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A FIVE YEAR COMPARISON BETWEEN AN EXTENDED YEAR SCHOOL AND A
CONVENTIONAL YEAR SCHOOL: EFFECTS ON ACADEMIC ACHIEVEMENT

by

Vanessa Khankeo van der Graaf

2008

A Dissertation submitted to the Education Faculty of Lindenwood

University

in partial fulfillment of the requirements for the

degree of

Doctor of Education

School of Education

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2008

ABSTRACT

The purpose of this study was to compare the academic achievement of third grade students in an extended year school to that of third grade students in a conventional school. The problem statement was that both schools were academically deficient according to the requirements of the No Child Left Behind (NCLB) Act. The comparison between the two schools used communication arts and science data from 2002-2006 Missouri Assessment Program (MAP). It also examined the effects of variables such as summer breaks, socioeconomic status, and student attendance that affect student achievement beyond adding more instructional time. Examination of research related to the effects of summer breaks and student achievement uncovered evidence that summer breaks can create an achievement gap in the learning cycle. Also, research concluded that the socioeconomic status of a student can have a clear and negative effect on student achievement. Further research stated that students' attendance rates proved to be a strong predictor of academic performance. The literature revealed different viewpoints on the effects of an extended school year, specifically that more instructional time improves test scores.

Regardless of any argument, the controversy of time and learning involves legislators, educators, reformers, students, and the community. Results of the study indicated that there was an association between the type of school calendar, extended versus conventional, and the academic achievement of elementary students as measured by student scores on the MAP. The alternate hypothesis was accepted, which stated that if students attend a school on an extended school year calendar, then MAP scores will be

higher than those of students in a similar elementary school who attend school on a conventional calendar.

Recommendations for further research were centered on collecting data from districts with similar demographics and school and community planning efforts that focus on using technology to promote academic achievement as a means of broadening and enriching learning time without extending it. In this study, the students who attended an extended year school performed significantly higher on the MAP compared to students who attended a conventional school.

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LIST OF ABBREVIATIONS

Adequate Yearly Progress	AYP
Arts and Technology Academy	ATA
Child Development Supplement	CSD
Missouri Department of Elementary and Secondary Education	DESE
Extended School Year	ESY
Ferguson Florissant School District	FFSD
International Association for the Evaluation of Educational Achievement.....	IEA
Knowledge is Power Program	KIPP
Longitudinal Evaluation of School Change and Performance.....	LESCP
Missouri Assessment Program	MAP
National Assessment of Educational Progress	NAEP
No Child Left Behind	NCLB
Public School Choice	PSC
School Improvement	SI
Schools Under Registration Review	SURR
Supplemental Educational Services	SES
The Dynamics Indicators of Basic Literacy Skills	DIBELS
The Panel Study of Income Dynamics	PSID
United States	U.S.

CHAPTER I - INTRODUCTION

Background

In the United States, the traditional school year has been from September to June, with three months of vacation in the summer, for the past 150 years. Students in the United States spend approximately six to seven hours per day in school. The National Education Commission on Time and Learning (1994/2005) stated the following:

The length of the school day and the school year are virtually the same today as they were throughout the 20th century. The reality of the 21st century was that the global economy provided few jobs for the poorly educated. With that premise, what is needed in the 21st century is an educated citizenry who are knowledgeable, competent, and inventive. (p. 2)

This study examined the broad relationship between time and learning, highlighting factors that affect student achievement, and defined the term educational time.

According to the most recent census taken April 2000, 281.4 million people live in the United States and the District of Columbia. Out of 281.4 million people, 47 million students were enrolled in a public elementary or secondary school (National Center for Educational Statistics, 2002). This large percentage of the population lived by a specific school calendar and clock, which was mandated to them by compulsory attendance laws. Compulsory attendance laws have been researched by Cave (2008), who reported on the components of compulsory attendance for children:

Compulsory attendance refers to state legislative mandates for attendance in public schools by children within certain age ranges. Components of compulsory

attendance laws include admission and exit ages, length of the school year, enrollment requirements, alternatives, exemptions, enforcement and truancy provisions. (p. 1)

As the National Education Commission on Time and Learning (1994/2005) explained, the extent to which American schools are restricted by state mandates of the calendar and clock may be surprising, even to people who understand school organization. According to the Commission, the following are state mandates:

1. With few exceptions, schools open and close their doors at fixed times in the morning and early afternoon.
2. With few exceptions, the school year lasts 9 months, beginning in late summer and ending in late spring.
3. The norm for required school attendance, according to the Council of Chief State School Officers, is 180 days. Eleven states permit school terms of 175 days or less; only one state requires more than 180 days. (p. 5)

In particular, the passage of the historic No Child Left Behind (NCLB) (Missouri Department of Elementary and Secondary Education [DESE], 2006a) makes school districts more accountable for their approaches to instruction. On January 08, 2002, President George W. Bush signed into law the NCLB Act of 2001, which reauthorized the Elementary and Secondary Education Act (ESEA) of 1965. NCLB promised to increase federal expenditures in education by 20% (Owens & Valesky, 2007). According to Owens and Valesky, the three major goals of the NCLB Act are

1. Closing the achievement gap for disadvantaged students

2. Improving the preparation of teachers and increasing their compensation so as to have every classroom in America staffed by a highly qualified teacher by the end of the 2005-2006 school year.
3. Instituting closely monitored systems of accountability for students, teachers and schools (p.15)

Problem Statement

Airport Elementary School, an extended year school, and Walnut Grove Elementary School, a conventional school, are both academically deficient in the district studied, according to the requirements of the NCLB Act, yet Airport School had five more weeks of school than Walnut Grove School. Both schools are in the Ferguson–Florissant School District (FFSD) in St. Louis, Missouri. Airport Elementary was one of four schools that received additional funding to become an extended year school. The four schools included Airport Elementary, Cool Valley Elementary, Bermuda Elementary, and Holman Elementary. The four elementary schools were selected because they had the lowest achievement scores on the Missouri Assessment Program (MAP) test in the FFSD. The NCLB Act, passed by the United States Congress in 2001, is intended to ensure that all children in the United States public schools are proficient in reading, math, and science by 2014. Under the NCLB Act, every state is required to set standards for grade-level achievement and develop a system to measure the progress of all students in meeting grade-level expectations.

Rationale for the Study

Student percentages on the MAP for third grade students who attended an extended year school were compared to third grade students who attended a conventional year school. The comparison between the two schools was made by using MAP data from previous 2002-2006 third grade MAP scores. Five years of MAP data were analyzed to determine if a significant difference existed between an extended year school and a conventional year school.

Under the NCLB Act of 2001, adequate yearly progress (AYP) is required to determine student achievement within all schools and districts. Missouri's targets are established by the Missouri Department of Elementary and Secondary Education (DESE) based on a formula from the NCLB Act and an analysis of MAP and attendance data. In order to make AYP, each state is required to establish targets by following three requirements:

The first requirement is proficiency, which is a target set for all students and student subgroups to meet in a progressive nature that result in all students scoring at the proficient level on the state's assessment by 2014. The second requirement is attendance, in which schools, districts, and states meet an additional indicator based on improvements or established targets in attendance.

The third requirement is participation rate, which states that all students and student subgroups meet a 95% participation rate. This requirement must be met for all students defined by race/ethnicity, poverty level, disability, and English language proficiency. (DESE, 2008, p. 1)

According to the NCLB Act, before the beginning of each school year, a school district must identify any schools failing to meet AYP in the same core academic subject areas or additional indicators for two or more consecutive years. An additional indicator may be students' participation rate or average daily attendance rate. These schools are then placed in School Improvement (SI) status. Specifically, any Title I funded school in SI status must meet certain requirements that are based on the number of years the school is in SI status (United States Department of Education, 2008a).

The rationale for doing this study was to compare the academic achievement of third grade students in an extended year school to that of third grade students in a conventional school. Missouri school districts are accountable for student achievement and must show progress towards the national goal of 100% proficiency by the year 2014. Every student is expected to reach grade level standards in reading and language arts, science, and mathematics by the year 2014. This study is important because it provides the FFSD with research data on the extended year program at Airport Elementary.

At the time of the study, Airport Elementary and Walnut Grove Elementary were both Title I schools, which are public or private schools that use funds from the federal government to provide additional academic opportunities to help low-achieving students meet state standards in core academic subjects. Neither Airport Elementary nor Walnut Grove Elementary made AYP in the same content area for two consecutive years. Airport Elementary School is in SI, Level Two and Delayed status. Under the delayed provision, any school in SI status that has not met AYP for one year will stay in SI status and continue to implement all requirements for that status. A status of SI Level Two means

AYP was not met for three years. According to DESE (2008), the FFSD must ensure that Airport Elementary School implements the following:

1. Continue to implement the school improvement plan.
2. Provide technical assistance during the planning implementation of the school improvement plan.
3. Promptly notify parents and provide (a) the meaning of the notification; (b) a comparison of the school's academic achievement with that of other schools in the district, and the state; (c) the reasons for the identification and what the school, district and state are doing to help address the problem; (d) ways parents can become involved in addressing the academic issues that caused the school to be identified for school improvement; (e) an explanation of the options to transfer the child; and (f) an explanation of how to obtain Supplemental Educational Services (SES).
4. Offer Public School Choice (PSC) to all students to transfer to another public school or charter school within the district. School choice is required if there are other schools in the district that serve the same grade level and not in school improvement, corrective action, or restructuring. All students who request a transfer must be transferred; however, if there are inadequate financial resources to transport all children, schools must give priority to lowest-achieving students from low-income families.
5. Make supplemental educational services available.

6. Spend not less than 10% of the buildings Title I funds on professional development. (DESE, 2008, pp. 20-21)

In an effort to improve student academic achievement and meet the requirements of NCLB, the FFSD changed school calendars during the 1998-1999 year from a conventional to an extended year calendar. Airport Elementary became an Extended School Year (ESY) School, in which students attended for an additional five weeks.

Walnut Grove Elementary School is in SI, Level Three, and Corrective Action status. A status of SI Level Three and Corrective Action status means AYP was not met for four years. When a school is in Corrective Action status, the district is required to provide school choice and supplemental service, such as after-school or weekend tutoring sessions. In addition, the district is required to take corrective measures. Possible corrective actions include implementing a new curriculum, working with outside expert consultants, extending instructional time, or making staff changes (DESE, 2008). According to the DESE (2008), the FFSD must ensure that Walnut Grove Elementary School implements the same requirements as Airport Elementary, except that it is not required but only encouraged to spend not less than 10% of the building Title I funds on professional development. Due to Walnut Grove's higher level of corrective action, one additional directive was required:

Take one of the following corrective actions: (a) replace school staff relevant to the failure; (b) institute and implement a new research-based and professionally-developed curriculum; (c) significantly decrease management authority at the school level; (d) appoint an outside expert to advise the school in its progress; (e) extend the

school year or school day for the school; (f) restructure the internal organization structure of the school; (g) provide scientific research-based professional development. (DESE, 2008, pp. 21-23) Airport Elementary School had the same curriculum as conventional schools in the FFSD, yet the number of days and the time spent in communication arts were reorganized for higher student achievement (Missouri National Education Association, 2008). The communication arts curriculum was reorganized for students to receive ninety consecutive minutes of instruction under the Reading First Program. The Reading First Program is built on a solid foundation of scientifically-based research and provides struggling students with the necessary resources to make significant progress in reading achievement (United States Department of Education, 2008b, ¶ 1). Achievement data show Reading First students from nearly every grade and subgroup (Hispanic, African American, disabled, English language learners and economically disadvantaged) made impressive gains in reading proficiency (United States Department of Education, 2008b, ¶ 1). Children in Reading First, Title I schools receive significantly more reading instruction (ninety minutes per day) than students in non-Reading First, Title I schools. The Center on Education Policy is a center that helps people understand the initiatives and policies of a public school system by using data and research. The Center indicated, “97% of participating school districts who reported increased student achievement claimed Reading First was an important factor” (The Center on Educational Policy [as cited in United States Department of Education, 2008b, ¶ 1]).

Making the transition from a conventional school year to an extended school year involved several obstacles for the FFSD. According to the Missouri National Education Association (2008), implementing the change included the following:

1. Investing one million dollars to install air conditioning in each of the four buildings because classes started in early July.
2. School district employees launched a campaign to educate the communities on the impact of the change, including helping families change their perspective on vacation time.
3. Educators received paid, in-service training on additional instructional strategies, especially focusing on reading programs.
4. The district employed instructional specialists in each of the four ESY buildings; these individuals assisted educators with instructional planning and teaching techniques.
5. Permanent substitute teachers were assigned to each ESY building. These teachers received training on the Reading First Program to provide continuity when the classroom teachers were absent. (p. 1)

Independent Variable

The independent variable in this study was the type of school calendar, extended versus conventional. On an extended school calendar, students attend school from July through May. On a conventional calendar, students attend school from August through May.

Dependent Variable

The dependent variable in this study was the academic achievement of elementary students as measured by student scores on the MAP in the areas of communication arts and science at the third grade level.

Null Hypothesis

There will be no significant difference on MAP scores between students attending school on an extended school calendar compared to a conventional school calendar.

Threats to Internal Validity

Subjects. This study compared two groups of students from two schools in the same school district. Traits and characteristics of the students were not alike. The subjects in this study brought individual characteristics that included learned and inherited traits, such as ethnicity, personality, reading ability, socioeconomic status, reading rate, and vocabulary. The differences among the students may have been present and could not be avoided. Therefore, the selection of third graders for this study may have resulted in an unequal distribution of data that could affect the study.

Background. The study could not identify students' experiences prior to testing. Information is unknown about their personal lives or what could have taken place prior to this study. Indeed, the students' personal lives could have an effect on the outcome of students' performance.

Location. The students took the MAP tests in two different schools. The physical differences of the classroom, such as lighting and temperature, could have caused

differences on MAP scores. Moreover, the classrooms in which students were taught and data were collected may have created inconsistent results. Particular classrooms could have had a sufficient supply of resources such as textbooks, paper, pencils, and erasers to support higher achievement compared to a classroom with fewer resources. Since data were collected from students in varying classrooms, specific variables may have affected the results of this study.

Implementation. The students in this study took the test with different classroom teachers. These teachers modeled a variety of teaching methods and styles. Nevertheless, while these teachers taught the same curriculum, each teacher had a different way of maneuvering students through the learning process. Students may have grasped ideas differently when taught using manipulative and project-based strategies than those taught by a teacher-directed method. Teachers may have had different levels of experience, which could have accounted for lower or higher performance by students.

Maturation. The third grade students in this study may have changed or matured from the first to the second time they took the MAP test. The changes could be permanent, such as height and weight, or momentary changes, such as behavior and fatigue. In this study, if the dependent variable (the academic achievement of third grade students) differed at varying times, the inconsistency may have been due to the independent variable (type of school calendar) or to the maturation of subjects.

Experimental mortality. During the course of this study, the loss of third grade subjects may have affected the outcome of this research. Regarding the independent variable, the subjects in the two comparison groups may not have completed the MAP

due to absence, illness, or alternative reasons. If the dependent variable (the academic achievement of third grade students) differs at varying times, the inconsistency may have been due to the independent variable (type of school calendar) or to the loss of subjects.

Definition of Terms

A Nation at Risk. Subtitled *The Imperative for Educational Reform* is a report on the quality of education in America, published in April, 1983 (National Commission on Excellence in Education, 1994).

Academic learning time. Time when learning occurs.

Allocated time. Total number of days or hours students are required to attend school.

Conventional school. A nine-month school year, with three months off for summer break.

Engaged time. Time when students are participating in learning activities.

Extended School Year (ESY). A school year with additional days, beyond the conventional school calendar.

International Association for the Evaluation of Educational Achievement (IEA).

An independent, international cooperative of national research institutions and governmental research agencies (International Education Association, 2007, p. 1).

Missouri Assessment Program (MAP). A series of performance-based tests designed to measure progress toward academic standards (Missouri Department of Elementary and Secondary Education, 1998, p. 4).

National Commission on Excellence in Education. A group of

public members appointed by the Secretary of Education, who advised and made recommendations to the nation and the Secretary of Education in regards to *A Nation at Risk* (National Commission on Excellence in Education, 1983, p. 1).

No Child Left Behind. A federal law that reauthorized federal programs to increase the standards in elementary and secondary public schools (DESE, 2006a, p. 1).

Prisoners of Time (1994). Report that explained how America's current educational system is controlled by the constraints of the clock and calendar (National Education Commission on Time and Learning, 1994, p. 5).

Reading and Writing Proficiency Levels: Below basic for grade three.
“Reading—Students locate information in text; identify an obvious main idea; define simple words and phrases. Writing—Students show minimal awareness of beginning, middle, end, audience, purpose and controlling idea; attempt to create friendly letters; use graphic organizers” (Missouri Department of Elementary and Secondary Education, 2006c, p. 1).

Reading and Writing Proficiency Levels: Basic for grade three.

Reading—Students make simple comparisons; recall simple sequence of events; make obvious inferences and predictions; use context clues to determine word meaning. Writing—Students use basic parts of speech correctly in simple sentences; show minimal awareness of beginning, middle, end, audience, purpose and controlling idea (Missouri Department of Elementary and Secondary Education, 2006c, p. 1)

Reading and Writing Proficiency Levels: Proficient for grade three.

Reading—Students locate/identify supporting details, obvious cause and effect; make inferences; use context clues to determine word meaning; make comparisons; recall detailed sequence of events; identify solutions and fact versus fiction; recognize figurative language; draw obvious conclusions. Writing—Students generally use rules of Standard English; show awareness of audience, purpose, controlling idea, relevant details, beginning, middle and end. (Missouri Department of Elementary and Secondary Education, 2006c, p. 1)

Reading and Writing Proficiency Levels: Advanced for grade three.

Reading—Students identify relevant/supporting information to make predictions and draw conclusions; infer word meaning; infer main idea; make complex comparisons; make complex inferences; categorize information; identify correct sequence of events. Writing—Students consistently apply rules of Standard English; construct complex sentences; use details effectively; have a clear controlling idea, awareness of audience and purpose, beginning, middle and end. (Missouri Department of Elementary and Secondary Education, 2006c, p. 1)

Title I school. Name used to describe a public or private school that uses funds from the federal government to provide additional academic opportunities to help low-achieving students meet state standards in core academic subjects (United States Department of Education, 2008c, ¶ 1).

Summary

The ESY affords an array of opportunities by providing programs in excess of the traditional 180-day school year. Evans and Bechtel (1997) assert, “Proponents of extended school time suggest several benefits that might accrue for students and the community if such changes were to take effect” (p. 3). The authors further said, “More time in school might be beneficial for economically disadvantaged children and/or children in this nation’s inner cities, who lose some of their academic gains over the summer and are more at risk during nonschool hours” (p. 3). It is the opinion of the researcher as an experienced classroom teacher that students, parents, educators, policymakers, and the community should take interest in the relevant research and data collected that link the effects of extending the school year to academic achievement.

The issue of the relationship between extending the school year and student achievement was the focus of this study. The problem was that both Airport Elementary School, an extended year school, and Walnut Grove Elementary School, a conventional year school, were academically deficient, according to the NCLB Act. The purpose of this study was to determine if the type of school calendar used affected the academic achievement of students. The null hypothesis stated that there would be no significant difference on 2002-2006 MAP scores between Airport Elementary School and Walnut Grove Elementary School. In chapter two, the following topics will be reviewed in the literature: (a) the relationship between time and instruction, (b) the effects of summer breaks, (c) socioeconomic status, and (d) student attendance.

CHAPTER II - REVIEW OF LITERATURE

Extended school year and its effect on student achievement effectuate significant debate about academic time and student learning. The debate caught the interests of reform advocates, education researchers, policy makers, and the school community for a systematic change within the public school system. The systematic change supported a higher academic standard that focused on the demands of underperforming students. For the past decade, American school policymakers have established a continuous effort to reform education, an effort that has remained unscathed.

The reform movement captured the serious attention of the federal and state governments and local school boards. America's education leaders responded positively to the need for school reform. The National Education Commission on Time and Learning (1994/2005) reported, "Both Presidents George Bush and William Clinton were early advocates of adopting ambitious National Education Goals. These goals received bipartisan support in the Congress and state houses" (p. 11). Further, the Commission said that this reform movement was defined by higher expectations for student achievement and accountability within the educational system.

In spite of the advocacy for scheduling extended time into students' education, little effort has been made (Farbman & Kaplan, 2005). The education reform movement may have been initiated by the 1983 report, *A Nation at Risk*. The report proposed, "The educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (National Commission on Excellence in Education, 1983, ¶ 2).

Farbman and Kaplan (2005) concluded, “Since that report, the educational establishment has implemented four of the report’s five principal recommendations, including developing learning standards and holding all students accountable to them” (p. 5). Just one recommendation has received no systematic action or consistent funding—the call for increased learning time. Table 1 illustrates the circumstances then-and-now of *A Nation at Risk*.

Table 1

Then and Now - A Nation at Risk

Recommendations of <i>A Nation at Risk</i> (1983)	Current status of educational policy (2005)
1. Implement rigorous standards	Standards in place in 49 of 50 states
2. Hold high expectations and strengthen accountability	NCLB Act requires testing to state standard; 100% proficiency required by 2014
3. Improve teaching profession	Efforts to improve professional development and teacher education
4. Strengthen leadership and increase fiscal support	Education is a domestic priority; significant funding increases at federal and state levels
5. Increase learning time by extending school day and/or year	School year = 180 days (no change) School day = 6 ½ hours (no change)

Note: From Farbman and Kaplan (2005, p. 5).

Further research suggests that reorganizing the conventional school calendar can make a difference in the degree to which all students achieve proficiency on high

standards. Farbman and Kaplan (2005) listed five distinct efforts by which more time devoted in school can increase learning:

1. **More Time on Task:** By extending the school day, classroom learning can be focused and objective. Teachers are given opportunities to individualize instruction and promote positive relationships between student to student and student to teacher
2. **Depth and Breadth:** Teachers can critically focus on the learning process, through analysis and experimental learning
3. **Opportunities for Planning and Professional Development:** Learning for teachers is readily available due to the extended time
4. **Greater Opportunities for Enrichment and Experiential Learning:** With additional time, schools can promote learning within specialty areas, such as art or music
5. **Stronger Adult-Child Relationships:** Relationships between student and student or student and teacher can evolve during the process of learning. (p. 6)

To support a reconfiguration of the school calendar, the National Education Commission on Time and Learning (1994/2005) argued that America's conventional educational system is hindered by the somewhat universal worship of the clock and the calendar:

The school clock governs how families organize their lives, how administrators oversee their schools and how teachers work their way through the curriculum.

Above all, it governs how material is presented to students and the opportunity they had to comprehend and master it. (p. 6)

Presumably, the conventional educational system is not designed to meet the educational demands of the Information Age, which promotes technology-based learning. A recent work by Rocha (2006) on restructuring the school year asserts reconfiguring the school calendar to promote higher achievement:

The traditional school year must be restructured to reflect the knowledge-driven economy and global society of today.... About 30 percent of the schools that have moved to non-traditional calendars do so primarily to combat overcrowding, while the remaining 70 percent do so for academic performance purposes. (p. 3)

This uniformed 6-hour day and 180-day year is a mandated system for school organization in the United States; however, it is not the norm for other industrialized nations. While American school calendars remain in the same structure used half a century ago, “Many industrialized and developing nations structured learning time differently and saw positive results” (Rocha, 2006, p. 2).

Equally important to the findings of the National Education Commission on Time and Learning (1994/2005) and Rocha’s (2006) research, the International Association for the Evaluation of Educational Achievement (IEA) gathered data that explained the differences in time across industrialized countries. Table 2 illustrates the length of school years in selected industrialized nations.

Table 2

Number of School Days in Industrialized Nations

Country	Number of School Days
South Korea	225
Japan	223
Chinese Taipei	221
Italy	210
Czech Republic	197
Russian Federation	195
Netherlands	191
England	190
Canada	188
Singapore	180
United States	180
Hong Kong	176
Belgium	175
International average	193

Note. Schools in the United States had an average of 180 days of school compared to selected industrialized countries. From the International Association for the Evaluation of Education Achievement (as cited in Rocha, 2006, p. 3).

The National Education Commission on Time and Learning (1994/ 2005)

compared the length of the school day and year to other nations:

Out of 20 nations, the U.S. average school year of 180 days was one of the shortest, and Japan was one of the longest with 223 days. Japanese and Chinese students spent 7-8 hours a day in school, but spent more time in recess, lunch and other activities. (p. 4)

Prevost (2007) reported on the international controversy of student achievement comparisons:

The perception that the United States is losing ground to foreign competitors because their students spend more time in school has been around for years. It is

also flawed, in that culture and curriculums vary so much from country to country that instructional time alone can't account for higher or lower achievement. Sure, Japan, which prides itself on a lengthy school schedule, outperforms the United States on international tests, but Italy, which also logs more instructional hours annually, ranks below the United States internationally. (p. 3)

The National Education Commission on Time and Learning (1994/2005) stated, "Recent comparisons of the number of annual 'instructional hours' in different countries indicate that Americans rank in the top half of the nine countries examined. By the standard of time as an instructional resource, American education measures up well" (p. 23).

The concern of improving student performance is beyond the variable of time. The National Education Commission on Time and Learning (1994/2005) drew several conclusions to the international comparisons:

In the context of a global market for educated people, the fact that youth abroad receive the equivalent of several additional years of schooling cannot be ignored. But other factors are equally important. Elsewhere, core academic instruction is emphasized. Academic time is protected. Expectations for out-of-school learning are high. Teachers are held to high standards and treated as professionals. And all of them are feasible, because foreign schools understand that effective learning depends on freeing schools, teachers, and students from the bonds of time. (p. 27)

Defining the Terms of Educational Time

The suggestion that more time spent on learning will result in higher student achievement has been contentious in nature. The analysis of the relationship between time and student achievement shows conflicting results between the following two studies. According to O'Brien (2006),

Two studies synthesized the findings of a large number of smaller studies and found somewhat conflicting results (Aronson et al., 2005; Walberg, 1998).

Walberg analyzed 376 studies and found that 88% showed a positive relationship between time and learning. Among these studies, the strongest correlations were found between learning and attendance rates, learning and lengthening the school day or week and learning and lengthening the school year. (p. 2)

In contrast, Aronson, Carlos, and Zimmerman's (1998) meta-analysis noted conflicting findings in which time influences student learning. These findings suggested it is not the extra time that makes a difference; it is how extra time is used. Aronson et al. reported that any examination of the research on the relationship between time and learning is complicated due to the variety of ways in which researchers talk about time. Three types of times were identified: allocated time, engaged time, and academic learning time.

Aronson et al. (1998) referred to allocated time as, "The total number of days or hours students are required to attend school" (p. 2). The authors further differentiated time. They said that allocated time can then be broken into instructional time and

noninstructional time. Instructional time is spent in class or for nonacademic electives, such as physical education. Noninstructional time is the portion of day for lunch, recess break and other nonclassroom activities.

Aronson et al. (1998) referred to engaged time as, “The time students are participating in learning activities” (p. 3). The same authors further said that engaged time is also referred to as “time-on-task” (p. 3). The participation of students during learning activities does not confirm that learning occurs. Aronson et al. concluded

This then—maximizing the time during which students are actively and appropriately engaged in learning—is one lens through which any education reform measure should be viewed....Only when time is used more effectively will adding more of it begin to result in improved learning outcomes for all students.
(p. 7)

Aronson et al. (1998) referred to academic learning time as “when learning actually occurs” (p. 3). Simply because a student is engaged in instructional activities does not mean the student is learning. Further, the researchers defined academic learning time as the “precise period when an instructional activity is perfectly aligned with a student’s readiness and learning occurs” (p. 3).

Figure 1 uses an image of an inverted pyramid to distinguish among the three types of educational time. Allocated time is located at the top of the pyramid. Aronson et al. (1998) observed allocated time as, “Most broadly described, most easily measured, most abundant and most easily mandated” (p. 2). Academic learning time is located at the bottom of the pyramid. Aronson et al. observed academic learning time as, “Most

narrowly focused, most difficult to measure, most elusive and most difficult for policy makers to influence: those moments when learning is actually taking place” (p. 2). This research study focused on allocated time between Airport Elementary and Walnut Grove Elementary.



Figure 1. Inverted Pyramid of Time. From “Improving student achievement by extending school: Is it just as matter of time,” by Aronson, J., Carlos, L., & Zimmerman, J. (1998, April).

As Aronson et al. (1998) concluded, learning time in education should be used more efficiently, focusing on core subject areas, such as science, math, reading, and language arts. When students are in the classroom and involved in instructional activities, educators can differentiate instruction to maximize learning.

Relationship Between Time and Instruction

One area studied concerning student achievement was the relationship between time and instruction. The length of the school day and year does not include just time for learning. A distinction should be made between time for instruction, time for active engagement in instructional activities, and time spent completing the activities, which include instructional strategies to enforce productive academic time.

The relationship between time and learning has stirred controversy among the American people. An examination of general public opinion data seems to indicate that time is a strong factor in education. According to the National Education Commission on Time and Learning (1994/2005), recent poll findings concluded the following:

1. “After nearly 40 years of opposing a longer school year, 52% of Americans favor students’ spending more time in school” (p. 11).
2. “A plurality favors increasing the number of days in the year as opposed to the number of hours in the day, 47% versus 33%” (p. 11).

A study by Roth, Brooks-Gunn, Linver, and Hofferth (2003) examined the Panel Study Income Dynamics (PSID) (1968-1999), which was “a longitudinal study of a nationally representative sample of U.S. individuals and families collecting a broad range of economic and demographic data” (Farbman & Kaplan, 2005, p. 4). In 1997, a Child Development Supplement (CDS) was added to invite all active PSID families with children under 13 to contribute to this study. This supplement then prompted specific families to participate in interviews regarding their children’s school day. The study

directed specific educators to complete a survey and a time diary, in which they were asked to document how time was spent on a designated day. The following was concluded about the study:

1. On average, the typical school day is 6 hours and 35 minutes long. During this time, teachers reported an average of 14 discrete activities: 64.4% are academic, 14.6% are maintenance, 11.9% are enrichment, and 6.8% are recess-related.
2. Students' days ranged from 6 to 7 hours per day. The difference between the low and high ends of this range was quite substantial over the course of the year. Although students in the 6-hour group spent significantly more days in school than students in the 7-hour group, they still spent a total of almost 177 fewer hours (or 14% less time) in school.
3. Although students with the longest school day spent a smaller percentage of their day on academic subjects, they still spent more time learning academic subjects.
4. Variations by classroom characteristics show that as the number of students in a class increased, so did the percentage of the school day and the amount of time devoted to academics, while the time devoted to enrichment and recess activities decreased. ("Massachusetts 2020", n.d., pp. 1-2)

Model Programs of Extended Learning Time

Extended learning time has proved successful in charter schools and public schools. The following model programs have been implemented to provide more learning

time on core subject areas. Rocha (2007) reported on a national survey, conducted by The Center for Education Reform (2006) of charter schools. The results showed, “57% of respondents extended learning time . . . 13% extended the school day and year . . . 24% extended the school day. . . and 20% extended the school” (The Center for Education Reform [as cited in Rocha, 2007]).

In 1994, two teachers created the Knowledge is Power Program (KIPP) (2008) to foster a community of public school charter programs that enable students to be productive throughout their time as students and developing adults. Teachers were trained to differentiate instruction by assessing and analyzing students’ progress throughout the year. KIPP schools share a focused set of principles known as the five pillars, which are “High expectations, choice and commitment, more time in school, principal power, and a focus on results” (National Education Commission on Time and Learning, 1994/2005, p. 18).

At KIPP schools, the extended learning time allocates a longer day, week, and year for all students. The extended learning time for KIPP schools includes a schedule of “7:30 a.m. until 5:00 p.m. on weekdays, 4 hours on Saturdays and a month during the summer” (National Education Commission on Time and Learning, 1994/2005, p. 18). In spite of the long hours, average daily attendance at KIPP schools maintained in the upper 90th percentile in 2004. According to this example, the extended learning time helps to promote a shared commitment between students and teachers.

Another charter school model that raised student achievement was The Arts and Technology Academy (ATA) Public Charter School—a school that provides an extended

day and year. According to *Innovations in Education: Successful Charter Schools* (United States Department of Education, 2004), the school was chartered in a Washington neighborhood characterized by public housing and family incomes below federal poverty levels. By design, The ATA had an extended, “seven and a half hour school day and an extended school year of 200 days, about 20 days longer than neighboring schools” (p. 23). Beyond the additional time and the core curriculum of reading, writing, mathematics, science, and social studies, students also learn basic communicative and performing arts, often through technology-based instruction. In this particular model, extended learning time offers opportunities within specialized content areas.

The United States Department of Education (2004) stated that success at The ATA is measured by student test scores, the scope of curriculum, attendance, disciplinary referrals, staff retention, and parent satisfaction. The successes of The ATA were described as follows:

1. Since 2000, students’ SAT 9 scores increased. In reading performance, 59% of the students were reading at or above grade level in 2003, compared with 35% in 2000. In math performance, half of the students were at or above grade level, compared with 20% in 2000.
2. Daily average attendance was 95%.
3. Behavioral referrals dropped from 43 to 24 in 3 years. (p. 26)

The ATA charter school model seems to support differentiated levels of student understanding while reinforcing subject area concepts.

Public schools also implemented extended time programs and saw positive results. One of the most high-profile efforts took place in the state of Massachusetts. In 2005, it became the first state to undertake a state-wide effort to implement extended learning time in public schools as a strategy for improving student performance. According to Rocha (2006), “Legislation in Massachusetts passed a budget amendment in 2005 to support district planning of expanding learning time” (p. 5). In addition, Rocha explained, “The legislature made available \$425,000 in new funds for grants to be administered through the United States Department of Education to support the creation of district implementation plans” (2006, p. 5). The state of Massachusetts set a precedent for states that needed to increase student achievement.

An earlier city-wide program in Detroit, Michigan, public schools was designed to demonstrate how lengthening the school year would produce corresponding changes in student achievement. Green (1998) stated, “The program features an addition of 15 days of instruction and meets the same purposes as the regular year instructional program” (p. 3). The following is Green’s description of the Detroit Metropolitan Achievement Test used to assess student achievement:

The Metropolitan Achievement Tests are administered annually to students in Grades 1-10 in the Detroit Public Schools as part of an assessment of student achievement. The reading tests include Reading Vocabulary (Grades 1-10) and Reading Comprehension (Grades 1-10). Also included a science test (Grades 1-10). (p. 3)

The results were used as an assessment to determine an impact on students' academic growth based on the extended year program. The year-end tests were administered to students in 1995, 1996, and 1997 (Green, 1998). Green's analysis on extending the school year and student achievement revealed the following:

Upon comparing the reading total test results prior to program implementation it was revealed in 1995, 2,033 students (36%) scored at or above the 50th national percentile ranks (NPR) compared to 2,685 (46%) in 1997, a ten percent gain. A comparison of the 1995 and 1997 science test results showed an overall gain of eleven percent in the number of students who scored at or above the 50th NPR. (1998, p. 5)

Green's findings revealed that the 3-year extended learning program resulted in higher student achievement scores on the Michigan Educational Assessment Program between 1995 and 1997.

An analysis of performance at New York City Schools demonstrated similar gains in comparing extended school year and student achievement. The study compared "reading and mathematics performance of New York City Schools Under Registration Review (SURR) elementary and middle schools with extended time differed from performance of schools without extended time in 1999-2000" (New York City Board of Education, 2000, p. 1).

The background of this research study compared elementary and middle schools organized under extended time provisions, with schools that were not under extended time provisions. Results were taken from, "performance on city and state English

language arts/reading tests administered to students in Grades 3, 5, 6, and 7 and scores on city mathematics tests administered to students in Grades 3, 5, 6, and 7” (New York City Board of Education, 2000, p. 3).

The findings confirmed that the gain of students achieving grade standards in both reading and mathematics was greater in extended time schools than in non-extended time schools. As indicated in Table 3, the students who scored in proficiency levels 3 and 4 met or exceeded grade level standards, while students who scored in level 1 (Table 4) performed at the lowest proficiency level. Specifically, the results from the analyses of extended learning time schools and non-extended learning time schools were reported:

Extended Time schools reduced the percentage of students in level 1 by 12.5 percentage points in reading as compared with a 10.1 point reduction in Non-Extended Time Schools. The improvement in the percentage of students scoring in the lowest proficiency level in Extended Time schools was greater than that recorded for all schools citywide. (New York City Board of Education, 2000, p. 4)

Table 3

Student Proficiency Levels: Percentage Scoring in Levels 3 and 4

Group	Reading			Mathematics		
	1999	2000	Change	1999	2000	Change
Extended Time	13.9	20.7	+6.8	10.6	13.5	+2.9
Non-extended Time	14.4	19.1	+4.7	10.6	11.8	+1.2
All Schools Citywide	35.1	41	+5.9	31.9	32.9	+1

Note. Students who scored in proficiency levels 3 and 4 met or exceeded grade level standards. Reading scores included Grades 3-7 and math scores included Grades 3, 5, 6 and 7. From New York City Board of Education, 2000, p. 5.

Table 4

Student Proficiency Levels: Percentage Scoring in Level 1

Group	Reading			Mathematics		
	1999	2000	Change	1999	2000	Change
Extended Time	42.5	30.0	-12.5	57.0	47.4	-9.6
Non-extended Time	42.4	32.3	-10.1	57.7	52.4	-5.3
All schools citywide	23.0	17.6	-5.4	33.9	30.8	-3.1

Note. Students who scored in level 1 performed at the lowest proficiency level. Reading scores included Grades 3-7 and math scores included Grades 3, 5, 6 and 7. From New York City Board of Education, 2000, p. 5.

The New York City Board of Education revealed the following findings from the analyses of the performance of Extended Learning Time and Non-Extended Learning Time SURR Schools:

Students in Extended-Time Schools improved at a greater rate on city and state reading and mathematics assessments than did students in a Non-Extended Time

Schools both in terms of increasing the percentage of students meeting standards for their grade and in decreasing the percentage of students scoring in the lowest proficiency level on reading and mathematics tests. (New York City Board of Education, 2000, p. 3)

The outcome of this study indicated that a larger percentage of students in Extended Learning Time Schools met or exceeded grade level standards than students in a Non-Extended Learning Time Schools.

Effects of Summer Breaks and Student Achievement

Research on time and learning revealed that parts of what children learn are forgotten during the summer months. The research collected by Reading is Fundamental, Inc. (2008) revealed the following:

1. All young people experience learning losses when they do not engage in educational activities during the summer. Research shows that students typically scored lower on standardized tests at the end of summer vacation than they did on the same tests at the beginning of summer vacation. (Cooper, Nye, Charlton, Lindsay, & Greathouse, 1996 [as cited in Reading is Fundamental, Inc., 2008, ¶1])
2. On average, students lost approximately 2.6 months of grade-level equivalency in mathematical computation skills over the summer months. Studies reveal that the greatest areas of summer loss for all students, regardless of socioeconomic status, are in factual or procedural knowledge. (Cooper et al., 1996 [as cited in Reading is Fundamental, Inc., 2008, ¶2])

3. Low-income children and youth experience greater summer learning losses than their higher income peers. On average, middle-income students experience slight gains in reading performance over the summer months. Low-income students experience an average summer learning loss in reading achievement of over two months. (Cooper et al., 1996 [as cited in Reading is Fundamental, Inc., 2008, ¶3])
4. Summer learning loss contributes to the achievement gap in reading performance between lower and higher income children and youth. Research demonstrates that while student achievement for both middle- and lower-income students improves at similar rates during the school year, low-income students experience cumulative summer learning losses over the elementary school grades. (Alexander & Entwisle, 1996 [as cited in Reading is Fundamental, Inc., 2008, ¶4])

According to this research, summer breaks can create an achievement gap in the learning cycle, requiring teachers to spend additional time reviewing instructional objectives from previous grade levels.

Summer programs can include modified school year calendars that distribute a summer break into shorter cycles of attendance breaks and extended year schools (Cooper, Valentine, Charleton, & Melson, 2003 [as cited in Reading is Fundamental, Inc., 2008]). The expansion of summer school programs is one option to providing low-achieving students the additional support needed to meet academic expectations. One example of a school that operates a summer program and is making gains is the Amistad

Academy, which is a public charter school in New Haven, Connecticut. Amistad Academy is a college preparatory school that serves elementary students in grades five through eight. The school reform included “lengthening the school day by one and a half hours to focus on mathematics and language arts, mandatory 15 day summer academy to focus on core academics, and before and after school programs” (Rocha, 2007, p. 11). Amistad Academy was founded in 1999 and its student population is “64% low income, 63% African American, 35% Hispanic and 2% Caucasian” (Rocha, 2007, p. 11). Leaders’ goals include “closing the achievement gap, securing high quality teachers and creating a supportive learning environment for students” (Rocha, 2007, p. 11). According to Rocha (2007), Amistad Academy’s efforts to extend the school year led students to make significant academic gains on state assessments.

Effects of Socioeconomic Status on Achievement

Socioeconomic status and student achievement were found to involve mainly two types of poverty, “The poverty level of individual students and a measurement of the poverty level within a school” (Wake County Public School System, 1999, p. 1). The most common definition for the poverty level of an individual person was “whether or not a student is eligible to receive free or reduced-price lunch” (Wake County Public School System, p. 1). For schools to determine poverty levels, it was the “percentage of students eligible to receive free or reduced-price lunch” (Wake County Public Schools, p. 1).

The research on poverty concerning teaching and learning (Leroy & Symes, 2001) indicated, “At-risk refers to children who are likely to fail in school or in life. It does not

appear that any one single factor places a child at risk. Poverty is considered an at-risk factor” (p. 1).

The United States Department of Education (2001) conducted The Longitudinal Evaluation of School Change and Performance (LESCP) in Title I Schools to determine their effectiveness. Individual and school poverty had a clear and negative effect on student achievement. The study between student and school level poverty concluded the following:

School poverty had an independent negative effect on third-grade achievement. In schools at the 90th percentile of school poverty in our sample, the students scored 11.8 points below average; students in schools at the 10th percentile on this measure scored 11.6 points above the average. (United States Department of Education, 2001, p. 50)

Duncan and Magnuson (2005) researched why family socioeconomic resources might matter for children’s school readiness. The authors’ research focused on specific components of parent socioeconomic status that support the well-being of their children. These components included “income, education, family structure, and neighborhood conditions” (p. 35). Duncan and Magnuson further found that the relationship between socioeconomic resources and test score gaps indicated “resource differences account for about half of the standard deviation, about 8 points on a test with a standard deviation of 15, of the differences” (p. 35). Rocha (2007) found that “poor and minority children tend to begin school at an academic deficit compared to their higher-income and white peers” (p. 7). According to the National Education Commission on Time and Learning

(1994/2005), “One fifth of all children and nearly half of all African-American children are born into poverty today” (p. 15). Income inequality continues to increase, leaving students at a disadvantage for achievement.

Haycock (as cited in NYSUT, 2007), Director of the Education Trust, a national policy group, pointed to research that demonstrated national progress in closing the achievement gap among certain age groups. Haycock argued that “reading and math gaps nationally between white fourth-grade students and students of color have been steadily closing” (as cited in NYSUT, Data Shows Mixed Results section, ¶ 1). Haycock (as cited in NYSUT) listed six characteristics of schools that have had success closing the achievement gap:

- 1) They focus on what they can do. Educators know they can't change things like poverty and where their students live, so they, instead, focus on what they can do to get students on track academically.
- 2)...They give teachers a very clear sense of what should be taught, what kind of work students should be given and what constitutes "good enough."...
- 3) They set high goals. These schools don't just focus on achieving proficiency, but on getting their students to advanced levels.
- 4) They are obsessive about instructional time. Research shows that, by the time some schools account for holidays, conference days, school trips, and other events, the amount of instructional time each year is reduced drastically. Schools that have had success narrowing the achievement gap remove distractions and try to maximize instructional hours.

5) They are driven by students needs. For example, schools that are closing the gap provide extra instruction in areas where students need improvement.

6) Good schools know how much teachers matter and act on that knowledge.

(Pockets of Success section, ¶¶ 5-10)

Both Airport and Walnut Grove elementary schools have more students eligible for free and reduced lunch than the Missouri state average. In 2002, Airport had 87.0%, or 367 students, who were eligible for assistance. In 2006, 90.2%, or 294, of its students were eligible for assistance. In 2002, Walnut Grove had 68.9%, or 396 students, who were eligible for assistance. In 2006, 76.5%, or 394, of its students were eligible for assistance. These statistics are illustrated numerically in Table 5 and graphically in Figure 2.

Table 5

Percentage of Students Eligible for Free or Reduced-price Lunch

	2002	2003	2004	2005	2006
Airport					
Percent	87.0	88.2	81.4	90.5	90.2
Number	367	344	311	314	294
Walnut Grove					
Percent	68.9	71.2	73.0	78.3	76.5
Number	396	404	381	398	394
<i>Note.</i> The data are from “School Accountability Report Card 2001-2006,” by the Missouri Department of Elementary and Secondary Education, 2006b, p. 1.					

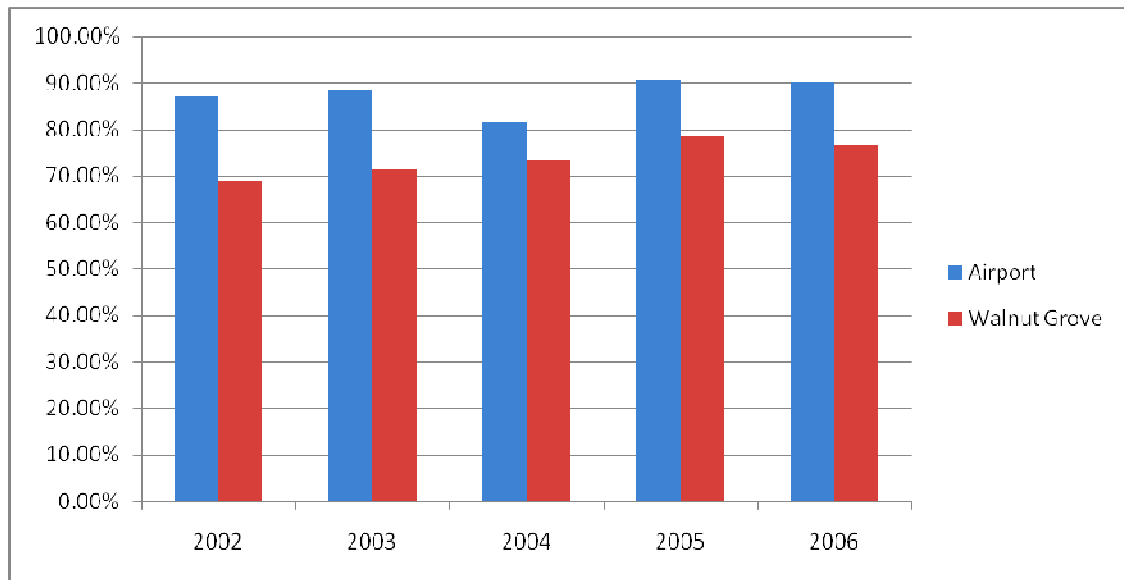


Figure 2. The data are from “School Accountability Report Card 2001-2006,” by the Missouri Department of Elementary and Secondary Education, 2006b, p. 1

Effects of Student Attendance on Achievement

Student attendance is defined as the percentage of days present in comparison to the total number of days present and absent. When student absenteeism becomes more prevalent, students and the community face problematic situations that lead to students who have “low grades, have spotty attendance, and later drop out of school” (Williams, 2002, p. 2). Williams concluded, “When students are absent, not only do students miss learning opportunities, but the teachers must also try to provide remediation when the students return, accounting for additional loss of instructional time taken from other students” (p. 2).

According to representatives of the *Kids Mobility Project Report* (1998), “On average, students with nearly perfect attendance outperformed by more than 20 points those who attended less than 80 percent of the time” (p. 5). Attendance proved to be a

strong predictor of performance for students in the study. Moreover, the *Kids Mobility Project Report* concluded, “Students with nearly perfect attendance made significant 1-year gains, while students who only attended 85% of the time or less lost ground” (p. 5).

The attendance rate at Airport Elementary remained in the lower 94th percentile from 2002 through 2006. The attendance rate at Walnut Grove Elementary was at 94.3% in 2002 and rose to 95.4% in 2006 as shown in the Table 6.

Table 6

Student Rates of Attendance from 2002-2006

	2002	2003	2004	2005	2006
Airport	94.1%	94.5%	93.7%	93.5%	94.0%
Walnut Grove	94.3%	94.1%	94.2%	95.0%	95.4%

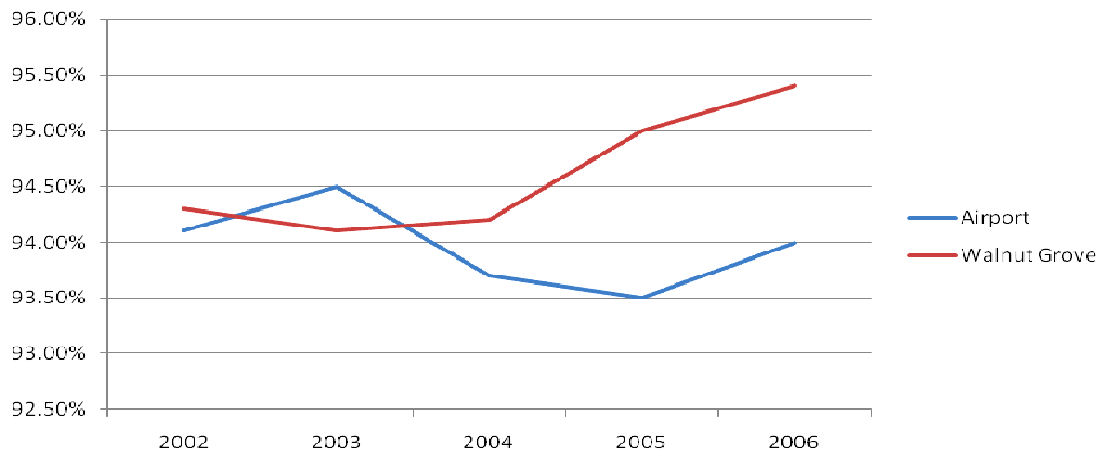


Figure 3. Student Rates of Attendance 2002-2006. The data are from “School Accountability Report Card 2001-2006,” by the Missouri Department of Elementary and Secondary Education, 2006b, p. 1.

In an interview conducted by the researcher of this paper, the Director of Administrative Services, C. Berg (personal communication, April 15, 2007) of the FFSD, supplied a summary of the third-grade attendance data for the 2001-2006 school years for both schools. Airport Elementary (an extended year school) third graders had an attendance rate of 93.9% during the 2001-2002 school years. Attendance at Airport continued to increase to 94.3% during 2002-2003 and to 94.6% during 2003-2004 school year. In 2004-2005, Airport Elementary's attendance rate decreased to 92.3%. During the 2005-2006 school year, the attendance rate increased to 93.9% and during the 2006-2007 school year, the attendance rate increased to 94.8%.

Walnut Grove (a school with a conventional year) third graders had an attendance rate of 93.2% during the 2001-2002 school year that increased to 94.3% the following year. During the 2003-2004 school year, the attendance rate decreased to 93.9%. The attendance rate increased to 95.7% in 2004-2005 and to 96.4% in 2005-2006. During the 2006-2007 school year, the attendance rate decreased to 94.1%. Rates of attendance for both elementary schools fluctuated between 92% and 96% with no constancy between the 2001-2002 and 2006-2007 school years.

Table 7 illustrates attendance rates during the 2001-2006 school years. Table 7 demonstrates a higher attendance rate at Airport Elementary (a school with an extended year program) than Walnut Grove Elementary School (a school with a conventional year).

Table 7

Third Grade Rates of Attendance

School	Grade	School Year	Attendance Rate
Airport	3	2006-07	94.8%
Airport	3	2005-06	93.9%
Airport	3	2004-05	92.3%
Airport	3	2003-04	94.6%
Airport	3	2002-03	94.3%
Airport	3	2001-02	93.9%
Walnut Grove	3	2006-07	94.1%
Walnut Grove	3	2005-06	96.4%
Walnut Grove	3	2004-05	95.7%
Walnut Grove	3	2003-04	93.9%
Walnut Grove	3	2002-03	94.3%
Walnut Grove	3	2001-02	93.2%

Fiscal Concerns Resulting From Increased School Time

Lengthening the school year for academic gains involves a high cost allocation for school districts. According to an estimate from the National Education Commission on Time and Learning (1994)

Estimates of the costs for extending the school day and year vary widely, from relatively low estimates, e.g., \$200 per student for an extra six weeks of schooling, to estimates over four times higher, which add up to \$1.1 billion for every extra school day for the nation as a whole. (p. 8)

Further examples for increasing allocated time were provided by the National Education Commission on Time and Learning (1994):

The cost of increasing the academic year from 180 to 210 days would be estimated at \$33 billion dollars per year. The largest component of increased costs resulting from an extended school year or extended school day is for personnel. When personnel are asked to extend their work day or work year, additional proportional compensation needs to be provided. (p. 63)

Extending the School Year – Expenses

An interview with FFSD’s Director of Finance, R. Moran (personal communication, April 20th, 2007) of the FFSD revealed that the cost of extending the school year in four schools in FFSD totaled \$1,155,635, for the 2006-2007 year. Figures 4, 5, 6 and 7 specify the cost per category (according to the Director of Finance).

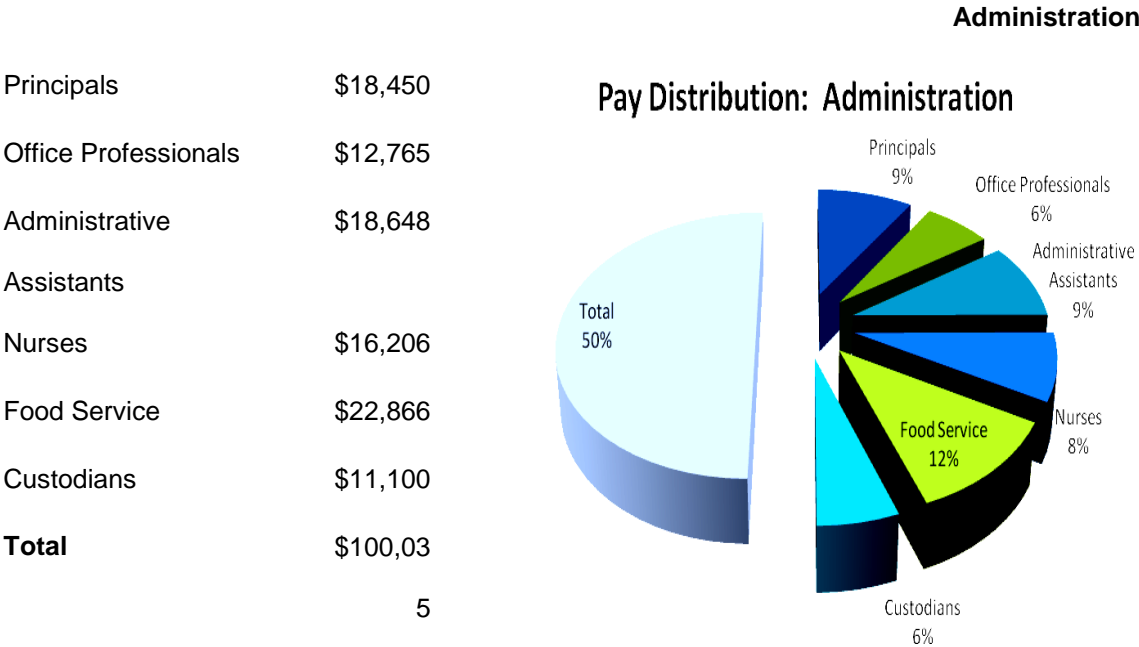
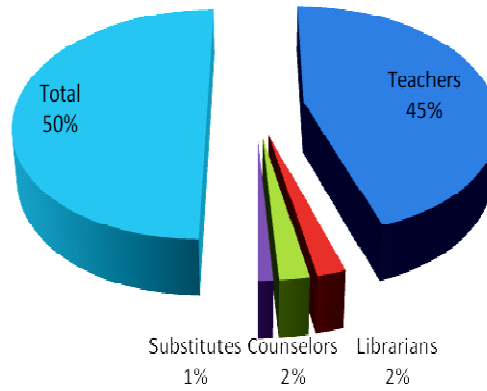


Figure 4. Pay Distribution: Administration

Instruction

Teachers	\$660,000
Librarians	\$30,000
Counselors	\$30,000
Substitutes	\$15,500

Pay Distribution: Instruction



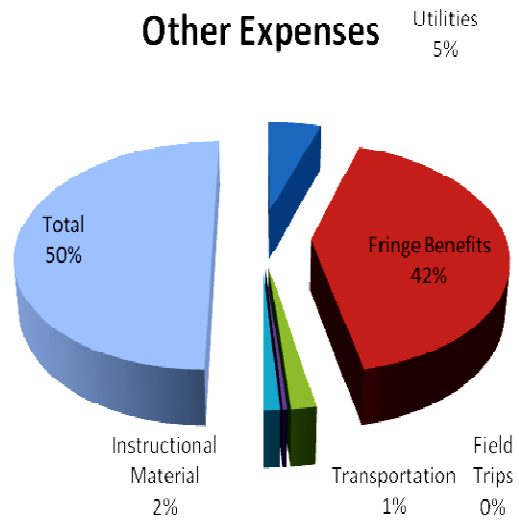
Total **\$735,500**

Figure 5. Pay Distribution: Instruction

Other

Utilities	\$33,300
Fringe Benefits	\$267,000
Instructional Material	\$11,000
Field Trips	\$2,000
Transportation	\$6,800

Other Expenses



Total **\$320,100**

Figure 6. Pay Distribution: Other expenses

Overview

Administration	\$100,035
Instruction	\$735,500
Other Expenses	\$320,100

Total **\$1,155,635**

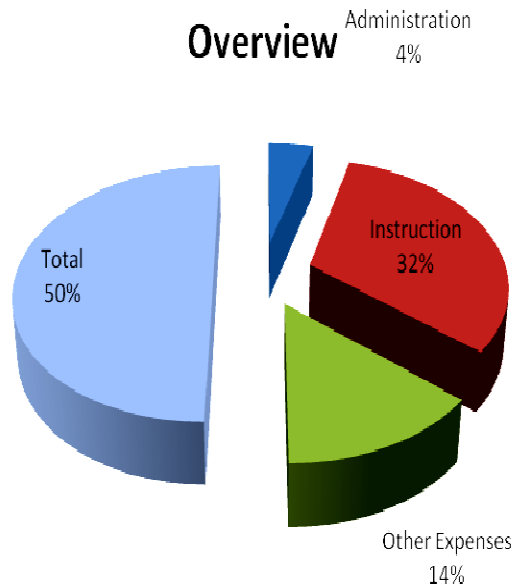


Figure 7. Pay Distribution: Overview

The total cost for extending the calendar year in four schools in the Ferguson Florissant School District during the 2006-2007 school year totaled over \$1.1 million. The cost per school was not available. The expenses for extending the school year were associated with instructional and administration needs, transportation, and utility needs. Higher expectations for students have driven personnel in school districts to implement programs such as extended school year, extended day, or both.

Summary

The debate on the merits of a longer school year involves much opposition. Research indicates that much of the debate about early school dates and longer school years is linked to the idea that more instructional time will improve test scores. Rocha (2007) stated, “The benefits of expanded learning time reach beyond improvements in student academic performance, their personal development, and preparation for adulthood” (p. 5). In addition, Rocha (2007) explained that expanding learning time benefits educators “by providing them with more time to engage in high-quality

professional development, participate in support activities such as mentoring, plan and work collaboratively with others, and analyze data to improve instruction and student achievement” (p. 5).

Student test scores may or may not improve with increased time in school. Extending the school day or year may bring instructional benefits as well as non-instructional benefits, such as offering a safe place during the summer months and providing two nutritional meals for all students in attendance. To summarize chapter two, a comparison was made between the United States and other industrialized nations about the length of school years. The findings revealed that the average school year in the United States, 180 days, was one of the shortest and Japan’s was one of the longest school years with 223 days. School calendars in the United States have typically remained in the same structure, while several industrialized countries have restructured school calendars. In addition, summer breaks and socioeconomic status can have an effect on student achievement. Research concluded that students living in poverty experienced greater summer learning losses than students not living in poverty. The lack of resources, such as income, education, neighborhood conditions, and family structure for families living in poverty, has resulted in academic achievement gaps among students. Extending learning time for students can provide opportunities to enrich a school’s curriculum, while helping students who are at a disadvantage with achievement.

CHAPTER III – METHODOLOGY

Overview

The purpose of this study was to compare the academic achievement of third grade students in an extended year school to that of third graders at a conventional year school in the Ferguson Florissant School District. Third grade communication arts and science scores from 2002-2006 MAP tests for the two elementary schools were compared. Reacting to low achievement scores on the MAP test in the FFSD, district personnel decided to extend the school year at Airport Elementary School. Airport Elementary was one of four schools that received additional funding to offer extended school years. The four elementary schools were selected because they had the lowest achievement scores on the MAP test in the Ferguson Florissant School District. The purpose of the comparison was to determine the effect of an extended school-year calendar on student achievement and to test the hypothesis that students on an extended school calendar would yield significantly better results on the MAP than students attending a school with a conventional calendar school year.

Subjects

District information. The FFSD is a public school district that is located in North St. Louis County, Missouri, and serves students in grades pre-kindergarten to grade 12. During the time of this study, the FFSD consisted of approximately 12,869 students. The 18 elementary schools educated approximately 6,713 students. The three middle schools had a population of 2,120 students, and the three high schools enrolled 4,036 students. FFSD included 24 schools serving students in pre-kindergarten through grade 12.

Age and grade level. The subjects in this study were third grade students from two different elementary schools of the FFSD in Florissant, Missouri. The MAP scores were from both male and female students ranging between the ages of eight and ten years. The progress of third grade students was measured in reading and language arts, science, and mathematics on the MAP. The results in this study represented communication arts and science percentages of third grade students.

Kindergarten through grade six enrollment. Though the largest group of schools within FFSD is elementary, the elementary schools used in the study decreased in student population over the last five years studied. Airport Elementary School had a population of 402 during the 2002 school year. Throughout the five years studied, the population decreased to 333 students. Walnut Grove Elementary School had a population of 579 during the 2002 school year. Throughout the five years, the population decreased to 508 students. Both of the schools' populations decreased during the five years of research.

Ethnicity. The ethnic populations at Airport Elementary School and Walnut Grove Elementary School were slightly different. In 2006, Airport had a Black student population over 96.7%, while the White student population was at 3%. All other races were at 0%. In 2006, Walnut Grove had a Black student population at 81.1%, while the White student population was at 17.5%. The Asian student population was at 0.8% in 2006, and the Hispanic student population was 0.4% as shown in Figures 8 and 9.

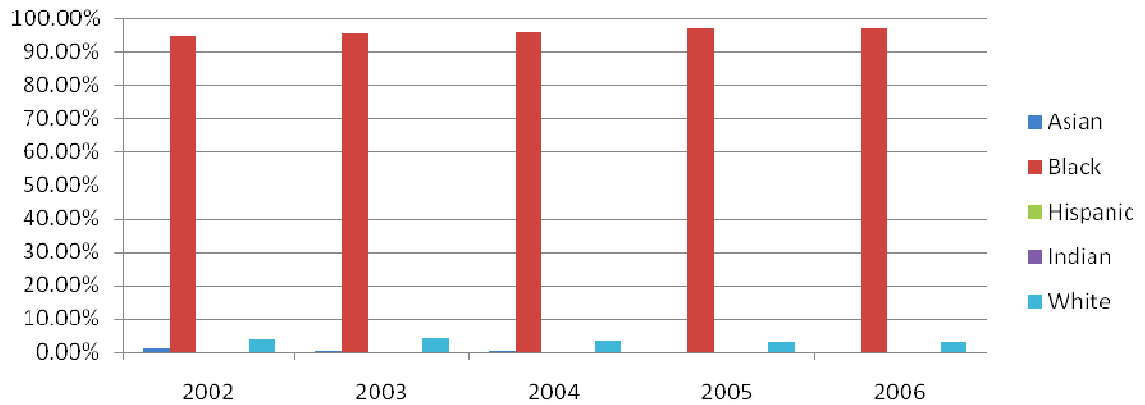


Figure 8. The Ethnicity of Airport Elementary School's Enrollment.

During the 2002 to 2006 school years, the Black population of Airport Elementary School had a steady enrollment of over 90%. During the 2002 to 2006 school years, all other ethnic groups had a steady enrollment between 2% and 5%.

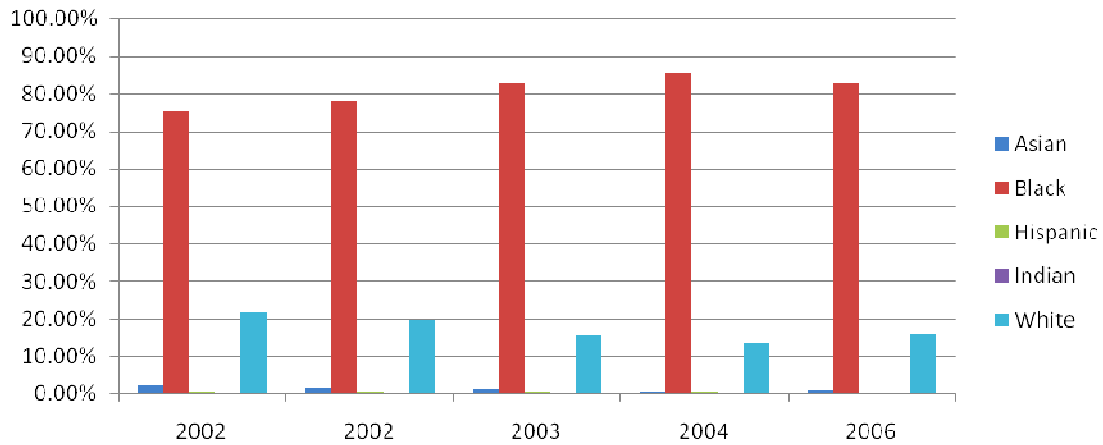


Figure 9. The Ethnicity of Walnut Grove Elementary School's Enrollment.

During the 2002 to 2006 school years, the Black population of Walnut Grove Elementary School increased from 75% to over 85%. During the 2002 and 2005 school years, the Caucasian population decreased from about 21% to about 13%. During the 2006 school year, the Caucasian population increased to 16%.

Staffing Ratios

The student to teacher ratio for Airport Elementary School increased slightly within five years, from 16:1 in 2002 to 17:1 in 2006. Yet, the student to administrator ratio for Airport Elementary School decreased within five years, from 402:1 in 2002 to 333:1 in 2006. The student to teacher ratio for Walnut Grove Elementary School remained constant from 2002 to 2006, staying steady at 18:1. Like Airport Elementary School, the student to administrator ratio for Walnut Grove Elementary School decreased within five years, from 290:1 in 2002 to 254:1 in 2006 as shown in Table 10.

Table 8

Staffing Ratios 2002-2006

	2002	2003	2004	2005	2006
Airport					
Students to classroom teacher	16:1	17:1	17:1	18:1	17:1
Students to administrator	402:1	382:1	374:1	356:1	333:1
Walnut Grove					
Students to classroom teacher	18:1	17:1	18:1	17:1	18:1
Students to administrator	290:1	280:1	274:1	246:1	254:1

Sampling Procedure

Third-grade student scores on the MAP test from 2002 to 2006 were compared to determine the effect of an extended school year and conventional school year on student achievement. The MAP scores from 2006 were the most current scores available.

Every student in the third grade participated in the MAP. The students participated using standard testing conditions or with accommodations. Students with an Individualized Education Plan (IEP) were offered accommodations based on the students' instructional needs. In addition, students with limited English proficiency could be exempt from the MAP assessment in a given year but would not be exempted from any year following. According to Missouri Department of Elementary and Secondary Education (1998), the MAP is designed to, "identify the knowledge, skills, and competencies that Missouri students should acquire by the time they complete high school and to assess student progress toward these academic standards" (p. 1).

External Validity

The findings of this study may be generalized to particular subjects and locations beyond the subjects and locations used in the study. In schools with student populations similar to the populations at Airport Elementary and Walnut Grove Elementary Schools, the results of this study would be worth consideration. Specific limitations may have occurred, such as the loss of subjects before the study was complete, and may have had an effect on results.

Research Design

The research design used in this study was quantitative causal-comparative. An attempt was made to identify a causal relationship between the independent variable and the dependent variable. In this particular design, the independent variable was the type of school calendar, extended year versus conventional. The dependent variable, academic achievement, was measured by evaluating MAP scores starting in 2002 and ending in 2006. The research involved comparing the academic performance of students from Airport Elementary School, which had an extended school year, to Walnut Grove Elementary School, which operated under a conventional school year.

Instrumentation

The instrument used to conduct this research was a performance-based assessment system, used by all public schools in the state of Missouri. The assessment system, known as the MAP, was designed to measure student progress in meeting the Show-Me-Standards. The MAP is used in the state of Missouri to test students in grades three through eight and ten in math, and grades three through eight and eleven in communication arts. The goal is to have students score at or above the proficiency level on the MAP.

The content areas assessed for all grades were mathematics, communication arts, science, and social studies using multiple-choice and constructed response questions. Scores from the MAP are located on the Missouri Department of Elementary and Secondary Education (<http://dese.mo.gov/>) website.

Reliability

According to Fraenkel and Wallen (2003), reliability is the “degree to which scores obtained with an instrument are consistent measures of whatever the instrument measures” (Glossary, p. 7). According to the Missouri Department of Elementary and Secondary Education (n.d.), the developers of the MAP made every effort to produce an instrument that yields meaningful and consistent results. The MAP assessment program includes constructed response items and performance events that must be scored by people with knowledge of state student achievement assessments. Score dependability is determined as a number ranging from zero to one, “the higher the coefficient, the more dependable the score” (Missouri Department of Elementary and Secondary Education n.d., p. 3). For third grade Communication Arts, the reliability coefficient was .920 in 1998, and .913 in 2000. For third grade Science, the reliability coefficient was .907 in 1998, and .903 in 2000. All coefficients yielded a score near one, which indicated a high confidence level on the MAP assessment. Table 9 illustrates the reliability coefficients from 1998-2000 for third grade. At the time of this writing, these reliability coefficients were the most recent.

Table 9

Reliability Coefficients for Third-grade Communication Arts and Science: 1998-2000

	1998	1999	2000
Communication arts	.920	.915	.913
Science	.907	.903	.903

Note: Between 1998 and 2000, the reliability coefficients for communication arts and science decreased. From The Missouri Department of Elementary and Secondary Education, n.d.

Validity

According to Fraenkel and Wallen (2003), validity means, “the degree to which a correct inference can be made based on the results from an instrument” (Glossary, p. 9). The Missouri Department of Elementary and Secondary Education (n.d.) ensures the validity of the MAP assessment. According to the same source, the MAP is aligned with the Show-Me-Standards of Missouri, “Being measured at that grade level and subject area” (p. 2). Content experts and Missouri educators first determined the tested items for each subject and grade level. Then Missouri educators evaluated the items to align with the Missouri standards.

Another approach to validate MAP scores was to “investigate the underlying psychological traits or constructs that a given assessment measures” (Missouri Department of Elementary and Secondary Education, n.d., p. 2). The Missouri Department of Elementary and Secondary Education analyzed “how performance on

individual items relates to performance on other items and how performance on an individual item relates to performance on the entire assessment” (n.d., p. 2).

Procedure

Consent was obtained from the research and evaluation director of the FFSD. In order to complete this study, data were collected on Airport and Walnut Grove Elementary schools. This MAP data is available from the district’s archives and is publicly released on the Missouri Department of Elementary and Secondary Education website. The website provides public information about FFSD’s elementary, middle and high schools.

Also available on the website and equally important to the MAP scores, was information such as enrollment numbers, eligibility for free or reduced lunch, and student attendance. The data were analyzed using a chi-square test of independence.

Summary

The focus of this study was to determine if there was a significant difference in student achievement between an ESY school and a school operating with a conventional school year calendar. The instrument used to measure the progress of third grade students was a performance-based assessment known as the MAP. The MAP is currently used by all public schools in Missouri.

This study examined student achievement as determined by the performance indicators between students attending an extended year and those attending a conventional year school. The researcher in this study analyzed data collected from MAP scores of third grade students and their placements within one of the performance indicators on the MAP. Data from 2002-2006 were used to determine the impact, if any,

on extending the school calendar on student academic achievement. The results of this study are reported in chapter four.

CHAPTER IV - RESULTS

The purpose of this study was to compare the academic achievement of third grade students in an extended year school (Airport Elementary) to that of third grade students in a conventional school year (Walnut Grove Elementary). In addition, student data were analyzed using percentages of third grade student scores as related to the performance indicator categories of the MAP.

The independent or explanatory variable was the type of school calendar, ESY versus conventional. On an ESY calendar, students attend an extra five weeks, beginning their school year in July. On a conventional calendar, students attend school for nine months beginning their school year in August, with a three-month summer break. The dependent or response variable was the academic achievement of elementary students as measured through student scores on the MAP test in the areas of communication arts and science at the third grade level. Third graders are not tested in social studies.

The null hypothesis stated that there will be no significant difference on MAP scores between students attending school on an extended school calendar compared to a conventional school calendar. If students attended school on an ESY calendar, then their MAP scores will not be significantly higher than students in a similar elementary school who attended school on a conventional calendar. The alternate hypothesis stated that there will be a significant difference between the two variables. If students attended school on an ESY calendar, then their MAP scores will be significantly higher than students who attend school on a conventional calendar.

Results

The statistical hypothesis test used was a chi-square test of independence. The chi-square test of independence, in this case, ascertained if a relationship or an association existed between school calendar and student achievement (Preacher, 2001). Coleman, Pittenger and Runyan (2000) argued that if there is no association between the two variables, then the difference between the observed and expected frequencies should be minimal. Further, the same authors said that if the differences between the observed and expected frequencies are large, then the variables are related to each other. Data were collected from two elementary schools in the FFSD from the 2002-2003 school year to the 2005-2006 school year. The data included third grade scores in communication arts and science. In each case, the hypothesis of independence of results was tested. The chi-square analysis for each year follows.

2002 results. In the area of communication arts, the hypotheses were as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (4, N=135) = 22.408, p < 0.001$$

The p-value was less than .05, so the null hypothesis (H₀) was rejected, concluding that the alternative is true. There was a statistically significant difference between student scores for each school calendar. In this case, the scores in the communication arts test were significantly higher at Walnut Grove. The percentage of students in each level on the MAP test for both schools is shown in Table 10 and Figure

10. Walnut Grove had 6.2% of students in the Proficient and 0% in the Advanced level, while Airport had 25% of students in the Proficient and 3.8% in the Advanced level. Walnut Grove had 12.3% of students on Step 1 and 40.7% in the Progressing level, while Airport had 5.8% of students on Step 1 and 23.1% in the Progressing level.

Table 10

Percent of Students Scoring in Each Level on the 2002 Communication Arts Missouri Assessment Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	5.8	23.1	42.3	25	3.8
Walnut Grove (Conventional)	12.3	40.7	40.7	6.2	0

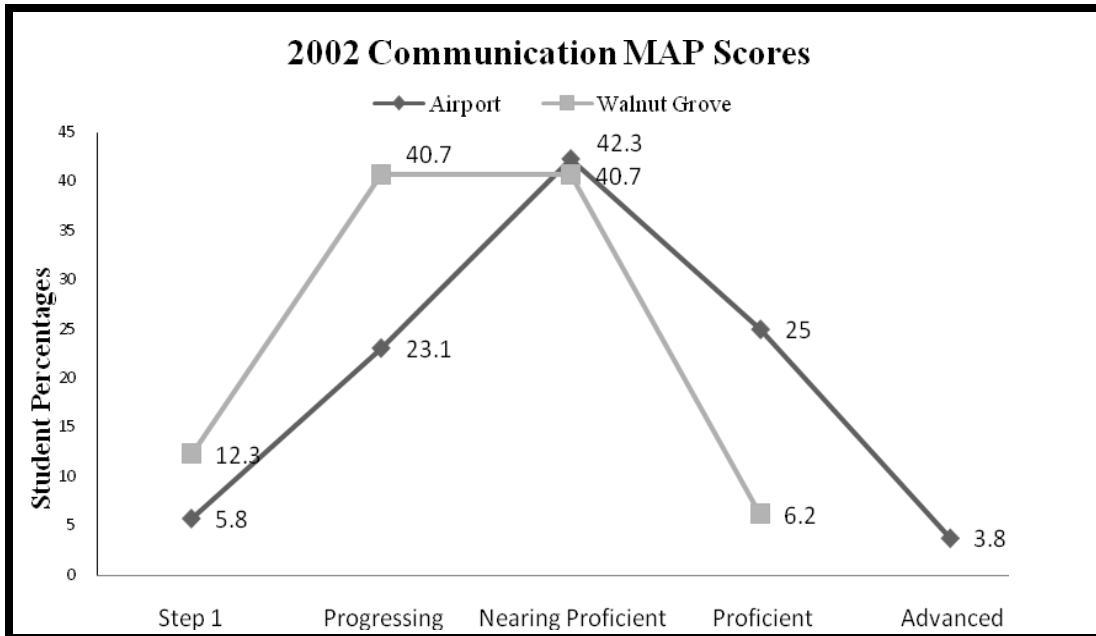


Figure 10. 2002 Communication Arts Missouri Assessment Program scores. The Y-axis represents the student percentages in various categories. The Y-axis is a continuous scale that contains information related to the data. Scales were chosen to reveal differences while not exaggerating them.

In the area of science in 2002, the hypotheses were as follows:

H_0 : The proportions of students in the MAP categories are independent of the type of calendar.

H_1 : The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (4, N=137) = 51.987, p < .001$$

This p-value was less than .05, so the null hypothesis (H_0) was rejected, concluding that the alternative was true. There was a statistically significant difference between the scores for each school calendar. The percentage of students in each level on

the MAP test for both schools is shown in Table 11 and Figure 11. The ESY school had more students in the areas of Proficient and Advanced.

Table 11

Percent of Students Scoring in Each Level on the 2002 Science Missouri Assessment

Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	1.9	3.8	42.3	42.3	9.6
Walnut Grove (Conventional)	6.2	34.6	46.9	11.1	1.2

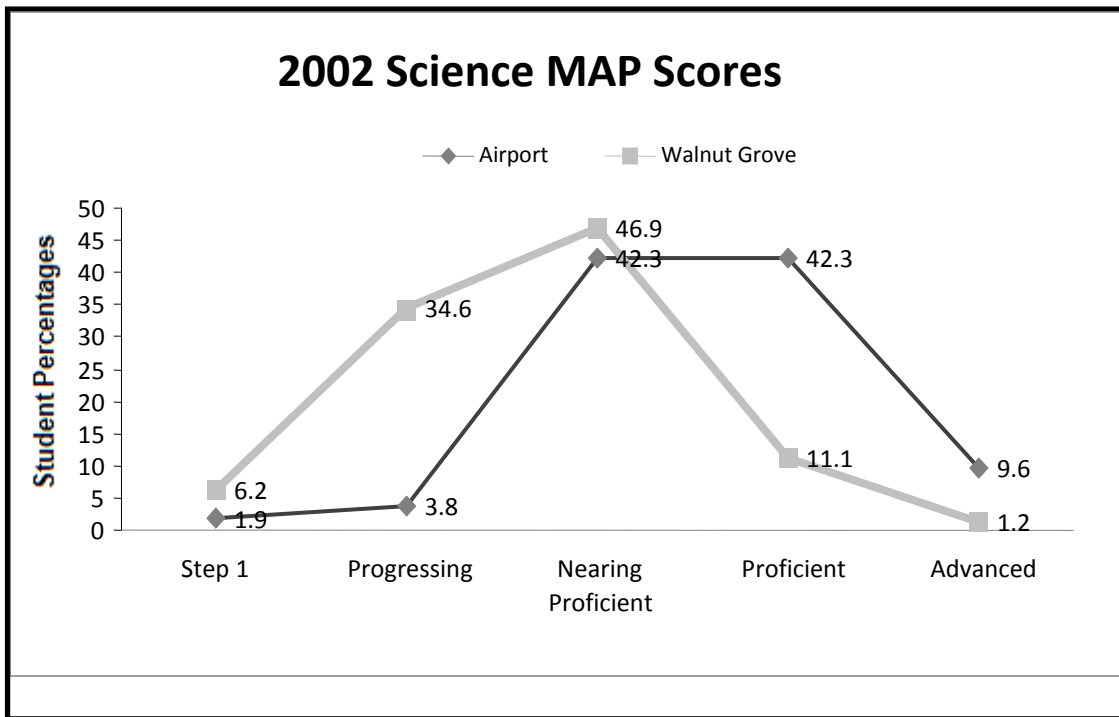


Figure 11. 2002 Science Missouri Assessment Program scores.

2003 results. In the area of communication arts, the hypotheses were as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (4, N=145) = 4.01, p = 0.2603$$

This p-value was greater than .05, so the null hypothesis (H₀) was accepted, concluding that the alternative was false. There was not a statistically significant difference between the scores for each school calendar. The percentage of students in each level on the MAP test for both schools is shown in Table 12 and Figure 12.

Table 12

Percent of Students Scoring in Each Level on the 2003 Communication Arts Missouri Assessment Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	11.7	36.7	33.3	18.3	0
Walnut Grove (Conventional)	14.3	45.2	31	9.5	0

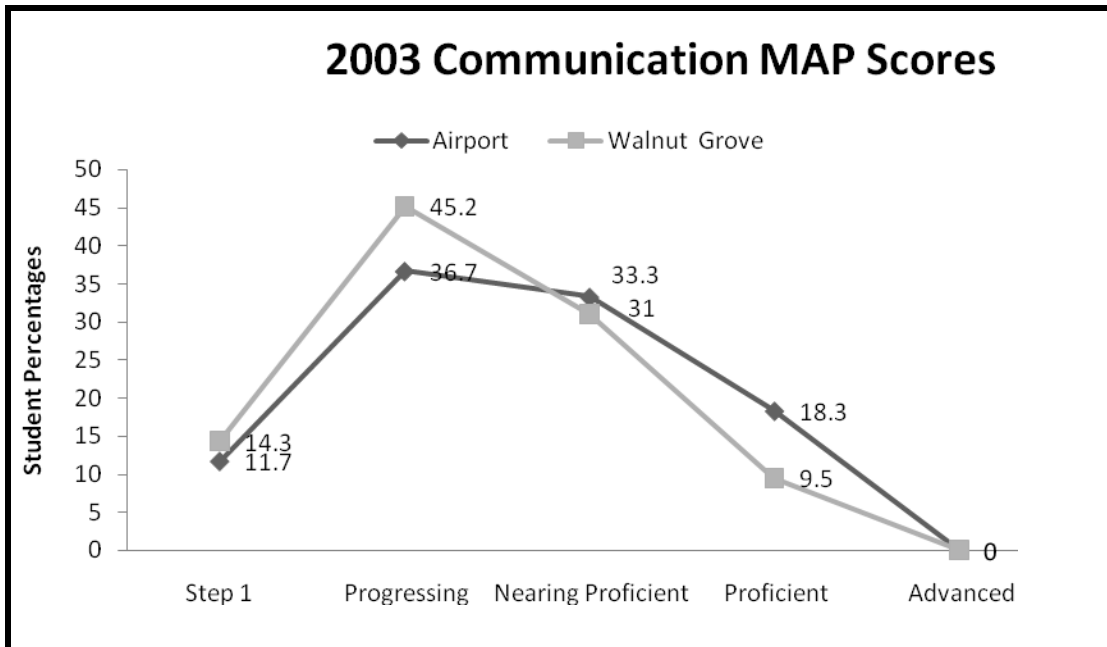


Figure 12. 2003 Communication Arts Missouri Assessment Program Scores.

In the area of science in 2003, the hypotheses were as follows:

H_0 : The proportions of students in the MAP categories are independent of the type of calendar.

H_1 : The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (4, N=145) = 17.298, p = 0.00169$$

This p-value is less than .05, so the null hypothesis (H_0) was rejected, concluding that the alternative was true. There was a statistically significant difference between the scores for each school calendar. The percentage of students in each level on the MAP test for both schools is shown in Table 13 and Figure 13. As seen in Figure 13, the Conventional Year School had more students in the areas of Step 1 and Progressing. The Extended Year School had more students in the Proficient and Advanced levels.

Table 13

Percent of Students Scoring in Each Level on the 2003 Science Missouri Assessment

Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	1.7	20	48.3	25	5
Walnut (Conventional)	10.6	27.1	50.6	11.8	0

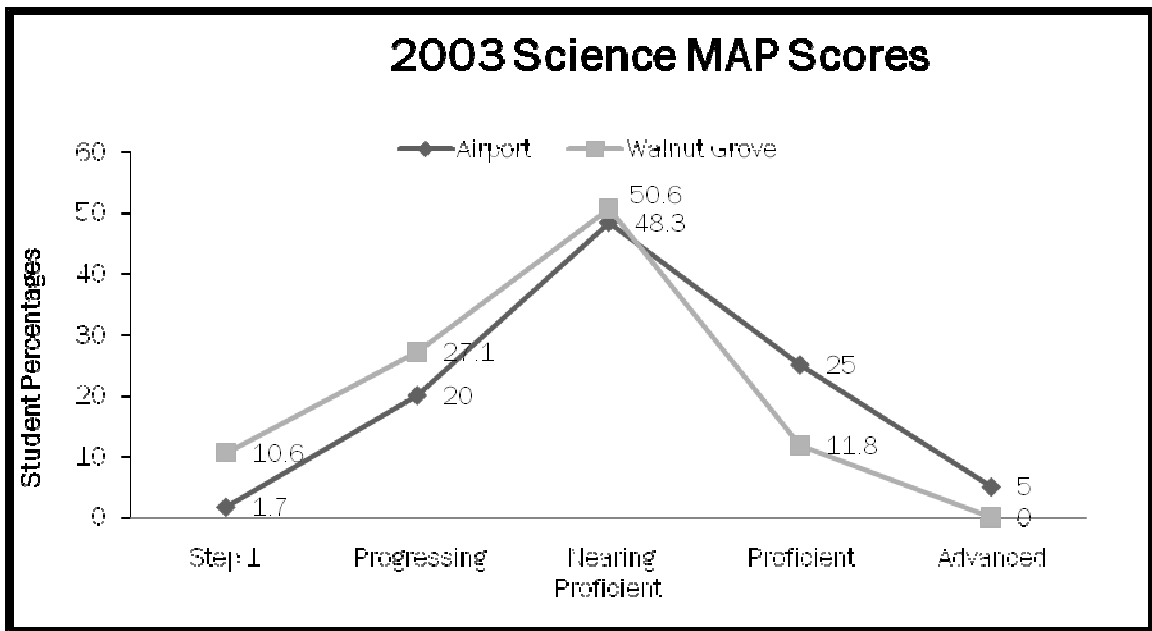


Figure 13. 2003 Science Missouri Assessment Program Scores.

2004 results. In the area of communication arts, the hypotheses are as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (3, N=115) = 4.746, p = 0.1913$$

This p-value was greater than .05, so the null hypothesis (H₀) was accepted, concluding that the alternative was false. There was not a statistically significant

difference between the scores for each school calendar. The percentage of students in each level on the MAP test for both schools is shown in Table 14 and Figure 14.

Table 14

Percent of Students Scoring in Each Level on the 2004 Communication Missouri Assessment Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	18	42	34	6	0
Walnut Grove (Conventional)	23.4	29.7	35.9	10.9	0

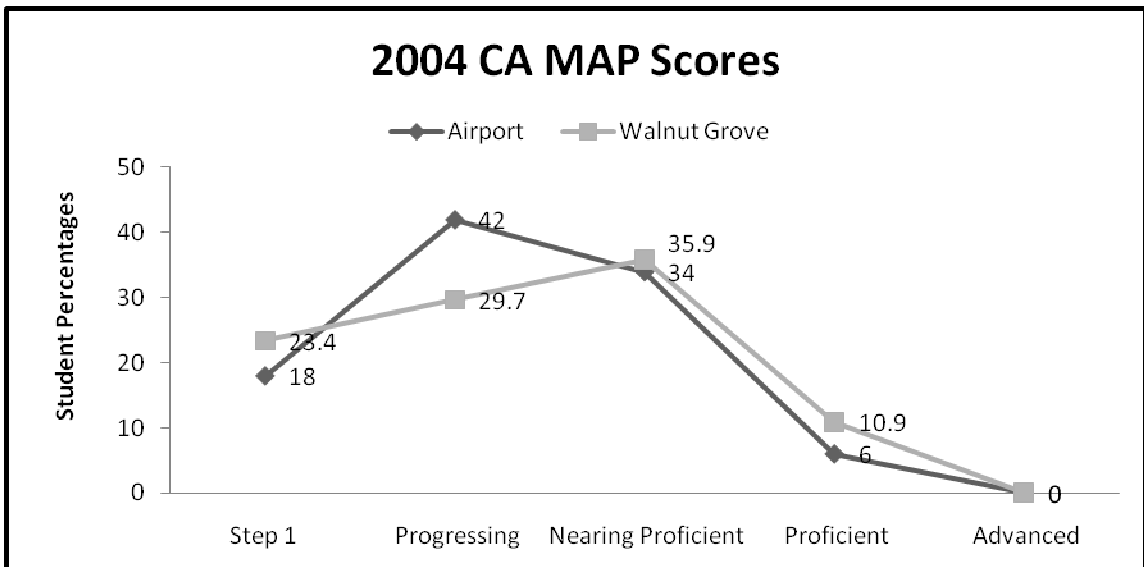


Figure 14. 2004 Communication Arts Missouri Assessment Program Scores.

In the area of science in 2004, the hypotheses were as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the

type of calendar.

$$\chi^2 (4, N=115) = 7.937, p = 0.0939$$

This p-value was greater than .05, so the null hypothesis (H_0) was accepted, concluding that the alternative was false. There was not a significant difference between the scores for each school calendar. The percentage of students in each level on the MAP test for both schools is shown in Table 15 and Figure 15.

Table 15

Percent of Students Scoring in Each Level on the 2004 Science Missouri Assessment

Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	10.9	13	45.7	28.3	2.2
Walnut Grove (Conventional)	9.4	26.6	42.2	21.9	0

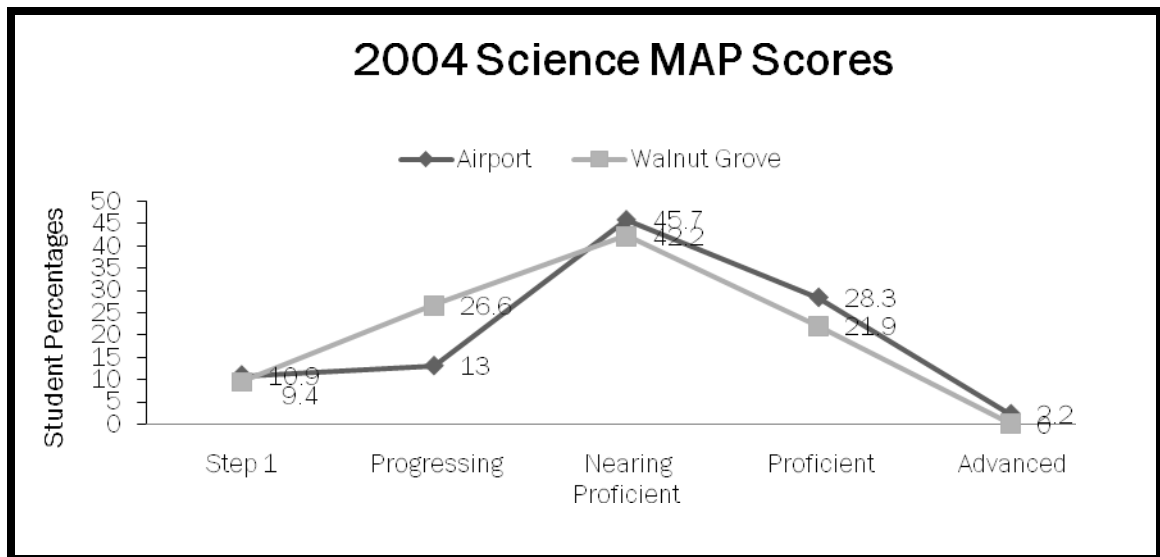


Figure 15. 2004 Science Missouri Assessment Program Scores.

2005 results. In the area of communication arts, the hypotheses were as follows:

Ho: The proportions of students in the MAP categories are independent of the type of calendar.

H1: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (3, N=129) = 11.549, p = 0.0090$$

This p-value was less than .05, so the null hypothesis (H₀) was rejected, concluding that the alternative was true. There was a statistically significant difference between the scores for each school calendar. In this case, the scores in the communication arts test were significantly higher at Walnut Grove in Step 1 and Progressing levels. However, Airport scored higher in the Nearing Proficient and Proficient levels. The percentage of students in each level on the MAP test for both schools is shown in Table 16 and Figure 16.

Table 16

Percent of Students Scoring in Each Level on the 2005 Communication Missouri

Assessment Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	17.8	22.2	40	20	0
Walnut Grove (Conventional)	26.5	36.1	28.9	8.4	0

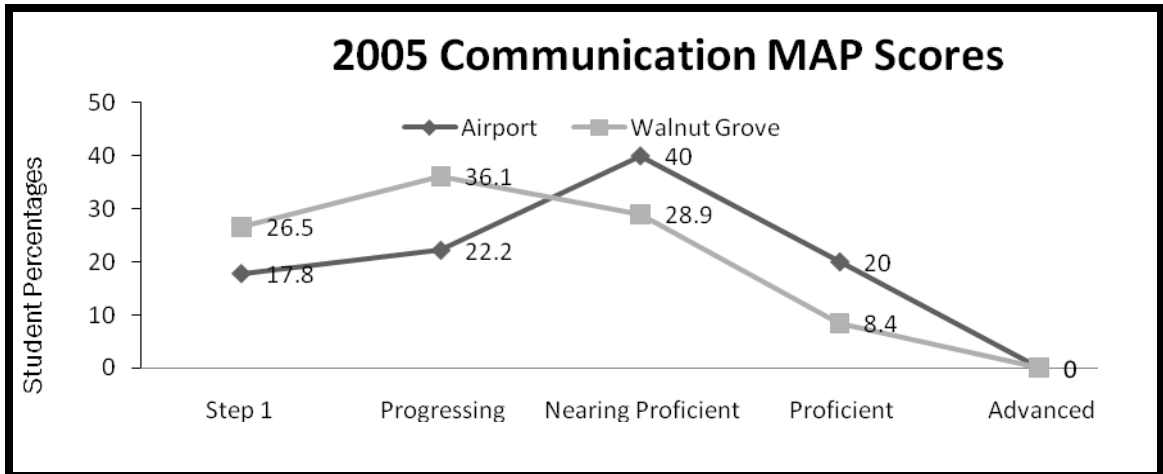


Figure 16. 2005 Communication Arts Missouri Assessment Program Scores.

In the area of science in 2005, the hypotheses are as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (4, N=129) = 3.965, p = 0.4107$$

This p-value was greater than .05, so the null hypothesis (H₀) was accepted, concluding that the alternative was false. There was not a statistically significant difference between the scores for each school calendar. The percentage of students in each level on the MAP test for both schools is shown in Table 17 and Figure 17.

Table 17

Percent of Students Scoring in Each Level on the 2005 Science Missouri Assessment Program Test

	Step 1	Progressing	Nearing Proficient	Proficient	Advanced
Airport (ESY)	15.2	26.1	43.5	15.2	0

Walnut Grove (Conventional)	15.7	27.7	38.6	14.5	3.6
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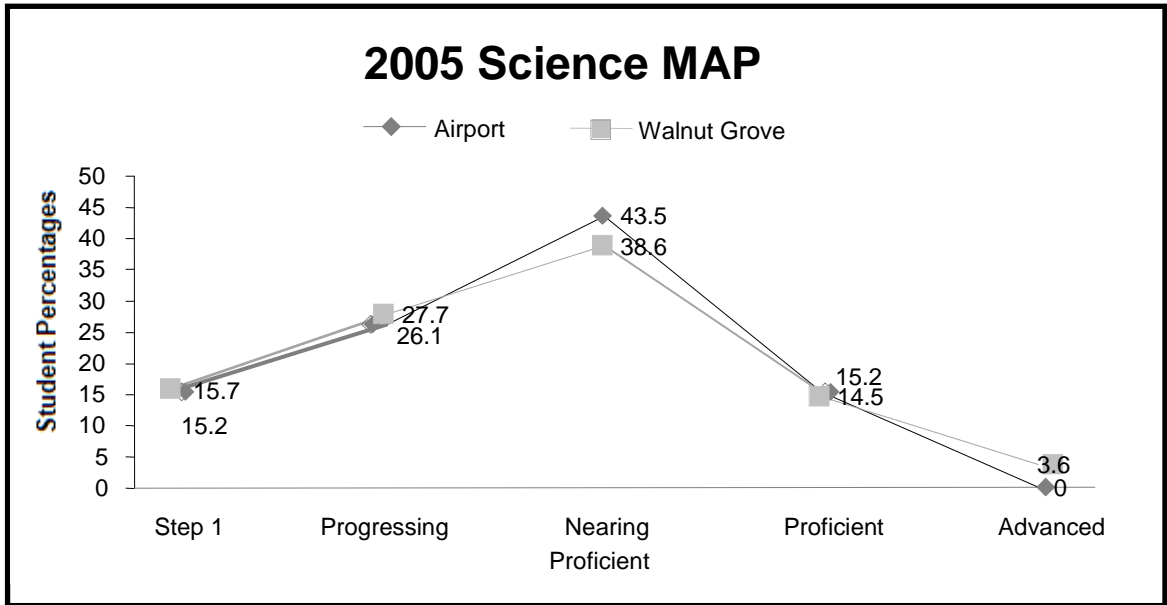


Figure 17. 2005 Science Missouri Assessment Program Scores.

2006 results. In the area of communication arts, the hypotheses were as follows:

H₀: The proportions of students in the MAP categories are independent of the type of calendar.

H₁: The proportions of students in the MAP categories are not independent of the type of calendar.

$$\chi^2 (3, N=108) = 7.316, p = 0.0624$$

This p-value was greater than .05, so the null hypothesis (H₀) was accepted, concluding that the alternative was false. There was not a statistically significant difference between the scores for each school calendar. Due to the p-value, a type II error may have occurred. In a type II error, one fails to reject the null hypothesis when it is

actually false. A type II error occurs when a false null hypothesis is accepted. The probability of a type II error is denoted by beta (β) (Coleman et al., 2000). The percentage of students in each level on the MAP test for both schools is shown in Table 18 and Figure 18.

Table 18

Percent of Students Scoring in Each Level on the 2006 Communication MAP Test

	Below Basic	Basic	Proficient	Advanced
Airport (ESY)	9.3	62.8	23.3	4.7
Walnut Grove (Conventional)	16.9	53.8	16.9	12.3

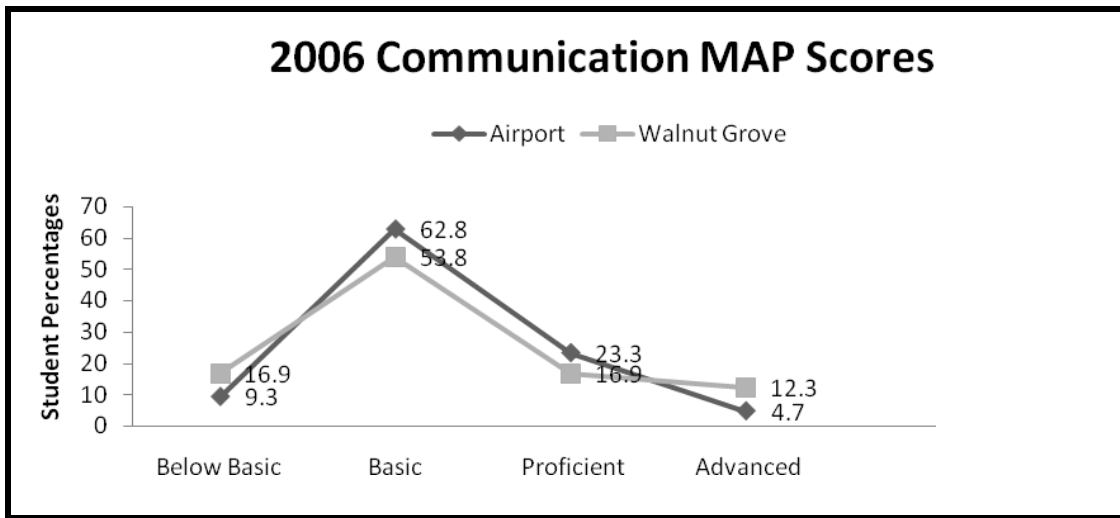


Figure 18. 2006 Communication Arts Missouri Assessment Program Scores. The MAP exam was revised in 2006 to align more with the National Assessment of Educational Progress (NAEP). All states must participate in these national tests. Missouri’s academic standards may not exceed those used in the NAEP tests (Missouri Department of Elementary and Secondary Education, 2006d).

The MAP tests for communication and mathematics were based on four achievement level categories instead of five to describe student performance. These categories—Below Basic, Basic, Proficient and Advanced—were used in the NAEP tests (Missouri Department of Elementary and Secondary Education, 2006c).

Summary

In summary, the alternate hypothesis was accepted. From 2002 to 2006, a statistically significant difference occurred in four areas between Communication Arts and Science scores of Airport (ESY) and Walnut Grove (conventional school year). The alternate hypothesis stated that there will be a significant difference between the two variables, school year calendar and MAP scores.

In 2002, students at Airport Elementary (ESY) scored significantly higher in the area of Communication Arts in the proficient and advanced levels on the MAP test. In 2002, students at Airport Elementary scored significantly higher in the area of Science in the Proficient and Advanced levels on the MAP test.

In 2003, students at Airport Elementary scored significantly higher in the area of Science in the Proficient and Advanced levels. In 2003, students at Airport Elementary scored significantly higher in the area of Communication Arts in the Proficient level on the MAP test.

In 2004, students at Airport Elementary scored significantly higher in the area of Science in the Proficient and Advanced levels. In 2004, students at Walnut Grove scored significantly higher in the area of Communication Arts in the Proficient level on the MAP test.

In 2005, students at Airport Elementary had significantly higher in the area of Communication Arts in the Proficient level. In 2005, students at Walnut Grove Elementary scored higher on the Advanced level in the area of Science; however students at Airport Elementary scored higher in the Proficient level on the MAP test.

In 2006, students at Walnut Grove Elementary scored higher in the Advanced level in the area of Communication Arts; however students at Airport Elementary scored higher in the Proficient level in the area of Communication Arts on the MAP test.

The alternate hypothesis was accepted, which stated that if students attend school on an ESY calendar, then MAP scores will be significantly higher than students in a similar elementary school who attend school on a conventional calendar.

However, it cannot be stated with certainty that adding five weeks to the school calendar significantly improves student achievement. Results of the preceding chi square tests were inconsistent.

CHAPTER V – DISCUSSION

The purpose of this study was to compare the academic achievement of third grade students in an extended year school (Airport Elementary) to that of third grade students in a conventional school year (Walnut Grove Elementary). The comparison between the two schools used data from third grade MAP scores.

The null hypothesis stated that there will be no significant difference on MAP scores between students attending school on an extended year school calendar compared to a conventional school calendar. The alternate hypothesis stated that there will be a significant difference between the two variables. The results of this study supported the alternate hypothesis and indicated a statistically significant difference between an extended school calendar and conventional school calendar on academic achievement. These results suggested there was a relationship between the two variables. Therefore, the results of this study support an ESY calendar.

Implication for Effective Schools

The results gained from this study can be used to determine which school calendar is best suited for a district's population. As evidenced by the results of the year-end MAP test, students on an extended school year calendar scored significantly higher than those attending a school with a conventional school year calendar. Extending the school year may bring academic and non-instructional benefits for students who have earlier start school dates or longer school years. Evidence suggests that “simply adding time to the schedule of any school, without having other significant elements in place, is unlikely to result in sizable improvements in student performance” (Farbman & Kaplan, 2005, p. 7). The results obtained are specific to Airport Elementary and Walnut Grove

Elementary schools. In addition, only to the extent that variables are similar, may these results apply.

Recommendations

Using information gained from this study, extending the school year had an effect on student academic achievement. Moreover, the following areas are worthy of further research.

The first area worthy of further research is to study assessment results used by other school districts with similar demographics. At the state level, NCLB mandated accountability for academic progress by the administration of tests and assessments. The purpose is to monitor student progress toward 100% proficiency for all students by the year 2014. This mandate has required districts, schools, and teachers to supplement MAP tests with additional assessments to monitor student learning and ensure that students achieve on state tests. Data and assessments are essential ingredients of accountability, and accountability is an important element for raising student achievement.

In addition to data from the MAP, results from other assessment instruments, such as the Terra Nova, should be studied. The purpose of the Terra Nova is “to identify and examine areas of strength and weakness in the performance of students, to provide a basis for reports to parents and students and to inform teachers of the needs of their students” (Sandhu, 2008, ¶ 1). Similar to the MAP, test results from the Terra Nova show a “measurement of achievement for individual students relative to a current nationwide normative group and relative program effectiveness based on the results of groups of students” (Sandhu, ¶ 1). Many schools use the Terra Nova assessment in addition to

MAP. Analyzing performance data from similar districts based on Terra Nova results can help set priorities and develop an instructional focal point for improving achievement.

The use of district data to improve academic achievement can serve multiple functions. Initially, student level data must be analyzed to make school leaders aware of the academic needs of each student. This will help educators design specific interventions depending on individual needs of students. Collecting and maintaining data can serve as educational research by providing researchers and stakeholders valuable information on systematic reform, linking educational strategies and student outcomes (Rocha, 2007).

The second area worthy of further research is to study the effect of family involvement and extending learning time. In particular, “[In] areas with large numbers of low-income students, children come to school without the health, nutrition, and learning support that other children have and that make them ready to learn” (Rothman, 2000, p. 19). With extended learning time, families may have more opportunities to stay involved, such as volunteering during summer months. Family involvement in school governance could help to create a positive learning environment for students and other patrons within the school community. Recognizing and supporting families’ involvement seems imperative to student academic achievement.

In addition to promoting family involvement to help students reach high standards, schools should develop a parent/guardian advisory council that is representative of the population. The primary purpose of the advisory council would be to provide a line of communication between parents/guardians and faculty by building relationships, advocating for improved student performance, and maintaining shared decision-making. The advisory council should meet monthly throughout the academic

year in open-ended discussions involving administration, faculty, parents, guardians and students. Topics should include current academic matters, such as school improvement, curriculum planning, instruction, and leadership to support the restructured schedule.

The third area worthy of further research is to undertake community-planning efforts in order to (a) identify specific needs; (b) establish priorities; (c) set measurable goals; and (d) utilize resources to improve the quality of teaching and learning for teachers and students, especially in extended year schools. Teachers, staff, administrators, parents/guardians, and community leaders should actively participate in the dynamic ongoing processes of academic success by contributing their knowledge, insights, and thoughts to the development of extended learning programs. Their active involvement and personal commitment to learning outcomes could improve the academic achievement of students who attend an ESY. Community partnerships could provide collaborative planning and collegiality to succeed in the common purpose of raising academic achievement in an extended learning time setting.

The fourth area worthy of further research is to invest in technology and promote extended learning time with technological programs. In accordance with the National Education Commission on Time and Learning (1994/2005), technological programs “can transform learning by improving both the effectiveness of existing time and making more time available through self guided instruction, both in school and out” (p. 37). In addition to investing in technological programs,

Effective learning technologies have already demonstrated their ability to pique student interest and increase motivation, encouraging students not only to spend

more of their own time in learning but also to be more deeply involved in what they are doing. (p. 37)

In particular, to compete in the 21st century economy, educators must develop technological advances that link students' learning to academic performance. Developing this interconnection can expand students' cognitive capabilities and allow engagement in collaborative inquiry. Technological advances could help teachers to differentiate in specific content areas that support individual learning styles and to utilize extended learning time more efficiently.

Conclusion

The results of this study showed a relationship between student achievement and extending the school year. For any school district, raising student achievement is one of the most important tasks to accomplish. Specific characteristics of raising student achievement include (a) time spent on teaching and learning, (b) the expectations of teachers for the achievement of students, (c) student motivation, and (d) positive relationships between schools and members of the educational community.

The awareness for proactive approaches that may create a high quality education should foster the need for a paradigm shift on the restructure of school calendars and its relation to student academic achievement. Considering a paradigm shift from time being constant to student learning being constant could foster a community that promotes challenge and meaning. With this new perspective, educational goals are significant; however, the process of extending the school calendar is just as important.

Partners in education should strive for a vision where the process of change is never-ending. Motivating students to learn in new and different ways encourages

accountability for their learning. While there are many aspects of an extended school year, the basic characteristics described in this study are ones that elementary schools should incorporate. The findings of this research study could help schools make the right decision about the length of their school calendar.

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APPENDIX A: IRB APPROVAL

07-045

IRB Project Number

LINDENWOOD UNIVERSITY

Institutional Review Board Disposition Report

To: Vanessa vanderGraaf

CC: Dr John Daugherty and Dr Cynthia Bice

Title: Five Year Comparison Between Extended Year and Conventional School on Measures of Academic Achievement

The Institutional Review Board has reviewed the proposal for research:

Reviewed on

The Institutional Review Board:

X,XXX Approves the proposal as submitted.

Approves the proposal pending the following minor changes are made:

Please submit the revised proposal for IRB records.

Does not approve the proposal as submitted because:

Please submit a revised protocol for IRB review.

Tammi Pavelec

5/09/2007

Signature IRB Chair



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Date

(314) 458-3815(c)

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Education and Training

Ed.D., Lindenwood University; 2008

Ed.S., Thesis on The Effects of An Extended School Year on Student Achievement; Lindenwood University; 2006

M.Ed., Educational Administration; Lindenwood University; 2005

B.S., Education; University of Missouri-St. Louis; 2003

Internship: Superintendent, Assistant Superintendent for Curriculum; Ferguson-Florissant School District; 2006

Certifications

Principal Certification; K-8; State of Missouri

Teacher Certification; PreK-3; State of Missouri

Reading Recovery Advocate Certification; Southeast Missouri State

Employment Experience

Lindenwood University

St. Charles, MO

2007-Present

Assistant Professor

- Instructor of Elementary and Middle School Language Arts and Social Studies Methods
- Developed course design and curriculum for classes in Elementary and Middle School Language Arts Methods for undergraduate and graduate students
- Used a range of current instructional approaches and methods, including technology-based practices for diverse learners of language arts development
- Demonstrated knowledge of language arts and reading research related to cultural and linguistic diversity
- Modeled and shared classroom teaching behaviors and school community efforts to support the development of a literacy-rich classroom
- Provided pre-service teachers with open opportunities to closely observe language arts lessons at Airport Elementary
- Related instructional objectives to the world of the learner in terms of language acquisition

Airport Elementary School Ferguson-Florissant School District 2004 - 2008

Classroom Teacher – Second Grade (2006- 2008)

Co-Teacher in Charge – K – 6 (2006-2008)

Classroom Teacher – Third Grade (2004-2006)

- Role of Teacher-In-Charge frequently assuming administrator's duties for discipline, parent conferences, attendance data, faculty and staff concerns
- Assisted teachers on district/school benchmarks and grade-level expectations
- Organized, directed and participated in professional development programs
- Initiated Missouri Assessment Program (MAP) Breakfast Club to provide extra tutoring on MAP testing skills increasing student achievement and performance
- Developed and coordinated learning activities for before and after school program enhancing classroom experiences
- Enabled classes to achieve second place award at Queeny Park Science Fair
- Evaluated students along a developmental continuum to identify students' proficiencies and difficulties

The St. Michael's School

Clayton, MO

2000 – 2004

Language Arts Teacher – Fourth Grade

Coordinator, Adventure Club

- Created interactive learning environment to increase students' language arts skills
- Diagnosed individual levels of proficiency by prescribing appropriate activities and selective resource materials
- Developed and coordinated learning activities for after-school program enhancing classroom experiences and increasing student achievement
- Planned, coordinated extensive field trip schedule for experiential learning

Extended Professional Activities

- Member, Rockwood School District Long Range Planning Committee
- Member, International Reading Association
- Member, Missouri National Education Association (MNEA)
- Tutor, English as a Second Language; Rockwood Adult Education and Literacy Program
- Faculty Advisor, Council for Exceptional Children (CEC); Lindenwood University