate the needs of an agrarian society and a traditional family structure (Warrick-Harris, 1995). Each colony was individually responsible for its educational system and the requirements for its implementation (Barger, 2004). In most areas, schools were primarily operated by townships and communities. In an effort to consolidate schools and make education mandatory, Congress enacted the Land Ordinance of 1785 which set aside land for the establishment and maintenance of public schools. The members of

Congress made it clear in the Ordinance that education would be an important component in becoming a good citizen and helping maintain a strong government (Barger).

During the late 18th and early 19th centuries, American school calendars greatly varied and had no common ground. A typical school year would be ten months long and divided into summer and winter terms. In Massachusetts, only the girls attended school in the summer as the boys were needed to do farm work (Mount Holyoke College Office of Communications, 1997). In 1840, schools located in urban areas such as Philadelphia, Detroit, and Buffalo remained open from 251 to 260 days per year (Weiss & Brown, 2003). While the schools were operating year-round except for five or six weeks in the 1840's, they continued to add additional weeks on to their summer break. By 1860, schools in Detroit had progressed to an eight week summer break. The school calendar persisted to change as educational finances became more of a state issue and new education laws were passed. The New York General Assembly passed a Code of Public Instruction in 1856 establishing a minimum calendar requirement of at least six months for all state funded schools. Due to no compulsory education laws and state funding based on student attendance, schools promoted summer vacation as an official part of the school calendar when absenteeism was high (Weiss et al.).

The school calendar continued to change as communities changed. The summer break progressively began to grow in length due to several reasons. A dramatic number of students in urban areas experienced a large increase in absenteeism during the summer months. The Victoria Public Schools in Ontario documented that absenteeism was as high as 50% or more during summer months (Weiss & Brown, 2003). The high rate of absenteeism was cited in the 1860 Victoria Board of Education meeting:

> The midsummer being a period of epidemics, the most fruitful of diseases generally, many children are kept at home, or are sent out into the country while those among the poorer classes are allowed to divert themselves in a variety of ways (Weiss et al., p.1743).

Parents, during the hottest portion of summer, kept their children at home or sent them out of the city. In these urban areas during the summer, water, air, and food were considered unsafe. Therefore, summer breaks from school were determined to be judicious (Weiss et al.). Other key factors for advocating a school calendar change allowing longer summer breaks included the need for factory or office workers to take holidays during the summer breaks due to the intense heat during the summer months.

As the population of America migrated westward, the issue of public schools and their calendars continued to be a primary concern. In 1872, while urban schools were open an average of 41.3 weeks a year, rural schools were only open an average of 32.4 weeks per year (Weiss & Brown, 2003). The sparsely populated Midwestern states had fewer resources and fewer children to serve. In 1885, for example, the state of Nebraska passed a law stating that if a town or township had more than 200 students, schools must be open for at least nine months, if the student population was 75 to 200, the school must be open six months, and if the student population was less than 75, the schools must be open three months (Weiss et al.).

Throughout the United States, educational ideologies and methodologies developed differently depending on location (Barger, 2004). The early schools of the Northeast placed an emphasis on religion, while the Midwest and West believed that schools provided an educated citizenry, and the South viewed education as purely a

family or personal matter (Barger). A universally adopted calendar would not occur until the late 19th century.

History of Year-Round Education

Year-round education in the United States has deep colonial roots extending back to 1645 when the town of Dorchester, Massachusetts mandated the children to attend school all year (Zykowski, Mitchell, Hough, & Gavin, 1991). The children attended school daily from 7:00 a.m. to 5:00 p.m. for the first seven months and from 8:00 a.m. to 4:00 p.m. the remaining five months (Hermansen & Gove, 1971). Year-round education continued to increase in popularity during the 1800's, particularly for the purpose of facilitating the learning of the English language and to integrate their children to the American culture.

Beginning in the late nineteenth century and early twentieth century, summer education opportunities became more prevalent in the United States (Zykowski et al., 1991). In 1888, the State Commissioner of Education endorsed summer school for the purposes of technical and vocational training. Detroit, Cleveland, and Buffalo adopted a 260-day year-round schedule. In 1904, the town of Bluffton, Indiana became the first city in the United States to implement year-round education hoping to increase student achievement, alleviate overcrowding, and reduce learning loss (Kasnic, 1999; Palmer & Bemis, 1999).

Year-round education increased in popularity as school districts across the country employed the calendar for a variety of reasons (Zykowski et al., 1991). In 1912, Newark, New Jersey implemented the year-round calendar in an effort to teach English to immigrant children. Minot, North Dakota introduced a summer program in 1917 in an

effort to reach errant children. In 1925, Omaha, Nebraska operated year-round vocational training; and, in 1926, Nashville, Tennessee developed a year-round calendar to improve the quality of education. Finally, in 1928, Aliquippa, Pennsylvania applied summer programs to better utilize their facilities (Zykowski et al.). Many of these ground-breaking school districts in the early twentieth century implemented some form of year-round education to overcome many of the same needs faced by today's school districts. At the onset of the "Great Depression" of 1933-1939, the popularity of year-round education came to a quick halt due to a need to improve the general quality of education, lack of funds, and a concern to expand the education for vocational programs. The public simply was not ready to pay for enrichment opportunities with tax payer money (Hermansen & Gove, 1971).

At the beginning of World War II, schools initiated a nine-month calendar consisting of 180 instructional, 6-hour days. The new school calendar revolved around the harvesting and planting of crops and allowed students to work the fields, with teachers assisting where needed (Kasnic, 1999). The agrarian school calendar later became obsolete as the farming population in America suffered a drastic decline (Huitt, 1995). The educational system did not bring a subsequent change as schools continued to operate on an agrarian based calendar leaving the months of June, July, and August as scheduled vacation time from formal instruction. As a result of extreme heat and humidity during the summer months, the climate appeared to be the primary reason schools continued to operate on a traditional calendar (Glines, 1992).

A surge toward redesigning the school calendar occurred in 1964 with the Education Commissioner of Virginia, James E. Allen. In the late 1960's and the early

1970's, Allen's direction and inspiration led to the development of the single-track and multi-track year-round education programs still utilized today. In 1968, Howard, California implemented California's first year-round school (Zykowski et al., 1991). This rebirth of the year-round concept continued to expand to other school districts in Missouri, Illinois, and Minnesota, marking the beginning of the resurgence of year-round education and a rapid escalation in the number of schools converting to a year-round calendar.

In the early 1970's, year-round education generated a great deal of interest throughout the country. By 1976, the number of schools in the United States operating on a year-round calendar reached 539. However, by the end of the 1970's, sparked by a lull in population and pressure for uniformity, the schools operating on a year-round calendar dropped to a national low of 287. According to Zykowski et al. (1991), none of the schools cited poor achievement as a reason for abandoning year-round education.

Year-round education saw a period of rejuvenation commencing in the early 1980's, and in the 1990's experienced record growth in its implementation. In the 1980's, schools shifted to year-round education, not particularly for its space utilization, but for the potential educational benefits. By 1992, 1,668 public and private schools in 23 states implemented year-round education (Glines, 1992). Research documents the primary reasons school systems shifted to year-round education coincided with those reasons given during the early 1900's which included increasing student achievement, alleviating overcrowding, and reducing summer learning loss (Ritter, 1992). Furthermore, Rodgers (1993) cited the lack of success from the traditional school system prompted the move of restructuring the American educational system. Today, according

to the National Association for Year-Round Education (2006), approximately 3,000 schools and 400 school systems in 46 states utilize year-round education.

Models of Year-Round Education

Kneese (2000) defines year-round education as a redistribution of a 180-day school calendar year divided into instructional periods with each instructional period followed by an intersession or vacation allowing a continuous flow of learning. Furthermore, year-round education can be defined as a terminology that promotes a paradigm involving any reconfiguration of a 180-day school calendar providing students more continuous learning opportunities throughout the year (Serifs, 1990). The primary objective for year-round education is to minimize learning loss and to eliminate the amount of time needed to review previously learned material (Ballinger, 1988).

According to Opheim & Mahajer (1995), year-round education schedules take on a multitude of forms including single-track, multi-track, and extended year. The most popular year-round schedules utilized in the U. S. are the single-track and multi-track models (Palmer & Bemis, 1999). On a single-track plan, students and teachers attend school simultaneously. When utilizing a multi-track plan, students and teachers are grouped and scheduled to alternating tracks. Multi-tracking allows schools to accommodate larger populations of students and is most commonly implemented in growing districts to alleviate overcrowding. Several limitations exist with the multi-track model including complications with the curriculum and scheduling siblings to similar tracks. The options for the extended year are flexible all year plans and 11-month plans (Ballinger, Kirschenbaum, & Poimbeauf, 1987). The flexibility of year-round education

models offer school districts the freedom of individualizing their educational program when faced with unique and various demands.

According to Weaver (1992), the most popular year-round concept implemented in the United States is the 45/15 schedule. The number of instructional days and the number of vacation days identifies the year-round education model. Therefore, the 45/15 model represents forty-five days of instruction followed by a break or intersession of fifteen days. The cycle of the 45/15 plan repeats four times totaling 180-days of instruction. The 60/20 plan cycles three times instead of four, allowing for three twenty-day vacations while still having 180-days of instruction. Another variation allows for ninety days of instruction followed by one month of vacation, also known as the 90/30 plan.

With so many variations of year-round education models, many advantages and disadvantages exist. Each plan possesses its own strengths and weaknesses. Thus, each school district should examine closely the calendar that best fits the needs of their students. A surplus of schedules is available for educational institutions to create a plan catered to each school systems individual needs (Peltier, 1991). The National Association for Year-Round Education (2006) lists the most common of these year-round schedules:

- 45/15 and 45/10: These two schedules are the most popular and account for the largest portion of all year-round calendars (36.7%). As with most year-round schedules, either of these plans may be implemented in either a single-track or multi-track model. When used on a multi-track system, there are four groups of students, one of which is always on vacation.

- 60/20 and 60/15: In this calendar, the year is divided into three 60-day sessions with three 20-day vacation periods. A variation to this schedule is the 60/15, which allows for an additional three to four-week common vacation. This plan may also be carried out under a single-track or multi-track system. These two calendars account for 24.4% of all year-round schools.

Less common year-round calendar configurations include:

- Concept 6: This model divides the school year into six terms of 40 to 44 days. Students and teachers attend two consecutive sessions and then have one session of vacation.
- 90/30: Similar to the 45/15 and 60/20, except students attend school for two 90-day learning blocks with a 30-day vacation in between.
- Orchard Plan: A variation of the 60/20 or 60/15 schedule dividing students into five tracts with four tracks in attendance at any one point of time. Each classroom consists of seven students from each of the five tracks. Since one track is always on break, 28 to 35 students per class would be present at any given time. On this particular schedule, teachers work 11 months of the year.

Finally, some year-round school calendars divide the year into four or five different segments or completely customize the attendance plans:

- Four Quarter Plan: Students are required to attend three of four 12-week terms (fall, winter, spring, summer), but also have the option of attending all four.
- Quinmester Plan: Similar to that of the four-quarter plan, students either select or are assigned to attend four of five 9-week quinmesters.

- Flexible All-Year: A completely individualized school schedule with the school doors open 230 to 250 days per school year. Students have the freedom to set their own schedule as long as they attend a total of 180 days. The curriculum necessarily revolves around shorter, self-contained, self-paced packages, which can be used individually or in small groups to allow for interruptions in the blocks of learning time. Vacation and breaks may last from one day to several weeks and occur at any time.
- Personalized Continuous Year: Buildings are open 230 to 250 days with students attending any of the days as long as they meet the minimum required by the state. Unlike other year-round programs, this plan has no predefined blocks of instructional time or curriculum packages to be completed. Learning is entirely flexible and personalized. Students are allowed to come and go as desired on a daily basis as long as they continue to accumulate and eventually log the required number of days.

In addition to spreading existing instructional days out over the entire year, many schools elect to increase the amount of instructional time available to students. Schools on traditional or year-round calendars may extend learning time through special programs scheduled before or after school, on Saturdays, and over the summer (Kerry & Kerry, 2000). Other schools institute longer school days or school years (Adelman, 1992). Year-round schools may also choose to extend their school year by offering programs during the more frequent breaks in instruction, known as intersession. A typical intersession program includes enrichment or remedial classes. While academically "at-

risk" students may be required to attend some extended learning programs, they are normally available to all interested students.

Advantages and Disadvantages of Year-Round Education

Little "hard" evidence exists in the vast amount of available literature regarding the impact of year-round education on outcomes other than student achievement (Costa, 1987). The literature clearly states that both advantages and disadvantages are associated with year-round education (Stenvall, 1997). Some of the perceived advantages of year-round education include: improved student achievement, improved attendance for teachers and students, increased motivation among teacher and students after returning refreshed from more frequent breaks, less time spent on reviewing previously learned material, and increased availability of remediation/enrichment opportunities during intersession. The benefits attributed to multi-track programs are the alleviation of overcrowding, reduction in class size, opportunities for teachers to work year-round, reduction in school vandalism, and more adequate use of facilities with the potential for reductions to the fiscal budget.

The perceived disadvantages of year-round education include: increased administrator burn-out, conflicts in scheduling vacations and school or community activities, difficulty in arranging daycare, increased cost of operations, having siblings on different schedules, and difficulty in scheduling teacher in-service days. Additionally, the multi-track program may require additional operating costs, complicate routine maintenance, be inconvenient for teachers who must change classrooms throughout the year, lead to overworked administrators, increase difficulties of effectively

communicating with staff or parents, and result in some students missing school events scheduled at off-track times (Worthen & Zsiray, 1994).

Another disadvantage would occur with businesses, particularly those in the tourism and amusement park industries. These businesses have raised concerns about the impact a change from the traditional calendar to a year-round calendar would have on their sales volume and their employee base. While businesses strongly support quality education for students, business leaders express doubts about whether altering the calendar or adding instructional days is the best way to improve student academic achievement. While some resorts or amusement parks that are already open year-round might benefit from having families spread their vacations throughout the year, those businesses only open during the summer months might see a significant decrease should a large number of school districts adopt year-round education.

Impact of Year-Round Education on Specific Student Populations

When considering the benefits afforded to students from the implementation of a year-round schedule, it is imperative to analyze the impact of particular subgroups including "at-risk" students, students with disabilities, and students of migrant workers. At the present time, little research allows for firm conclusions about the impact of year-round education on different groups of students.

"At-Risk" Students

Few studies have examined the direct effect on "at-risk" students or compared the performance of high-ability and low-ability students. While some studies have documented that year-round education is beneficial for "at-risk" students, the studies fail to determine the effects of the added instructional time (e.g., intersession and other

extended learning programs) which often accompanies year-round calendars. Therefore, research remains unclear whether such benefits are due to the adjustment of the school calendar or the additional time allowed for learning (Kneese, 1996).

Students with Disabilities

Research suggests that a school calendar offering more regular breaks of three- to four- weeks might help to reduce skill regression for students with disabilities. According to Davies & Kerry (1999), the implementation of year-round calendars may eliminate the need for related support services during summer months. Extended school breaks, such as summer vacation, cause regression in all children, and children with disabilities are certainly no exemption to this phenomenon (McMillen, 2001). One extensive review that examined several studies of both children with and without disabilities concluded that regression and retention: 1) vary across skills, people, and circumstances; and 2) are likely to be a more serious problem for children with disabilities, although some studies showed that there may be little or no difference between these two groups of children (Shields & Oberg, 2000).

Students of Migrant Workers

A population that could expect to benefit from the adoption of year-round education includes students from migrant families (Kneese & Knight, 1995). In many states, the number of migrant students increase each year where English is not the primary language spoken in the home. As commonly known, learning a language requires formal instruction on a continuous basis. A long summer vacation interrupts this formal training and, for the majority of students, the language of summer is the language of family and community, whether English or another language. Three months from

continuous, formal instruction hinders students from learning a new language, whether they are English-speaking students learning Spanish, Spanish-speaking students learning English, or any student learning any new language (North Carolina Insight, 1997).

Teachers' Reaction to Year-Round Education

The opinions of teachers differ on the concept of year-round schooling. The opportunity to earn additional income by teaching during periods of intersession proved to be positive while the inability of participating in university classes during the summer was mentioned as a negative (Palmer & Bemis, 1999). Some educators recommend changing the traditional school calendar because they believe learning that is continuous is better for students. Other teachers oppose year-round education because they are reluctant about losing their long summer vacation, which many see as a fringe benefit of teaching (Greenfield, 1994). Teachers soon realize that pay schedules and contracts, for the most part, remain unchanged, that they are usually required to teach the same number of contract days as teachers in the traditional September - June calendar, and that there is the possibility of extending teaching time if they choose to work more days (Glines, 2000).

Several past studies offered data from elementary, middle, and junior-high teachers on their attitude about year-round education, school quality, scheduling of personal activities, and morale (Costa, 1987; Elsberry, 1992; Fardig, 1992; Loyd, 1991; Nygaard, 1974; Prohm & Baenan, 1996). The studies clearly indicated that teachers' feelings about year-round education and their attitudes tend to improve with experience. All three of the studies comparing the attitude of teachers over time found that there satisfaction increased (Fardig, 1992; Loyd, 1991; Nygaard, 1974). One study comparing

the year-round calendar to a traditional calendar found that the teachers who were most positive and accepting towards the year-round program had the most exposure to it, while teachers on traditional calendars had the most negative attitudes concerning the year-round calendar (Shields, 1996). Wayne & Youngs (2003) reported that teacher attitudes were increasingly positive; this change is directly related to the number of years involved in the adoption of year-round education.

According to Chaika (1999), teachers spend less time on review and re-teaching, and that their students retain more information after coming back from a brief vacation period. It is common to hear a year-round educator explain that upon return from a month's vacation, students remember what story they are to begin reading, or to hear these educators discussing how well their students are doing each time they return from a break (Venable, 1997).

Some educators are still concerned that not having a full summer vacation may make it more difficult for them to pursue an advanced degree or attain additional credentials at a college or university. However, experience with year-round education over the past decade indicates that most teachers can find graduate programs that work with their schedules (Weiss & Brown, 2003). Johnson (2000) reports more and more universities are offering courses at night, on weekends, in three-week blocks, at community centers, as well as on campus to accommodate the schedule of educators utilizing modified calendars.

In several cases among a year-round multi-tracked school, teachers must change rooms in order to accommodate the schedule of their assigned track. Under these circumstances, teachers worry about storage and having needed supplies. Building

administrators can help by anticipating and providing the school with what is needed for room changes, and by insuring that all staff members have a positive attitude (National Association for Year-Round Education, 1999).

Ballinger (1999) states that many educators feel there is a possibility of burnout among the teachers and students operating on a year-round calendar. Contrary to this belief, teachers report that the year-round calendar gives them personal opportunities not previously available, such as vacationing at different times of the year and during different seasons, which on a traditional calendar only leaves the summer months to vacation. In summary, one might agree that teachers' opinions to year-round education depend on their personality, their ability to be flexible and to adjust, and their willingness for change (Glines, 2000).

Parents' Reaction to Year-Round Education

When first learning that their child's school may be changing to a year-round program, parents have showed concerns about having children on different schedules and losing their summer vacation (Wornsop, 1996). While several studies have gathered data on parents' attitudes toward year-round education both before and after implementation, research has found their opinions become more positive over time (Fardig, 1992). However, those results have found no difference in the satisfaction level. A similar study, released by Cooper, Valentine, Charlton, & Melson (2003), has surveyed parent groups showing that they had a more positive outlook on modified calendars after implementation than prior to implementation. Furthermore, the study has found more

than 80% of the respondents were positive concerning the academic achievement of their children.

Parents respond positively to a year-round program if it works for them (Stenvall, 2000). The challenge for building administrators, district officials, and teachers is to educate the community on the merits of year-round education and to make the program work for the community. When educators do their job effectively, parents are proud of their year-round schools and support the calendar change (Tawasha, 1995). It is this community support that makes the educators' careful planning all worthwhile when changing from the traditional calendar to the year-round calendar.

Fiscal Implications of Year-Round Education

The impact of year-round education on a school district finances depends on understanding many aspects of the local context. Expenses associated with the year-round calendar are influenced directly by the type of calendar, the size and number of schools, class size, transportation needs, utilization of intersession, teacher and staff contract provisions, and the need for facility improvements (Stenvall, 2000). While generalizations are difficult, existing research draws the following conclusions:

- Single-track year-round programs are likely to cost as much or more than schools operating on a traditional calendar (Worthen & Zsiray, 1994).
- Expenses related with teacher and student absenteeism may be somewhat reduced (Brekke, 1992).
- Year-round programs utilizing intersession for student remediation or enrichment will increase total and per pupil operating costs (Sheane & Others, 1994).

- Successfully implementing year-round education will require year-round climate control, generating significant capital expenses in buildings currently without air conditioning (Opheim & Mohajer, 1995).
- A reduction in expenses in response to vandalism and burglary occurs in year-round calendar schools (Ballinger, 1995; Brekke, 1992).
- School districts may save money by switching to a multi-track year-round program, but the state could incur either additional expenses or a savings, depending on how state aid is calculated and the incentives associated with districts implementing a year-round calendar (Hough & Others, 1990).

Hough et al. also noted that existing research is inconclusive on the relative cost-effectiveness of implementing year-round education as a means of improving student achievement compared with adding instructional time, reducing class size, or adopting other curricular or structural reform.

Facility Implications of Year-Round Education

Schools on a single-track calendar without intersession might find benefits to a year-round calendar because more frequent breaks allow facilities to be cleaned more frequently. However, schools on multi-track calendars must rethink the timing of maintenance tasks usually delayed until the summer including floor sanding, vent cleaning, carpet cleaning, etc. To accomplish these maintenance tasks, custodial workers must work on weekends which could lead to increased costs for districts and/or require contract renegotiations (Glines, 1990).

Implementation of Year-Round Education

Changing a school calendar ingrained into the tradition of America takes more than placing the item on a school board's agenda and asking for a yes or no vote. It requires thoughtful and careful planning. There will always be some resistance to change in a community, especially a small one (Capito, 2001). Because tradition has its own force, it is easier to request change than it is to make it happen. Nevertheless, change can and will occur when its supporters have a thorough understanding of what they want to change and how to bring it about. According to Greenfield (1994), there are several elements involved in helping a community decide to make a change in the traditional school calendar.

1. *Understanding the concept.* Year-round education as a general term is often misunderstood by both educators and citizens of the community (Warrick-Harris, 1995). Essentially, year-round education means the restructuring of the school year in such a way that the long summer vacation is broken up into shorter vacation periods throughout the year for the purpose of providing more continuous learning. To make this concept readily understood to parents and the wider community requires numerous examples followed by discussion about the various calendar options (Ballinger, 1995). Administrators, teachers, and parents who are leading the change effort should be prepared to meet with as many groups as they can at any time and any place that is convenient to those groups. According to Chaika, (1999), presentations should include:

1. A *definition* of year-round education.
2. How it is administered (calendar examples).
3. Advantages and disadvantages of each calendar.
4. Discussions of how year-round education can benefit children and teachers.
5. How the change will be initiated and implemented in the district.

2. *Repetition of information.* It is essential that the leaders for change be willing to present information about the basic concept of year-round education repeatedly. Constantly restating the essential information is needed to combat the myths and distortions that opponents of change might circulate in a community. Most audiences composed of a representative segment of the community will respond positively to solid, factual information presented in an organized and convincing way (Naylor, 1995).
3. *Involvement of the larger community.* Once a school district is seriously committed to studying the possibility of year-round education, it is important to involve representatives of key groups and community agencies that will be affected by the change (Stenvall, 2000). This representation should include, but not be limited to, teacher organizations, classified personnel, administrative staff, parent-teacher organizations, parent/community advisory groups, city agencies such as parks and recreation departments, youth-serving agencies, churches, and civic organizations (Ballinger, 1995). Most of these groups have

calendars that revolve around the public school calendar; a change by the public schools mean a change for them.

These community representatives should be involved in the study and discussion process at its earliest stages. This early involvement is critical, because if there is a perception among community representatives that the school administration has already made a decision to change the calendar and they are being asked simply to rubber stamp the decision, then there is likely to be a negative atmosphere that is not conducive to healthy change (Curry, Washington, & Zyskowski, 1997).

4. *Building support for change within the district team.* At the outset, the board of education must be informed about the rationale for changing the school calendar. Every school district that has successfully implemented a year-round education program has had the full support of its school board (McMillen, 2001). Board members, as elected representatives, are vulnerable to pressures from those opposing change (Shields & Oberg, 2000). Therefore, it is essential for district administrators to provide their school boards with a comprehensive rationale for the change.

If and when a school system chooses year-round education, many changes must occur. Haenn (1996) recommends that each school system mull over different plans to determine which is best for the community. The system must also develop program goals and outcomes. Shields & Oberg (2000) strongly suggest that the school system determine how the finances will be altered due to the shift from a traditional calendar to a year-round calendar.

Year-Round Education in the United States

According to the figures for the 2005-2006 school year (see Table 1), 3,045 year-round schools are in operation throughout the United States. Of these schools, 73% are single-track and 27% are multi-track. The number of students enrolled in year-round schools has almost doubled, from 1,345,921 in 1991-1992 to over 2.1 million in 2005-2006. Currently, 46 states have year-round educational programs. Of the public schools adopting a year-round calendar in the United States, seven out of ten are elementary schools. Fewer than 10% of all year-round public education programs are located in high schools (see Table 2).

Table 1

Current Status of U. S. Year-Round Programs

Number of states (including D.C.)	46
Number of districts	429
Number of public/charter/private schools	3,045
Number of public/charter/private enrollment	2,178,446

Note. Data obtained from the National Association for Year-Round Education (2006).

Table 2

Current Status of U. S. Public Schools on Year-Round Education

Type of School	# of Schools	Enrollment	Percentage
Elementary schools	2,237	1,553,882	78.5%
Middle/junior high schools	291	294,015	10.2%
High schools	243	237,612	8.5%
Special/atypical schools	79	30,855	2.8%
Total	2,850	2,116,364	100%

Note. Data obtained from the National Association for Year-Round Education (2006).

Year-Round Education in Tennessee

Following a national trend, the number of schools operating on a year-round/alternative calendar in Tennessee increased dramatically over the past decade (see Table 3). The Tennessee Department of Education stated that Tennessee had 147 schools in 27 school districts operating on some form of a year-round/alternative calendar for the 2003-2004 school year, as compared to none in 1993 (Office of Education Accountability, 2003). With other Tennessee schools and school districts evaluating a

possible adoption of the calendar, the number of year-round/alternative calendar schools may increase further still. Currently, all Tennessee schools utilizing year-round calendars utilize a 45/15 plan or a modified version of the 45/15 plan.

Table 3

Growth of Year-Round/Non-Traditional Calendars in Tennessee

School Year	# of Schools	Whole Districts
1993-1994	0	0
1994-1995	1	0
1995-1996	6	0
1996-1997	7	0
1998-1999	10	0
1999-2000	34	2
2000-2001	49	4
2001-2002	74	9
2002-2003	122	13
2003-2004	147*	16*

*Estimate of the number of schools/school districts operating on a year-round calendar in 2003-2004.
Note. Data obtained by the Office of Education Accountability (2003).

Student Achievement

Prior to 1980, few studies of the effects of year-round education on student achievement were published. Since then, the number of studies has increased along with the interest in alternative school calendars and the adoption of year-round programs. Although the preponderance of earlier studies (pre-1985) suggested no achievement advantages associated with year-round scheduling, district planners need to be aware that more recent reports do suggest that students have higher achievement in year-round

schools (Winters, 1995). When a parent is interested in their child's education, Kellaghan, Sloane, Alvarez, and Bloom (1993) reported the child's academic achievements in school increase. According to Mutchler (1993), year-round education is an increasingly attractive concept for local and state policy makers who are seeking new ways of addressing how to improve student learning outcomes and achievement.

In research findings by Christenson, Rounds, and Gorney (1992), the following five family characteristics that effect student achievement in education include: 1) parent attributions and expectations, 2) affective home environment, 3) discipline, 4) structure for learning, and 5) parent involvement. Parents can and do make a positive contribution to their child's school achievement. Christenson and Cleary (1990) reported positive outcomes are likely to occur when parents are involved with their child's education. Additionally, not only do students have higher grades, higher test scores, better behavior, and positive attitudes, but students also are more likely to be engaged in learning activities with a higher interest and desire to perform their best.

The Minnesota Department of Children, Families, & Learning (1999) identified 19 studies which provided data that could be used to examine the relationship between student achievement and the school calendar. From these studies, a sum of 75 individual comparisons of standardized achievement tests in reading, math, language, writing, science, social studies, or the complete battery were obtained. Most of these studies included elementary schools that had utilized a year-round schedule for three to five years, while the others had implemented such calendars from one to twenty-one years ago. Of the 75 individual comparisons, 42 showed no clear pattern or effect on student achievement that could be attributed to the school calendar, while 27 showed a positive

effect for the year-round calendar, and 6 showed a positive effect for the traditional calendar (Minnesota Department of Children, Families, & Learning). In other words, 36% indicated that students attending year-round schools perform better than students on traditional calendars, 8% showed that students on traditional calendars perform better, and 56% showed no difference in student performance based on calendar type.

Teacher Quality

A major problem in the efforts of examining the relationship between teacher quality and student learning is how to measure teacher effectiveness by examining student learning in fair and valid ways (Goldhaber & Anthony, 2004). In the 2003 Annual Report to Congress informing the public of the state of teacher quality in the United States, Rod Paige, the U. S. Secretary of Education, acknowledged that research has consistently shown that individual teachers contribute to student achievement. However, Paige indicated that the single factor used to identify teacher effectiveness has been reduced to student achievement. Unlike other professions, teachers are publicly scrutinized and often evaluated based solely on the outcomes of the students they serve, especially through the use of standardized achievement tests (Vandervoot, Amrein-Beardsley, & Berliner, 2004).

Numerous authors and researchers have presented strong correlations between teacher quality and students' achievement in defining quality teaching (Cohen, 2003; Darling-Hammond, 2000; Haycock, 2000; Stronge & Hindman, 2003). While class size, funding, family involvement, curriculum, and many other factors influence school improvement and student achievement, experts are concluding that the single most school-based factor is the teacher (Sanders & Horn, 1998; Stronge & Tucker, 2000). The

National Commission on Teaching and America's Future (NCTAF, 2003) stated, "The bipartisan passage of the *No Child Left Behind Act of 2001* was a clear expression of national will. Recognizing that every American family deserves public schools that work, *No Child Left Behind* pledges highly-qualified teachers in every classroom by the 2005-06 school year" (p.4). Before fulfilling this national pledge, a consensus must be made on what a highly-qualified teacher is.

Though research shows that high quality teaching is the most valuable resource a community can provide its children, questions still remain on what a high quality teacher is and how to identify and assess high quality teachers (Darling-Hammond, 2000). Many current models identifying highly-qualified teachers are primarily based on the assessment of content knowledge or viewing students test scores. Based on a synthesis of meta-analyses related to student achievement, Hattie, Clinton, Thompson, & Schmitt-Davis (1996) identified four major attributes and eighteen specific dimensions of teaching that can be used to discriminate between expert and novice, or expert and experienced teachers. The four attributes include: 1) extensive, accessible content knowledge, 2) pedagogical knowledge that transforms essential aspects of the subject matter to connect with students' ways of comprehension, 3) affective qualities including a respect for learners and a passion for teaching, and 4) attention to student outcomes including motivation, challenge, and achievement.

Educators in Tennessee utilize the Tennessee Value-Added Assessment System (TVAAS) to measure quality or teacher effect. A teacher's effect is gauged using academic growth from the teacher's students and is aggregated over three years (Stone, 2002). The amount of growth the teacher's students make are compared year to year

against growth made by a national sample of students, as well as from state and district (Robelen, 2003). William Sanders, developer of the TVAAS program, stated that the positive teacher effect is persistent and cumulative (Crane, 2002). However, some critics have argued that the TVAAS assessment program is not a valid measure of teacher effectiveness because of the limited base for comparison (Bracey, 2004).

A state study using value-added methodology in Tennessee found that the major determinant of student achievement is the effectiveness of the teacher. Furthermore, factors with little influence on student achievement included race, socioeconomic status, class size, and classroom heterogeneity (Sanders & Horn, 1998). Wright, Horn, & Sanders (1997), also using student achievement scores in Tennessee, conducted thirty separate analyses based on academic growth. Controlling factors such as heterogeneity, student achievement level, and class size, the results of the study indicated that the teacher (highly significant in all analyses) and the prior achievement level for the student were the most significant variables influencing the amount of student growth. Based on these findings, effective teachers appeared to be effective with students of all achievement levels, regardless of the level of heterogeneity in their classroom. Though some critics have identified limitations of using value-added methodology (Cochran-Smith, 2004; Kupermintz, 2003), the results of the value-added research provides evidence that a positive relationship exists between teacher effectiveness and student learning.

Teacher Experience

According to Rowan, Cornetti, & Miller (2002), the level of teacher experience is a significant factor in predicting the growth in reading skills particularly in early grades.

Rowan et al. used the data provided by the 1988 Hawkins-Stafford Amendments of Elementary and Secondary Education Act of 1965 and reported a positive growth for students in classrooms taught by highly experienced teachers in mathematics with the effect being much more pronounced at the secondary level. Another research study analyzed teacher experience effect in the Memphis City School System. The Memphis research study examined an aggressive school reform program in an inner-city school. Ross, Stringfield, Sanders, & Wright (2003) found that teachers who had six or more years of teaching experience and were participating in the school reform program made significant increases in student achievement. Sanders' (2002) study included additional information on the effect of teacher experience and its effect on student growth. Sanders (2002) reported that student achievement increased during the first two years of teaching then leveled off at around 10 years of experience and remained comparatively high up to year 25 when the achievement scores slowly begin to decrease.

A North Carolina study involving the effect of teacher experience revealed that years of experience and possessing a master's degree were both significant factors in the academic growth of students in the areas of reading and mathematics (Goldhaber & Anthony, 2004). When comparing teachers with five years of experience to first year teachers, one can expect the more experienced teacher to make three to four months more progress (Barton & Rowe, 1994). Wayne et al. (2003) reported in their research on teacher characteristics that teacher experience had a positive effect on student achievement, but they also stated that the relationship between teacher experience and student achievement is difficult to decipher.

Summer Learning Loss

Administrators and educators at all levels of the educational spectrum have expressed concern about the long period of time during summer vacations when children are not instructionally engaged and the potential loss of basic skills. For some time, the traditional long summer break has been under attack because of the observation by researchers concerning academic and skill loss over the extended break from school (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996). The Virginia State Department of Education (1992) verified that forgetting was expected at some degree in all students. Additionally, they reported that most forgetting occurred within an hour to a day after instruction.

A 1978 study (New York Board of Regents) reported a distinct disparity in student classification and retention problems. Forgetting previously learned material was shown to be different for each type of student, with disadvantaged students forgetting as much as three months of learning during the summer vacation. Disadvantaged students are rarely introduced to motivating environments and subsequently often acquired no additional learning during this time. On average, these students not only experienced more difficulty in attaining knowledge but also tended to forget the material more quickly. Cooper et al. (1996) reports the results of a comprehensive review of the research on summer learning loss showing a loss of about one month with these effects being more detrimental for math than for reading and most detrimental for math computation and spelling. In addition, lower income students' reading skills tended to decline while middle-class students' increased. Finally, learning loss was found to increase in the upper grade levels.

Summary

For the past 150 years, American public schools have held time constant and allowed learning to vary. In the late 19th century, the use of child labor, whether on the farm or in the factory, was impacted by child labor laws. Schools closed in the summer to accommodate the demands of the families for assistance on the farm and for the health of the children due to the extreme heat and humidity of the summer months. School leaders recognized the importance of school attendance especially when funding was tied to the number of children in attendance. Therefore, the sensible choice for a uniform calendar included a long summer break when absenteeism was at its highest and the weather was hot. This academic calendar basically remained unchallenged until the 1970's.

Educators have been forced to examine how schooling took place due to the demands of the government, as well as by advocacy groups. The National Association for Year-Round Education advocates that the use of academic time could be more productive if the traditional calendar would change. They believe that utilizing a different type of calendar would benefit the student as well as provide better use of the school buildings. Research shows that a calendar change can positively impact administrators, teachers, as well as students. However, questions still remain as to the impact on student achievement brought about by a year-round calendar. The shorter summer breaks can easily have a positive impact on the amount of summer learning loss. Research studies have been done on the effect of students attending school on a year-round or modified calendar which include other factors such as attitude, discipline, attendance, and student achievement.

A crucial component of the equation for student success is the effective utilization of time. Recognition that children learn at different rates has required many school

systems to provide extended school programs such as summer school and before and after school tutoring. Most schools continue to utilize a 180-day school calendar, but there are variations within the confines of the traditional calendar that assist the learners who need extra time. Although most of America's schools maintain the traditional calendar, many are making efforts to provide appropriate time to educate all students.

Many studies have been conducted on the effect of the year-round calendar on student achievement, but as to date there has not been a longitudinal study that has shown definitively that there is a clear advantage of the year-round or modified calendar. Educational leaders are confronted with the task of deciphering the research to determine what factors will maximize effectiveness for the learning process. Pin pointing a single factor of the learning process has been a difficult challenge for many researchers. A plethora of factors are involved in the education of a child, and effective time utilization is a crucial part of the equation for success. The challenge facing the leaders of the educational system is deciphering the differing factors to provide maximum effectiveness for the learning process.

Chapter 3

Research Methodology

Purpose Statement

The purpose of the study was to examine and compare the effects of the year-round school calendar and the traditional school calendar, socio-economic status, and teacher tenure status on the mathematics and reading achievement of eighth grade students in two rural, high poverty school systems in the state of Tennessee. This chapter describes the research design, population, sample, data collection, instrumentation, and hypotheses.

Research Design

This ex post facto study examined eighth grade student achievement in mathematics and reading based on Terra Nova scores in seven rural Tennessee public schools. National Curve Equivalent (NCE) scores from the school years 2002-2003, 2003-2004, and 2004-2005 were collected in mathematics and reading for each child. The archival data of this study included gender, socioeconomic status, years of teacher experience, and type of academic calendar.

Participants

The population associated with this study included eighth grade students in seven middle schools in two rural Tennessee counties. A sample of students was drawn based on sample sizes suggested by data found in Gay and Airasian (2003). At the time of the study, the two districts total population consisted of 7,038 students with 503 eighth grade students. Table 4 illustrates each counties percent of minorities, median household

income, per capita income, percent of persons below poverty, percent of high school graduates age 25+, and percent of citizens with a bachelor's degree. The students in the sample were limited to those who attended the same school over the testing cycle of this study which extended from the beginning of the 2002 school year to the end of the 2005 school year.

The sample from the seven schools provided information for the comparison of student academic achievement on the Terra Nova test and the effect of operating on different academic calendars. One school district utilized a traditional nine-month calendar starting in mid-August and ending in late May, while the other school district utilized a year-round calendar composed of the same 180-instructional days but has four nine-week terms with a two-week break between each term and a seven-week summer break. All data used for the study was coded to protect all legal and ethical considerations and the anonymity of the individuals involved in the study.

These two school systems were chosen for their similar demographics (see Table 5). All of the schools selected for the study are rural with very few minority students; the schools have similar socioeconomic composition based on the percent of students eligible for the National School Lunch Program.

Table 4

Demographic Information on Counties

	Year-Round Calendar	Traditional Calendar
2004 Minority Populations	1.6%	1.4%
2003 Median Income	$29,245	$29,635
1999 per Capita Income	$13,910	$14,505
2003 Persons Below Poverty	15.7%	15.8%
2000 High School Graduates	59.0%	60.1%
2000 Bachelor's Degree, Age 25+	8.3%	7.8%

Note. Data obtained by the U.S. Census Bureau (2005).

Table 5

School Systems Profile and Demographics

Ethnicity	Year-Round Calendar	Traditional Calendar
Caucasians	98.9%	98.3%
African American	0.7%	0.1%
Hispanic	0.3%	1.4%
Asian	0.1%	0.1%
Native American	0.0%	0.1%
Other	0.0%	0.0%
Students Eligible for Free/Reduced Lunches	65.0%	62.8%

Note. Data obtained by the Tennessee Department of Education (2005).

Data Collection and Procedures

Permission to obtain data for this study was granted by each school system's Director of Schools. Data was collected from each school with the assistance from the building-level supervisor and the Supervisor of Instruction from each school system.

Test scores were coded to maintain confidentiality. Liberty University's Institutional Review Board approved the methodology utilized in the study.

The collected data consisted of demographic information including gender, socioeconomic status as determined by the percent of students eligible for the National School Lunch Program, teacher's years of experience for each grade level, and type of academic calendar. National Curve Equivalent (NCE) test scores from the Tennessee Comprehensive Assessment Program (TCAP), Terra Nova Achievement Test, were collected for each student. Test scores collected were from the school years 2002-2003, 2003-2004, and 2004-2005.

Instrumentation

The Tennessee Comprehensive Assessment Program (TCAP) test consisted of multiple choice items with both criterion-referenced and norm-referenced test items (Teacher's Guide to the Terra Nova, 1997). In the state of Tennessee, the Terra Nova Achievement Test is required for all students in grades three through eight producing scale scores and National Curve Equivalent (NCE) scores for all students. NCE scores are standard scores with a mean of 50, a standard deviation of 21.06, and a range of 1 to 99. The publisher of the Terra Nova exam, TCB/McGraw Hill, provides positive data on content validity and reliability.

Null Hypotheses

The following six null hypotheses were used for the basis for analyzing the difference in academic achievement between students attending schools maintaining a traditional academic calendar and those students utilizing a year-round academic calendar. The same analysis compared the academic achievement of children who

qualified for the National School Lunch Program and those students who did not qualify for the National School Lunch Program. Two hypotheses related to the effect of the tenure status of the teachers on student academic achievement.

1. There is no statistically significant difference between mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students in a school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar.
2. There is no statistically significant difference between reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students in a school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar.
3. There is no statistically significant difference between mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who qualify for the National School Lunch Program compared to eighth grade students who do not qualify for the National School Lunch Program.
4. There is no statistically significant difference between reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who qualify for the National School Lunch Program compared to eighth grade students who do not qualify for the National School Lunch Program.
5. There is no statistically significant difference between mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who had teachers with tenure and those teachers without tenure.

6. There is no statistically significant difference between reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who had teachers with tenure and those teachers without tenure.

Data Analysis

An independent sample *t*-test was conducted for each of the independent variables (calendar configuration, socio-economic status, and teacher tenure status) in order to identify statistically significant differences on the mathematics and reading NCE scores on the TCAP exam.

Reporting the Data

Research data are reported in the form of tables and narrative in Chapter 4.

Chapter 4

Presentation and Analysis of Data

Introduction

The purpose of this study was to investigate the effects of the year-round school calendar and the traditional calendar, socio-economic status, and teacher tenure status on the mathematics and reading achievement of high poverty middle school students in two rural school systems in the state of Tennessee. All the raw data from the 244 students were coded and entered into the Statistical Program for the Social Sciences, Version 13.0 (SPSS 13.0). The anonymity of the student participants was guaranteed through the coded data. The data were assessed for normal distributions and prepared for final analysis before utilizing any statistical analyses. This exploratory analysis revealed that most variables in the study were normally distributed (Kurtosis and Skewed values between -1.0 and +1.0). This implied excellent distributions of these variables. Concerning whether the results were skewed, years of experience and school lunch program had values of 1.09 and 1.12 respectively. Even though these values did not fall between -1.0 and +1.0, they are still acceptable values for the purpose of this study. In regards to kurtosis, once again most variables were normally distributed (values between -1.0 and +1.0). However, gender, school calendar, tenure status, and years of experience had kurtosis values between +/-1.0 and +/-2.0. Even though this does not constitute excellent distributions, the values are acceptable and permit for the analyses included in this study. This chapter reports the descriptive information of the sample and addresses the analyses and results for each of the null hypotheses of this study.

Frequency distributions were conducted in order to obtain a greater understanding of the sample and its characteristics.

Table 6 describes the gender distribution of the students of this sample. As depicted by Table 6, there was an overall similar amount of males and females. Specifically, there were 115 (47.1%) male students and 129 (52.9%) female students.

Table 6

Gender of Students

Gender	*n*	%
Male	115	47.1
Female	129	52.9
Total	244	100.0

Table 7 describes the students that qualified for the National School Lunch Program and those that did not qualify. This table indicates that the majority of the sample consisted of students that qualified for the National School Lunch Program (implying low socioeconomic status; low SES). Specifically, there were 176 (72.1%) students that qualified for the program and 68 (27.9%) students that did not qualify.

Table 7

National School Lunch Program Qualification (Socioeconomic Status; SES)

Qualified	*n*	%
Yes (Low SES)	176	72.1
No (Non-low SES)	68	27.9
Total	244	100.0

Table 8 describes the frequency distribution of the students attending the two different types of academic calendar schools (Traditional versus Year-Round). There was an overall equal representation from the two different types of calendars used by schools. Specifically, there were 110 (45.1%) students attending year-round calendar schools and 134 (54.9%) students attending schools following the traditional calendar.

Table 8

Academic Calendar Configuration

Configuration	*n*	%
Year-Round	110	45.1
Traditional	134	54.9
Total	244	100.0

Table 9 describes the frequency distributions of the number of students served by teachers that were tenured versus teachers that were not tenured. The frequencies are reported by academic year. As shown in the table, the distribution of teachers by tenure

status is inconsistent. During the first year of the study, 2002-2003, when the students were in the sixth grade, 174 students (71.3%) were taught by tenured teachers and 70 (28.7%) were taught by non-tenured teachers. During the second year of the study, 2003-2004, 76 (31.1%) of the students were taught by tenured teachers and 168 (68.9%) were taught by non-tenured teachers. During the third year, 2004-2005, when the students were in the eighth grade, 136 (55.7%) of the students were taught by tenured teachers and 108 (44.3%) students were taught by non-tenured teachers.

Table 9

Students Served by Tenured and Non-Tenured Teachers

	Tenured		Non-Tenured	
Academic Year	*n*	%	*n*	%
2002-2003	174	71.3	70	28.7
2003-2004	76	31.1	168	68.9
2004-2005	136	55.7	108	44.3

Null Hypotheses

This section focuses on the six null hypotheses outlined in Chapter 3. Each hypothesis was tested at the .05 level of significance. There were three main independent variables in this study. These variables include calendar configuration (Traditional versus Year-round), National School Lunch Program (Qualified and Nonqualified), and teacher tenure status (Tenured or Non-Tenured). There were two dependent variables in the current study. These included the NCE mathematics scores on the TCAP exam and the NCE reading scores on the TCAP exam.

When the researcher received the raw data for analysis, the students' mathematics and reading standardized NCE scores for the years 2002-2003, 2003-2004, and 2004-2005 were available. These scores were presented based on the year the exam was taken. For the year 2002-2003, the TCAP was presented as a 2003 score since the exam was taken in April of 2003. The same was present for the years 2003-2004 (2004 score) and 2004-2005 (2005 score). The hypotheses of this study refer to group differences of NCE scores through the three-year period.

The tenure status variable was used as a covariate in an exploratory way before running the final analyses in order to identify whether the variable interfered with the results. In order to address this issue, a Multiple Analysis of Variance (MANOVA) was conducted in order to identify statistically significant differences between the different types of school calendars used and the two dependent variables. Results indicated that no significant differences existed between the two groups (Year-round and Traditional) on the dependent measures (Wilks'$\Lambda = .983$, $F\,(1, 242) = .325$, $p > .05$, multivariate $\eta^2 = .014$). The same procedure was repeated while using the tenure status variable as a covariate. Specifically, a Multiple Analysis of Covariance (MANCOVA) was conducted in order to see if tenure status affected the dependent measures in any way. This analysis yielded similar results as the MANOVA previously used (Wilks'$\Lambda = .969$, $F\,(1, 242) = .675$, $p > .05$, multivariate $\eta^2 = .026$). These results were indicative that the tenure status variable did not significantly skew the distribution in any way.

1. *There is no statistically significant difference between the mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students in a*

school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar.

An independent sample *t*-test was conducted in order to identify statistically significant differences between the different academic calendar configurations on the mean mathematics standardized scores for the years 2003, 2004, and 2005. Tables 10, 11, and 12 illustrate that no significant differences (all $p > .05$) existed on the mathematics standardized NCE scores between the two groups.

Table 10

Mathematics Standardized NCE Scores by Academic Calendar Configuration for 2003

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	54.46	16.44	.824	.411
Traditional	134	52.80	14.99		

Table 11

Mathematics Standardized NCE Scores by Academic Calendar Configuration for 2004

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	51.47	18.16	1.404	.164
Traditional	134	48.37	16.29		

Table 12

Mathematics Standardized NCE Scores by Academic Calendar Configuration for 2005

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	48.02	19.30	1.432	.153
Traditional	134	44.59	18.03		

2. *There is no statistically significant difference between the reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students in a school using a traditional academic calendar compared to eighth grade students at a school utilizing a year-round academic calendar.*

An independent sample *t*-test was conducted to identify statistically significant differences between the different academic calendar configurations on the mean reading standardized scores for the years 2003, 2004, and 2005. These results mirrored the analyses reported based on the scores. Tables 13, 14, and 15 show that no significant differences (all $p > .05$) existed on the reading standardized NCE scores between the two groups.

Table 13

Reading Standardized NCE Scores by Academic Calendar Configuration for 2003

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	52.73	21.00	1.032	.304
Traditional	134	50.05	19.50		

Table 14

Reading Standardized NCE Scores by Academic Calendar Configuration for 2004

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	52.75	19.43	1.072	.285
Traditional	134	50.14	18.49		

Table 15

Reading Standardized NCE Scores by Academic Calendar Configuration for 2005

Configuration	*n*	*M*	*SD*	*t*	*p*
Year-round	110	50.28	16.76	1.274	.204
Traditional	134	47.61	15.89		

3. *There is no statistically significant difference between the mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who qualify for the National School Lunch Program compared to eighth grade students who do not qualify for the National School Lunch Program.*

An independent sample *t*-test was conducted in order to identify statistically significant differences between the qualification status on the mean mathematics standardized scores for the years 2003, 2004, and 2005. This analysis indicated that significant differences are present between the groups when the NCE scores are treated independently as standardized scores. Tables 16, 17, and 18 illustrate that significant

differences (all $p < .05$) existed on all the mathematics standardized NCE scores (2003, 2004, and 2005) between the two groups.

Table 16

Mathematics NCE Scores by Qualification Status for 2003

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	53.70	16.16	-3.079	.002
Nonqualified	68	60.70	15.29		

Table 17

Mathematics NCE Scores by Qualification Status for 2004

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	49.51	17.47	-3.226	.001
Nonqualified	68	57.57	17.57		

Table 18

Mathematics NCE Scores by Qualification Status for 2005

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	45.67	19.09	-3.076	.002
Nonqualified	68	54.02	18.77		

As shown by Tables 16, 17, and 18, when the NCE standardized scores were treated independently, significant differences existed between the two groups where students who did not qualify for the National School Lunch Program (non-low SES status) scored significantly higher on mathematics NCE scores in all three years as compared to students who did qualify (low SES). Based on the above analysis, this hypothesis was rejected.

4. *There is no statistically significant difference between the reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who qualify for the National School Lunch Program compared to eighth grade students who do not qualify for the National School Lunch Program.*

An independent sample *t*-test was conducted in order to identify statistically significant differences between the qualification status on the mean reading standardized scores for the year 2003, 2004, and 2005. This analysis indicated that when the NCE scores are treated independently as standardized scores, significant differences are present between the groups. Tables 19, 20, and 21 show that significant differences (all $p < .05$) existed on all the reading standardized NCE scores (2003, 2004, and 2005) between the two groups.

Table 19

Reading NCE Scores by Qualification Status for 2003

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	50.49	20.51	-3.147	.002
Nonqualified	68	59.68	20.31		

Table 20

Reading NCE Scores by Qualification Status for 2004

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	50.24	19.25	-3.846	.001
Nonqualified	68	60.66	18.23		

Table 21

Reading NCE Scores by Qualification Status for 2005

Qualification	*n*	*M*	*SD*	*t*	*p*
Qualified	176	48.26	15.78	-3.423	.002
Nonqualified	68	56.34	18.35		

As illustrated by Tables 19, 20, and 21, when the NCE standardized scores were treated independently, significant differences existed between the two groups where students who did not qualify for the National School Lunch Program (non-low SES

status) scored significantly higher on reading NCE scores in all three years as compared to students who did qualify (low SES). Based on the statistical analysis, this hypothesis was rejected.

5. *There is no statistically significant difference between the mathematics NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who had teachers with tenure and those teachers without tenure.*

Three independent sample *t*-tests were conducted to identify statistically significant differences on the mathematics NCE scores of the TCAP exam. Due to the variability of the tenure status of teachers among the three years used in the current study, three separate analyses were utilized, one for each year. Results of these analyses are displayed in Table 22, 23, and 24. For the testing year 2003, the mean NCE mathematics scores of students who were taught by tenured teachers (M = 53.89, SD = 13.85) was not statistically significantly different from the mean NCE loss mathematics score of students who were taught by non-tenured teachers (M = 57.07, SD = 11.09) (t (242) = -1.712, $p > .05$). These results indicate that students who are taught by tenured teachers do not have significantly higher scores in mathematics NCE scores as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was retained.

Table 22

Mathematics NCE Scores by Teacher Tenure Status in 2003

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	174	53.89	13.85	-1.712	.088
Non-Tenured	70	57.07	11.09		

For the testing year 2004, the mean NCE mathematics loss score of students taught by tenured teachers (M = 54.60, SD = 11.81) was not statistically significantly different from the mean NCE loss mathematics score of students who were taught by non-tenured teachers (M = 51.54, SD = 13.75) (t (242) = 1.680, $p > .05$). These results indicate that students who are taught by tenured teachers do not have significantly different scores in mathematics NCE scores as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was retained.

Table 23

Mathematics NCE Scores by Teacher Tenure Status in 2004

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	76	54.60	11.81	1.680	.094
Non-Tenured	168	51.54	13.75		

For the testing year 2005, the mean NCE mathematics scores of students who were taught by tenured teachers (M = 49.65, SD = 14.57) was not statistically

significantly different from the mean NCE mathematics score of students who were taught by non-tenured teachers (M = 51.34, SD = 11.31) (t (242) = -.991, $p > .05$). These results indicate that students who are taught by tenured teachers do not have significantly different scores in mathematics NCE scores as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was retained.

Table 24

Mathematics NCE Scores by Teacher Tenure Status in 2005

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	136	49.65	14.57	-.991	.326
Non-Tenured	108	51.34	11.31		

The above results indicate that students who are taught by tenured teachers do not have higher mathematics scores across all the three years represented in the current study.

Results on individual standardized mathematics scores of each year mirrored the results of the above analyses where there were no statistically significant differences present.

6. *There is no statistically significant difference between the reading NCE scores as measured by the Terra Nova Achievement Test of eighth grade students who had teachers with tenure and those teachers without tenure.*

Three independent sample t-tests were conducted in order to identify statistically significant differences on the reading NCE scores of the TCAP exam. Due to the

variability of the tenure status of teachers among the three years used in the current study, three separate analyses were utilized, one for each year. Results of this analysis are displayed in Tables 25, 26, and 27. For the testing year 2003, the mean NCE reading score of students who were taught by tenured teachers (M = 56.78, SD = 15.99) was not statistically significantly different from the mean NCE reading score of students who were taught by non-tenured teachers (M = 53.29, SD = 13.96) (t (242) = 1.597, $p > .05$). These results indicate that students who are taught by tenured teachers do not have significantly higher scores in reading NCE scores as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was retained.

Table 25

Reading NCE Scores by Teacher Tenure Status in 2003

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	174	56.78	15.99	1.597	.112
Non-Tenured	70	53.29	13.96		

For the testing year 2004, the mean NCE reading scores of students who were taught by tenured teachers (M = 46.68, SD = 14.35) was statistically significantly different from the mean NCE reading score of students who were taught by non-tenured teachers (M = 52.40, SD = 15.69) (t (242) = -2.707, p = .027). These results indicate that students who are taught by tenured teachers have significantly lower NCE scores in reading as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was rejected.

Table 26

Reading NCE Scores by Teacher Tenure Status in 2004

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	76	46.68	14.35	-2.707	.003
Non-Tenured	168	52.40	15.69		

For the testing year 2005, the mean NCE reading scores of students who were taught by tenured teachers (M = 51.15, SD = 15.97) was not statistically significantly different from the mean NCE reading score of students who were taught by non-tenured teachers (M = 49.91, SD = 14.90) (t (242) = .621, $p > .05$). These results indicate that students who are taught by tenured teachers do not have significantly higher scores in reading NCE scores as compared to students who are taught by non-tenured teachers. Therefore, the null hypothesis was retained.

Table 27

Reading NCE Scores by Teacher Tenure Status in 2005

Status	*n*	*M*	*SD*	*t*	*p*
Tenured	136	51.15	15.97	.621	.536
Non-Tenured	108	49.91	14.90		

Overall, the above analysis indicates that students who are taught by tenured teachers do not necessarily have higher reading scores with the exception of the year

2004. It is possible that the results in 2004 – as compared to 2003 and 2005 – were significant due to the unequal number of tenured and non-tenured teachers as compared to 2003 and 2005.

Results on individual standardized reading scores for each year mirrored the results of the above analyses. In 2004, there were significant differences on individual reading standardized scores between tenured and non-tenured teachers as compared to 2003 and 2005.

Chapter 5

Summary, Conclusions, and Recommendations

The purpose of this study was to investigate the difference in student achievement when students attend schools utilizing different types of academic calendars. Related literature and research studies indicate that there is a wide range of opinions related to the benefits of altering the traditional academic calendar. The National Association of Year-Round Education (NAYRE) has supported the calendar change since the early 1970's and has provided many examples of the advantages, both academic and nonacademic, for many school systems across that nation. Some of the studies on the effectiveness of year-round school find results that are not as favorable for positive academic achievement. In a comprehensive meta-analytical study, Ross, Stringfield, Sanders, & Wright (2003) indicated a need for more research on the theoretical impact of altering the traditional 180-day school calendar.

The year-round education initiative is not a new concept, but has flourished over the past decade (Ballinger, 1999). The number of studies related to middle school achievement, socio-economic status, and tenure status of teachers has been minimal, but has increased over the past few years. Six null hypotheses were used for the basis of analyzing the difference in academic achievement between students attending schools maintaining a traditional academic calendar and those students utilizing a year-round academic calendar. The same analysis compared the academic achievement of children who qualified for the National School Lunch Program and those students who did not

qualify for the National School Lunch Program. Two hypotheses related to the effect of the tenure status of the teachers on student academic achievement.

Summary

This study included three years of test scores from the Terra Nova examination, which is mandated by the state of Tennessee for all children in grades three through eight. The study included National Curve Equivalent (NCE) mathematic and reading scores for a group of children over a three year period. The students included in the study were from small, rural, low socio-economic schools in two different school systems in Tennessee. The study compared mathematics and reading NCE scores in these two academic areas for the students attending school utilizing a traditional calendar to those students attending school utilizing a year-round calendar. Other variables examined in the study were the effect of teacher tenure on student achievement and the effect of socio-economic status as defined by qualification for the National School Lunch Program on student achievement.

Descriptive statistics were based on the total number of students who remained in the year-round and traditional education calendars for three consecutive years from 2002-2005. Two-hundred forty-four students met that criterion. The gender, academic calendar configuration, socio-economic status as determined by those qualifying for the National School Lunch Program, and teacher tenure status were determined by descriptive analyses. The rural middle schools served approximately 500 students in grade 8 during the school year 2004-2005. The population was a moderately transient population. As a result, a total of 244 students remained at the middle school for the time

period of the study on either the year-round calendar (*n*=110) or the traditional calendar (*n*=134) from 2002-2005. The study included all qualifying students.

Conclusions

The purpose of the study was to examine and compare the effects of the year-round school calendar and the traditional school calendar, socio-economic status, and teacher tenure status on the mathematics and reading achievement of 244 eighth grade students in two rural, high poverty school systems in the state of Tennessee. The subjects of this inquiry were 244 students who attended the same school over the testing cycle of this study which extended from the beginning of the 2002 school year to the end of the 2005 school year. There were 110 year-round education students and 134 traditional education students who met the established criteria for the three years of the study. The number of students was small, especially the year-round education students. Based on the findings of other researchers, primarily Palmer and Bemis (1991), the results of this study are consistent with previous research.

The first area investigated in the three-year study was the effect of the academic calendar configuration (Year-round versus Traditional) on the NCE scores in the areas of mathematics and reading. The conclusion reached from this study is that calendar change alone does not make a difference in academic achievement. The results indicate that students attending year-round schools do not have significantly higher reading NCE scores or mathematics NCE scores as compared to students attending schools on traditional calendar. These findings draw a parallel with an extensive research project conducted in North Carolina over a two year period. This conclusion is supported by other research on calendar change that has found that the redistribution of the current

180-day school year alone will not solve the problem of academic achievement (Rasmussen, 2000). Cooper, Valentine, Charlton, and Melson (2003) conducted a large meta–analysis of studies concerning the academic scores made by students attending school on a modified calendar. The results of this study found that academic improvement based on calendar change was minimal. Other meta-analytical studies found some change in academic achievement of students on the year-round calendar. School systems that use intersession for additional time in the classroom, bringing small groups of lower achieving students to work on specific academic areas, do see achievement improvements (Palmer and Bemis, 1991).

The effect of socio-economic status on academic achievement using the qualification standards set by the National School Lunch Program was also examined. The conclusion of this study is that low socio-economic students make similar scores as compared to students that are non-low socio-economic. Children who qualified for the National School Lunch Program were compared to students who did not qualify for the program. The results indicate that students who qualified for this program do not have significantly higher scores in reading NCE scores or mathematics NCE scores as compared to students who do not qualify.

Another independent sample *t*-test was conducted in order to identify statistically significant differences between the qualification status of students receiving free/reduced lunches to those students that do not receive a free/reduced lunch based on the mean reading standardized scores for the years 2003, 2004, and 2005. This analysis indicated that significant differences are present between the groups. The same result appeared for the mathematics NCE standardized scores. Significant differences existed between the

two groups where students who did not qualify for the National School Lunch Program (non-low SES) scored significantly higher on mathematics NCE scores in all three years as compared to students who did qualify (low SES).

The data presented indicates that both groups of children - (lower socio-economic status children and non-low socio-economic children) made equivalent scores in the areas of mathematics and reading, but the difference lies in the beginning level of NCE scores. Children who qualify for the National School Lunch Program started with lower scores and did not increase their scores to bring them to the levels of the students who were not on the School Lunch Program during the three year period. The analysis of reading and mathematics scores for the three years in the study showed that there were significant differences in the entry level scores. This group of low socio-economic children entered the sixth grade with lower scores and three years later continued to be behind their more affluent counterparts. This lag in entry level test scores proved to be true regardless of the calendar configuration of the school system.

The students in this study were from small, rural, high poverty schools with ostensibly one difference, the configuration of the academic calendar. The majority of the students that were classified low socio-economic regardless of the school they attended were lower achieving and remained behind in their achievement. As has been seen in many studies on the effect of calendar change, the children who start behind in academic achievement, for the most part, stay behind (Huebner, 2000; Lonigan, Bloomfield, Dyer, & Samwel, 1999).

The final area considered in this study was the effect of tenured teachers as compared to non-tenured teachers on academic achievement. The analysis of the data for

the three year period was examined year by year rather than as a whole due to the high level of variability in the level of teacher experience. The effect of teacher experience has a similar outcome with mixed results. The conclusion of the effectiveness of tenured teachers versus non-tenured teachers was that there was no significant difference. Teachers with very few years experience were basically as effective as those with considerable years of experience. Over the three years surveyed in this study, the number of children served by tenured and non-tenured teachers was equivalent. With the exception of one subject area, the effectiveness of the teachers was the same regardless of tenure status.

The findings indicated that, overall, those students who were taught by tenured teachers do not necessarily have higher reading scores with the exception of the year 2004. In 2004, there were significant differences on individual reading standardized scores between tenured and non-tenured teachers as compared to 2003 and 2005. It is possible that the result in 2004 – as compared to 2003 and 2005 – were significant due to the unequal number of tenured and non-tenured teachers in the sample. The results from that one year indicated that the students taught by non-tenured teachers had greater scores.

Results on individual standardized mathematics scores for each year found that there were no statistically significant differences present. These results indicate that students who are taught by tenured teachers do not have significantly higher scores in mathematics NCE scores as compared to students who are taught by non-tenured faculty. Much of the research on teacher experience and its effect on learning indicate that overall the more experienced teacher is more effective. However, there has been some research

that indicates that teacher training and level of graduate education has as much or more influence on teacher effectiveness than years of experience alone (Huitt, 1995). The consensus of the majority of the research done on teacher experience and teacher quality is that the effectiveness of teachers at any grade level is a crucial component to the achievement of their students (Rowan, Correnti, & Miller, 2002).

Examining the NCE scores over the three year period in the areas of mathematics and reading, the researcher discovered that a majority of children in the study, regardless of school or school system, actually lost ground. Each year the student's NCE scores reflected a loss. This was true in both academic areas examined and it was true regardless of calendar configuration or socio-economic status. The mean of the NCE mathematics scores of students attending school on a year-round calendar continued to drop from a 54.46 to 48.02 representing a loss of 6.44 over the three year study. Similarly, the mean of the NCE mathematics scores of students attending school on a traditional calendar continued to drop from a 52.80 to 44.59 representing a loss of 8.21. The mean of the NCE reading scores of students attending school on a year-round calendar continued to drop from a 52.73 to 50.28 representing a loss of 2.45. Correspondingly, the mean of the NCE reading scores of students attending school on a traditional calendar continued to drop from a 50.05 to 47.61 representing a loss of 2.44 over the three year study.

Delimitations

The selection of two small Tennessee school districts for participation served as a delimitation to this study. The schools in the study are in rural Tennessee, contain a high percentage of students participating in the National School Lunch Program, and have a

very low minority population. The seven schools have small student populations with only one or two classes per grade level.

Limitations

Student participation was limited to those students who attended the same school during the three year period of the study. Unequal representation of demographics could have impacted data analysis and interpretation. The two school districts utilized in the study do not serve an ethnically diverse population. Consequently, it was not possible to conduct data analysis for African American, Native American, Asian, Hispanic, or Multi-racial students because the total sub-population sample for each ethnic group did not reach the standard number of 30.

Implications

Can the educational system in this country continue to reach the needs of students when life and technology are constantly changing the scope of this generation? Students are superior at multi-tasking and generating ideas, while text messaging on the cell phone, listening to their I-pod, and surfing the internet. Unfortunately, when students enter the doors of most educational facilities, it appears as if nothing has changed for the past 100 years. Society desperately wants students to be successful, but regrettably the current traditional calendar is not giving them the ample time, opportunities, and resources to reach their full potential. The traditional school calendar should be considered a relic of the past and schools must adjust their thinking and consider moving to an alternative calendar. As the public demands higher levels of achievement from the

nation's schools, educators and parents must change business as usual and challenge the wisdom of maintaining that long summer of forgetting (Ballinger, 1999).

Alternative calendars, typically known as year-round calendars, may hold the key to what ails school systems today. In most cases, students still attend school for 36 weeks a year; however, the weeks of instruction are just spread out with more frequent breaks to sustain a more continuous flow of learning. These frequent breaks are beneficial to students as well as teachers. Attending school on a single track, 45/10 program allows for nine weeks of instruction and two weeks of break and/or intersession. These breaks could benefit school systems that have high rates of absenteeism from both students and teachers. According to Kasnic (1999), one of the benefits of year-round education is the reduction in absences. Educators operating on an alternative calendar teach harder and stronger knowing an extended break is on the horizon and with shorter breaks comes less review (Chaika, 1999).

Hawkins County, the school system in which I am currently employed, has been striving to increase the competencies of the teachers as well as the students. Educators operating on an alternative calendar feel the scheduling positively impacts their plans for instruction and strengthens the curriculum, making them reflective practitioners (Shields & Oberg, 2000). An alternative calendar provides for increased professional development opportunities. Research has shown that the more education teachers acquire, which includes advanced degrees, the more effective they are in the classroom (Kupermintz, 2003).

The *No Child Left Behind* legislation has challenged Hawkins County to raise the performance level of the students they serve. Hawkins County primarily consists of low

socio-economic students which includes a high percentage of "at-risk" students. Research has proven that these factors can be positively influenced through the use of more frequent breaks. Having shorter, more frequent breaks keeps students interests peeked and they perform better (Rasmussen. 2000). Alternative calendars may not only alleviate teacher/student burnout, but they may allow for more effective time to help students who are falling behind through the utilization of intersession. A traditional calendar allows for catch-up during summer school, although immediate feedback is necessary to help a child learn. Waiting until summer has given the student more time to learn the skill incorrectly and to defeat their self-esteem. Intersession provides an opportunity to help support the struggling student during the school year (Cohen, 2003). Hawkins County's proper utilization of intersession during the two or three week breaks could help students with areas of weakness. Intersession can be utilized by all levels of students, not just those who are having difficulties.

Alternative calendars are beneficial to students who are "at-risk". Hawkins County serves 63.3% labeled "at-risk" due to their low socio-economic status. These students come from backgrounds that lack the experiences upon which learning can be built. Many different educational opportunities can be offered during intersession to help these students see different avenues for life. According to Kneese (2000), "at-risk" students who attended a year-round school made significant in reading versus their traditional school counterpart. "At-risk" students need their education to continue and not be interrupted by long breaks. Many of these student's home environment is not conducive to learning, therefore regression occurs. Many English as second language students are not exposed to English during the entire summer break and those types of

gaps cause a delay in learning for the next year (Chaika, 1999). For most of these "at-risk" students, it may take a month or longer to review what was taught the previous year, and that is a month wasted.

Students with disabilities are another group that would greatly benefit from an alternative calendar. These students comprise 21.3% of Hawkins County's population. Many students with disabilities qualify for extended summer services at a cost of $10 million to the state (Kneese, 2000). Using a year-round calendar alleviates the need for summer services and drastically cuts the costs to a school system and the state it represents. The alternative calendar also aids in the development of those students with disabilities that do not qualify for summer services. These students have difficulty finding enrichment activities during the summer, thus they too regress.

Many schools choose to offer what are commonly known as intersession programs during the breaks between regular year-round education sessions. There are innumerable options with intersession activities taking a plethora of forms. With the proper usage of intersession, not only can remedial and intervention services be offered, but also enrichment opportunities can be offered for students who are excelling. Unfortunately, because we have been trying to raise the bar for "at-risk" students in an effort of meeting the federal guidelines of *No Child Left Behind*, we have left our average and above average students to fend for themselves. Many teachers find it difficult to serve both ends of the spectrum effectively. Intersession can provide the necessary enrichment activities that these students need and desire. Some schools offer the intersession programs as activity-oriented enrichment activities, others concentrate

primarily on academic offering ranging from target remedial programs to enrichment activities for the gifted or talented students.

Intersession opportunities are not the only benefit to a year-round calendar. Because breaks are shorter and less time is needed for review, more content can be successfully covered in a year, which again would benefit the students in Hawkins County. The continuous cycle of learning attributed to a year-round calendar often allow for additional days of learning. The additional days of learning at a cost of $440 a year outweigh the $6000 cost of retaining a child (Chaika, 1999). Less money being spent and more content covered has amounted to higher test scores, lower dropout rates, higher graduation rates, lower absenteeism, fewer acts of vandalism, and better self-esteem in six Arizona schools (Davies & Kerry, 1999).

Besides raising the achievement level of students, an alternative calendar can improve the morale of students. In the 2005-2006 school year, Hawkins County had one school that did not meet Adequate Yearly Progress because of the high drop out rate. The more frequent series of breaks included in an alternative calendar tends to enhance a students learning experiences and alters their belief about learning in general (Chaika, 1999). Students seem to be more refreshed, more relaxed when they return from each break. Those taking intersession classes return with more self confidence, better self esteem, and a much better attitude toward their schoolwork (Cohen, 2003). A change in attitude is all that some students need to be more successful and to stay in school, and after all, students' success is the desired outcome for any school system.

Despite the positive outcomes attributed to an alternative calendar, most systems would meet with fierce opposition from students, teachers, and parents at its

implementation. The term "year-round school is a misnomer" according to Chaika (1999) because school would not be in session for 365 days. Most in a community do not understand the term and flinch at its very mention. A system wishing to change to an alternative calendar must carefully weigh all the options and present them openly to all members of the community. The following suggestions are adapted from the Northeast and Islands Regional Educational Laboratory (1998):

- *Consult external resources:* Visit schools and other communities that are actively involved in the scheduling change you are considering and to observe their classes and to speak directly with those affected by the new schedule.
- *Involve all stakeholders:* Ownership of a new schedule or strategy occurs when everyone is invited to give input—teachers, administrators, students, and parents. Success with a new schedule depends on the involvement of all participants in the transformation and a sense that each constituency has its voice heard. Surveys, interviews, focus groups, and informal discussions can help.
- *Provide professional development:* As with any new program, the needs of teachers should be determined and addressed throughout the year. This is especially important for block scheduling, as teachers may need to learn new strategies for presenting information in a number of different formats.
- *Seek constant feedback:* Evaluate the schedule change through formal and informal methods. For example, collect feedback from teachers, students, and parents through community-wide or school-wide forums, surveys, or focus groups.

- *Collect and maintain data on teacher and student performance:* Use data to monitor what is and is not working, and share the information with teacher and staff.
- *Make a long-term commitment:* Recognize that a new strategy or schedule requires sufficient trial time and develop a multi-year implementation plan. As Northeast Regional Educational Laboratory (1998) notes, "Some problems at your school will not surface during the first year; similarly some of the benefits will take time to emerge and develop before tangible results are evident."
- *Ensure that schedule changes are incorporated into broader goals for the district and the school:* It is important to ask yourself the following questions when assessing a time or schedule change: How does it fit into your overall plan for school improvement? How does it integrate with other teaching and learning strategies? Has your school laid the groundwork for its successful implementation? Is there a plan for measuring progress?

In considering any schedule change, the school board must do its homework and examine the needs of each individual district or school, in addition to how a schedule change will address those needs.

A year-round calendar may be the solution school systems are looking for to better educate their students. In review, an alternative calendar has the potential to decrease student/teacher burnout, increase student/teacher attendance, benefit "at-risk" students and those with disabilities by providing remediation during intersession, increase student learning, reduce student retention, and improve student morale. It is a school systems moral, ethical, and legal obligation to provide the best possible education for its

students. An alternative calendar increases those opportunities through remediation and enrichment and through the improved morale of students, teachers, and parents. By better equipping educators and increasing the opportunities to learn, students will be ready to handle their fast paced and ever changing world.

Recommendations for Practice

It is strongly recommended that each teacher and administrator involved with low socio-economic students be involved in professional development and support concerning the special needs of these children. This study indicated that these low-income children started behind and stayed behind in their academic achievement regardless of the calendar configuration or the level of teaching experience. These children have academic needs that need to be addressed in the regular classroom as well as beyond the regular school day.

Much research indicates that children can learn if or when given the appropriate length of time. The profession should investigate the means to provide a successful education for these low socioeconomic students as well as other low achieving students. The researcher believes that early intervention with low-income children can make a difference in their academic achievement. Utilizing the current time allotted for individual attention as well as appropriate utilization of before and after school tutoring, summer school, or intersession time should provide the additional help needed by many of these students.

Although there is evidence of summer learning loss for children over the long summer break associated with the traditional nine month academic calendar, changing the academic calendar alone will not make a difference in student achievement. School

systems utilizing the modified calendar should take advantage of the two-week breaks that are built into their calendar. "At-risk" students need immediate intervention during the school year. Schools on the modified year-round calendar should bring these children back to school in small groups to address their individual academic needs. Teachers that are on extended contracts or are receiving extra pay should work with these children and remediate immediately.

System-level administrators as well as site administrators should work with teachers to improve their skills. Classroom teachers need to be encouraged to attend professional growth activities as well as be exposed to other professionals who have been successful in the field. Although the natural part of the profession is a continual increase in competency through years of teaching experience, it is also necessary to explore new and proven methodologies to improve classroom instruction. Teaching is an inexact science because of the multiple variables present in each classroom; therefore it is imperative that teachers continually explore ways to provide instruction to meet the needs of all the children in their classes.

Recommendations for Future Research

1. A study to examine more closely the effect of time on learning, specifically the effect of extended time on learning for children at-risk.
2. A replication of the study involving high school students and the impact of year-round education as well as the impact of extended learning time.
3. A study on teacher effectiveness related to years of teaching experience should be expanded. A more controlled study with a number of variables could give better and more definitive results.

4. A longitudinal study that would begin with primary aged students through high school.
5. A study investigating and correlating student, teacher, and parents' perceptions of year-round education with student achievement.
6. A qualitative study regarding the parent perceptions of year-round education and mathematics and reading achievement.
7. A replication of the study with a more ethnically diverse population.
8. A follow-up study five or more years later on the population in this study that addresses high school graduation rates.
9. A study to examine data from formative assessments to determine the impact of summer learning loss.
10. A casual-comparative study on the relationship between student attendance during intersession and student achievement.
11. A study that uses different measures or multiple measures of achievement in mathematics and reading.
12. Research on the use of the intersession times allotted during the year-round calendar could lend to the body of knowledge concerning remedial efforts for "at-risk" students.

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Appendix A

Permission Letters to Director of Schools

Scott E. Trent
262 Stewart Hills Drive
Rogersville, TN 37857
(423) 921- 8811 – Home
(423) 327-9988 – Work
strent@mailcity.com

July 26, 2006

XX. XXXXX XXXXX, Director of Schools
XXXXXXX County School System
XX XXXX
XXXXXXXX, TN XXXXX

Dear XX. XXXXX XXXXXX,

My name is Scott E. Trent, and I am a doctoral candidate at Liberty University. To complete my degree, I am writing a dissertation on the effects of traditional calendars and year-round calendars on middle school student achievement. I am requesting permission to gather Terra Nova test score data for the 2002-2003, 2003-2004, and 2004-2005 school years. The students involved in the study will be upcoming tenth grade students that attended XXXXX Elementary School, XXXX Elementary School, XXXXX Middle School, and XXXXXX School. Demographic data will be gathered including gender, free and reduced lunch status, and the number of years experience of their teachers.

The schools involved in this study will remain confidential, and the data obtained will only be used for this study. All information having personal identifying information will be removed. In addition, the results should assist in the research for a doctoral dissertation and be beneficial to our educational community in developing awareness of this current movement.

Sincerely,

Scott E. Trent
Doctoral Student
Liberty University

Scott E. Trent
262 Stewart Hills Drive
Rogersville, TN 37857
(423) 921- 8811 – Home
(423) 327-9988 – Work
strent@mailcity.com

July 26, 2006

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XX XXXX
XXXXXXXX, TN XXXXX

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Sincerely,

Scott E. Trent
Doctoral Student
Liberty University

Appendix B

Permission Letter from Liberty University's Institutional Review Board

12/5

Confirmation of IRB Approval
Liberty University
Committee On The Use of Human Research Subjects

Category: Exemption Review
Principal Investigator: Scott E. Trent
Protocol number #01-009
Project Title: A Descriptive Study of the Effect of Traditional and Year-Round Calendars on Student Achievement in Two Rural School Systems in Tennessee

The Human Subject Committee at Liberty University reviewed and approved the referenced project. The referenced project seems to involve minimal risk and thus can be exempt from further IRB review.

No human subjects may be involved until the project has been reviewed and approved by the IRB.

_____ Date: July, 13, 2006
Committee on the Use of Human Research Subjects
Institutional Review Board (IRB)
Jaesook Gho, Ph.D., Chair

Submit the original request to: Human Subjects Office, Campus North Suite 2400, 1971 University BLVD, Lynchburg, VA 24502

Appendix C

Permission and Informed Consent Letter

DESCRIPTION OF THE STUDY

PRINCIPAL INVESTIGATOR: Scott E. Trent

TITLE OF PROJECT: *A Descriptive Study of the Effect of Traditional and Year-Round Calendars, Socio-Economic Status, and Teacher Tenure Status on Student Achievement in Two Rural School Systems in Tennessee*

INTRODUCTION: Across the nation and in the state of Tennessee, the number of schools offering year-round education continues to increase. This regional movement, regardless of how widespread it may become, could have long-term implications on the entire educational system. The data gathered through this study will provide a needed examination of how two aspects of schooling-student achievement and academic calendar-are viewed as they relate to one another. Additionally, the information provided by this study can be used by students, parents, teachers, administrators, and school boards in a consorted effort to increase student achievement. The study will add to the current body of knowledge related to various academic calendars and their impact on student achievement.

PURPOSE: The purpose of this study is to investigate the effects of the year-round school calendar and the traditional school calendar on the mathematics and reading achievement of eighth grade students in two rural, high poverty school systems in the state of Tennessee.

PROCEDURES AND DURATION: Permission to obtain data for this study will be granted by each school system's Director of Schools. Data will be collected from each school with the assistance from the building-level supervisor and the Supervisor of Instruction from each school system. Test scores will be coded to maintain confidentiality. The collected data will consist of demographic information including gender, socioeconomic status as determined by the percent of students eligible for the National School Lunch Program, teacher's years of experience for each grade level, and type of academic calendar. National Curve Equivalent (NCE) test scores from the Tennessee Comprehensive Assessment Program (TCAP), Terra Nova Achievement Test, will be collected for each student. Test scores collected will be from the school years 2002-2003, 2003-2004, and 2004-2005.

PARTICIPANTS: The population associated with this study will include eighth grade students in seven middle schools in two rural Tennessee counties. The two districts total population in this study will consist of approximately 6,500 students with 499 eighth grade students. The students in the sample will be limited to those who have attended the same school over the testing cycle of this study which will extend from the beginning of the 2002 school year to the end of the 2005 school year.

CONFIDENTIALITY: All data used will be coded to protect all legal and ethical considerations and the anonymity of the individuals involved in the study.

INSTRUMENTATION: The Tennessee Comprehensive Assessment Program (TCAP) test consists of multiple choice items with both criterion-referenced and norm-referenced test items. In the state of Tennessee, the Terra Nova Achievement Test is required for all students in grades three through eight producing scale scores and National Curve Equivalent (NCE) scores for all students. NCE scores are standard scores with a mean of 50, a standard deviation of 21.06, and a range of 1 to 99. The publisher of the Terra Nova exam, TCB/McGraw Hill, provides positive data on content validity and reliability.

CONTACT FOR QUESTIONS: If there are any questions, concerns, suggestions, please contact Scott E. Trent (423) 327-9988 or Dr. Chick Holland (903) 785-4406 at Liberty University.

_____ _____

PRINCIPAL INVESTIGATOR SIGNATURE DATE