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A Comparison of Selected Measures of Academic Performance and Student Behavior at Bryan Senior High School Before and After Implementation of Block Scheduling

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A COMPARISON OF SELECTED MEASURES OF ACADEMIC PERFORMANCE AND STUDENT BEHAVIOR AT BRYAN SENIOR HIGH SCHOOL BEFORE AND AFTER IMPLEMENTATION OF BLOCK SCHEDULING

by

Margaret M. Naylon

A DISSERTATION

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DISSERTATION TITLE

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Abstract

A Comparison of Selected Measures of Academic Performance and Student Behavior at Bryan Senior High School Before and After Implementation of Block Scheduling

Margaret M. Naylon, Ed. D.

University Of Nebraska, 1998

Advisor: Dr. Daniel Levine

This study examines the effects of a restructuring effort: the implementation of block scheduling in an Urban Nebraska public high school. Scheduling is a valuable resource for school improvement. Scheduling is frequently overlooked, even though it is more often the structure of an organization than the inadequacies of the people who work within it that cause the problem (Bogdan,1992). Despite research findings which indicate the traditional schedule may not be the most effective, most American schools are organized in the same pattern as they have been for the past seventy years (Carroll, 1990).

Block scheduling is a relatively new concept in the state of Nebraska. In the fall of 1994, William Jennings Bryan High School in the Omaha Public School District implemented a block schedule. Block scheduling is not in itself a change in curriculum. It is a restructuring of the amount of time spent in the classroom. This study compares data on student academic performance and student behavior three academic years before block scheduling and three academic years on the block schedule.

Statistical analyses include z-statistics, Cohen's effect size estimates, and descriptive statistics on indicators of student academic performance and student behavior.

Statistically significant changes with respect to student achievement after the adoption of the block scheduling include: the proportion of the students earning more 1s and 2s increased in the curricular areas of English, social studies, math, and science; the proportion of students earning fewer 4s and 5s decreased in curricular areas of English, social studies, math and science; cumulative GPAs improved in all grade levels and the number of students earning honor roll status improved in all grade levels.

Previous research indicates that student behavior improves on the block schedule. For the purpose of this study, student behaviors measured found little or no statistically significant differences before or after the implementation of the block .

Acknowledgments

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I would first like to extend my appreciation to my committee: My chair and advisor, Dr. Daniel Levine, Dr. Don Uerling, Dr. Marilyn Grady, and Dr. Neal Grandgenett. I sincerely appreciate the time, effort and energy they have expended on my behalf. I would be remiss in not extending a special thank-you to Dr. Gary Hartzell, Dr. Jill Russell, Mr. Robert Whitehouse, Dr. Martha Bruckner, Dr. Jo Corey, Dr. Jack McKay, and Dr. ReNae Kehrberg for their encouragement and insights.

It is the words of an unknown author that puts into perspective how my parents, Harry and Corinne Naylon raised their children. It is my belief that if it were not for the love of my parents, and brothers and sisters I would not have the insight nor direction to pursue this endeavor.

It must be borne in mind, that the tragedy in life does
not lie in not reaching your goals. The tragedy lies in
having no goals to reach.

It is not a calamity to die with dreams unfulfilled,
but it is a calamity not to dream.

It is not a disgrace not to reach for the stars,
but it is a disgrace to have no stars to reach for.
-Unknown Author

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Chapter I

Introduction

The intensive study of educational reform has essentially occurred in the last half of the twentieth century. This developing body of research offers the terms 'innovation', 'reform', and 'restructuring,' which are used loosely and inconsistently in the literature (Fullan, 1993). Within existing research, the term restructuring implies fundamental change, while innovation is usually confined to a specific, single change. This study examines the effects of a restructuring effort-- the implementation of block scheduling at one Nebraska secondary school.

Scheduling is a valuable resource for school improvement. It is frequently overlooked, even though it is more often the structure of an organization than the inadequacies of the people who work within it that cause problems (Bogdan, 1992). It is recognized that public schools face the serious problems of fewer economic resources, public dissatisfaction, deteriorating social conditions, and growing teacher stress. Well-crafted, innovative scheduling can result in more effective use of time, space and resources. A new organizational or scheduling format may result in greater efficiency, but the complexities of the school environment do not allow discrete actions to promote change. Restructuring goals must embrace improvement in the instructional climate, solutions related to the delivery of instruction, and implementation of desired programs and instructional practices.

Despite research findings that indicate the traditional schedule may not be the most

effective, most American high schools are organized in the same pattern as they have been for the past seventy years (Carroll, 1990). The high school day is generally divided into six, seven, or eight periods. Students following a traditional schedule experience class periods averaging 45 to 55 minutes in length regardless of the course (National Education Commission on Time and Learning, 1994). Although change has been slow, some school leaders are examining alternative methods of scheduling and instruction. What is important in education is not what we teach, but how students learn--for nothing will happen in education until it happens to a student.

Purpose of the Study

The implementation of block scheduling represents a restructuring of the traditional method of instruction. Block-of-time schedules are becoming increasingly common in both high schools and middle schools across the country. In a 1994 nationwide survey, Cawelti (1994) found that 39 percent of high schools had fully implemented block schedules or intended to implement such schedules. Many creative alternatives to the traditional six-to-eight period scheduling format are surfacing. The Copernican schedule with trimester macro classes (Carroll, 1990), four-block schedules (Edwards, 1993), and the eight-block alternating day schedule (Hackmann, 1995) are examples of new scheduling formats.

The type of schedule addressed in this study is referred to as the "intensive block schedule" or "block schedule." It is in place in a number of schools across the United States. Block scheduling is a relatively new concept in the state of Nebraska, but there is

growing interest and greater acceptance of intensive block scheduling since its initial implementation in three Nebraska high schools in the fall of 1994. This study examines the effects of block scheduling in one of those schools, William Jennings Bryan High School, in the Omaha Public School District.

Block scheduling is simply a change in the way classes are scheduled. The traditional period of time is replaced by a block of time. The block schedule is not in itself a change in curriculum. It is a restructuring of the amount of time spent in the classroom. Instead of the standard 45 to 55 minute classes, block scheduling institutes a unique school day consisting of four 80 to 95 minute blocks. This means that students will be enrolled in four classes, as opposed to the customary six or seven classes and a study hall. A semester's course credit, for example, can be earned in nine weeks. Permanent grades are recorded every nine weeks instead of every eighteen weeks. The school year is broken down as follows: 1st term = 1st and 2nd quarters, 2nd term = 3rd and 4th quarters. Four credits can be obtained during each quarter, eight credits each term. This block schedule allows for longer classes and eliminates study halls. Expected advantages to this schedule include:

- the use of a variety of instructional strategies to accommodate students' different learning needs and styles
- improved student climate
- decreased student load for teachers
- decreased class load for students
- less stressful environment for students and teachers
- less hurried student and teacher routine

- more time for interaction by students
- improvement of student and teacher morale
- greater opportunity for collaboration among teachers
- more opportunities for labs and class projects
- more opportunities for students to earn elective credits (Bryan Senior High School Restructuring Plan, 1994).

As building administrators and educators begin to look at introducing alternative scheduling as a means of improving learning, it is important to study and understand the issue from a variety of perspectives. A number of quantitative and qualitative studies have been undertaken regarding the effects of block scheduling. This study will build on previous research and provide a study using quantitative data from one four-year high school that has implemented the intensive block schedule.

The results of this study will provide the school community with data concerning the effect of intensive block scheduling on student academic achievement and student behavior. The data will assist educators in making decisions and formulating strategies related to alternative scheduling.

Statement of Problem

At this time we do not have a clear picture of the impact block scheduling has on students in the high school setting. The purpose of this study is to measure the impact of block scheduling on two dimensions of schooling, student academic performance and student behavior at one Nebraska high school. The study will compare and contrast relevant quantitative data for a period of time including the three academic years before and three academic years after the implementation of block scheduling at Bryan High School.

Statement of Research Questions

The central questions in this study include:

1. To what extent have changes in student academic performance occurred since the implementation of block scheduling?

2. To what extent have changes in student behavior occurred since the implementation of block scheduling?

Definition of Terms

Academic Excellence - A designation achieved by Bryan High students who maintain a cumulative grade point average of 3.50 or above throughout their high school careers.

Athletic Eligibility - The Nebraska State Activities Association sets rules and regulations for all high schools in Nebraska in order to determine eligibility. In order to be eligible to compete in athletics a student must:

1. Be passing in at least four credits.
2. Have passed at least four credits the preceding semester.
3. Have attended school since the eleventh day of the semester (exception for illness).
4. Not have attended more than six semesters in grades 10-12.
5. Not be age 19 before September 1.
6. Not have changed schools without a change of residence. (Exceptions - ninth graders entering tenth and those transferring under court-ordered racial-balance transfers.)
7. Not participate in more than one sport at a time.
8. Have a physical exam or a doctor's permit for the current school year.
9. Not compete with any other team or non-school activity in a sport during the season of that sport. The season begins with the opening date for practice.
10. Not display bad habits or improper conduct. The school prohibits theft and use or possession of illegal drugs or alcohol by athletes at any time. Coaches may make additional rules of conduct for athletes. Generally, a

violation of law, other that a minor traffic offense, results in loss of eligibility.

11. Not be on suspension. A student suspended from school is not eligible to practice for, participate in, or be present during a contest.

California Achievement Test - A standardized norm referenced test series designed to measure achievement in the basic skills commonly taught in schools throughout the nation. The subject areas measured are reading, language, and mathematics.

Co-Curricular Activities - These are school-sponsored activities meeting before and after assigned instructional time of the school day. For this study, co-curricular activities include marching band, speech, debate, student council, and National Honor Society.

Class Size - The number of students enrolled for instruction during a block of time (period of time on traditional scheduling).

Credits Earned - A student academic performance measure earned by each student for completion of a course with a grade of four (70%) or above. At Bryan Senior High each credit has a value of 1.00.

Cumulative Grade Point Average (GPA) - A student academic performance measure that averages the grade points received by a student for each class taken during the student's high school career. Cumulative GPA is determined at each grade level and a cumulative GPA of 3.5 or above must be maintained for an Academic Excellence Award.

Eight Period Day - This term refers specifically to the schedule that was followed at Bryan High, an Omaha Public High School, prior to the fall of 1994. Students attended six to seven classes each day, which were 43-44 minutes in length. Students generally sat in one

or two study halls of equal length each day. This is an example of a traditional high school schedule.

English Courses- For the purpose of this study, the following courses are included:

Honors Courses	Academic Courses
English 1-2	English 1-2
English 3-4	English 3-4
English 5-6	English 5-6
English AP	English 7-8
Psychology and Philosophy in Literature	

The following are generally considered as elective courses. Each can meet the English graduation requirement (subject to administrative approval).

Writing Skills English	English Review
Applied Communication	Creative Writing
Newspaper (Honors)	Advanced Debate and Forensic Honors

Grade Points for Class Rank - Grade Point Averages (GPA) are computed by weighted points as follows:

Grades	Points for Academic classes	Points for Honors or Advanced Placement classes
1 (100-93%)	4	5
2 (92-83%)	3	4
3 (82-76%)	2	3
4 (75-70%)	1	2
5 (69% or below)	0	0

To find GPA, divide the total attempted credits into the total points. The student with the highest GPA would be class ranked number one. Every student has a class rank.

Honor Roll - A distinction earned by a student earning a grade point average of 3.25 or higher. Honor roll is computed at the end of each quarter on both traditional and block

schedules.

In-School Suspension - A behavior redemption program outlined by the Omaha Public School's Student Code of Conduct. Students are assigned work in a closed classroom environment that minimizes distractions, keeps students in school that allows them to complete daily assignments. For the purpose of this study, the total number of student days of in-school suspension are reported by total student enrollment every year.

Intensive Block Scheduling - This schedule design offers four extended learning blocks per instructional day. Typical two-credit courses (English, algebra, biology) are completed in a single term. The intensive block schedule has no study halls.

Mathematics Courses - For the purpose of this study, math courses include the following:

Honors Courses	Academic Courses
Algebra 1-2	Algebra 1-2
Geometry 1-2	Algebra 3-4
Algebra 3-4	Career Geometry
Pre-Calculus/Trigonometry	Algebra 5
Calculus AP	Geometry 1-2
	Consumer Math 1-2 (Grade 11-12 only)
	Discovery Math
	Applied Mathematics 1-2
	Applied Mathematics 3-4

National Honor Society - Includes all tenth, eleventh, and twelfth grade students who have maintained a cumulative GPA of 3.5 or above. These students have completed an application form and accepted into the National Honor Society.

Out-of-School Suspensions - Students removed from the instructional day and school activities for violating a rule of the Omaha Public School's Student Code of Conduct. For this study out-of-school suspensions refer to students receiving penalties from one to five

school days.

Science Courses - For the purposes of this study, science courses include the following:

Required Courses
All courses offered in science department meet the graduation requirement.

Academic Courses
Nutrition Science
Environmental Science
Biology 1-2
Physical Science 1-2
Earth Science
Chemistry 1-2
Physics 1-2
Medical Biology
Chemistry 3-4
Physics 3-4
Engineering Technology 1-2

Honors Courses
Chemistry 3-4
Physics 1-2
Physics 3-4

Social Studies Courses - For the purposes of this study, social studies courses include the following:

Academic Courses
World Geography 1-2
American Government
American History 1-2
World History 1-2

Elective/Quarter Courses
Law and Juvenile Justice
Psychology
Sociology
Mexican American History
Economics
African American History

Honors Courses
World Geography 1-2
American Government
American History 1-2
World History 1-2

Student Attendance - A daily measure that identifies students who are marked absent from their first block at the beginning of each school day (period on traditional schedule).

Student Failures - Students failing one or more classes per quarter on block scheduling (or per semester on traditional scheduling).

Student Transfers - Students transferring to Bryan High from another school setting or out of Bryan High to another school setting.

Term - A term refers to two nine-week quarters, and is synonymous with semester in traditional schedules. The traditional school year consists of four nine-week quarters. Quarters one and two equal term one, and quarters three and four equal term two.

Traditional Schedule - The standard high school schedule has six to eight periods with equal minutes per period during the instructional day. A maximum of one credit per course is granted during the school term. Typically, students are assigned to a study hall setting for ten to thirty percent of their learning time.

Limitations

The data source for this study is limited to Bryan High School, a four-year secondary school operated by the Omaha Public School District in Omaha, Nebraska. This study will compare and contrast objective statistical data related to student academic performance and other student behaviors for the three academic years prior to the implementation of block scheduling at Bryan (1991-92 through 1993-94), and the three academic years after such implementation (1994-95 through 1996-97). Because of the unique sample used in the study, results may not be generalizable beyond the specific

population from which the data was drawn. This study does not control for the change of technology (computers) and other changes that have been added to Bryan Sr. High before, during and after the implementation of block scheduling. This study is also limited to retrievable data on hard copy in the building at Bryan Sr. High and retrievable data from historical files (tape) at the Omaha Public School Teacher Administrative Center.

Significance of Study

This study has significance for policy makers, building administrators, school boards, educators, and parents. As school restructuring plans are designed, the focus on student learning is a paramount consideration. Evaluating the effectiveness of an innovation assists educators in decision making. Building administrators and educators will have important data available to assist them as they continue to refine the components of alternative scheduling. This study provides statistical data related to the effect of block scheduling on two key parameters, student behavior, and academic performance. Beyond these audiences, educational researchers will be interested in the findings of this study.

Chapter II

Review of Literature

Focus of Review

This review of literature provides a historical backdrop in connection with the emergence of block scheduling. The review also describes the traditional high school schedule and identifies some of the problems associated, many laid the foundation for educational reform, including block scheduling. Last, this section discusses the general goals sought by reformers in introducing alternative scheduling and also identifies problems associated with block scheduling. The review of literature also focuses specifically on research that examines what impact, if any, block scheduling may have on student academic and non-academic performance. The chapter closes with a summary drawn from the literature and related to the research questions posed by this study.

Historical Perspective

The Power of Tradition

For more than a century, from Maine to Hawaii, most American high school students have attended five to seven classes each day where they are instructed by the lecture/discussion method for 40 to 50 minute periods. The school day, in what is now known as the traditional schedule, lasts from six to seven hours, and the school year hovers around 180 days throughout the nation. No matter how complex or simple the school subject - literature, shop, physics, gym, or algebra - and no matter how well or how poorly students comprehend the material, the schedule assigns each an impartial national average of 51

minutes per class period.

A 1994 report on schooling by the National Educational Commission on Time and Learning entitled Prisoners of Time, states that we have built our educational system on a "foundation of sand" based on the following myths:

> All students arrive at school ready to learn in the same way, on the same schedule. Academic time can be used for non- academic activities with no ill effect on learning. Since the traditional schedule was good enough for us, its good enough for our children, despite monumental changes in society. Schools can be reformed without giving teachers the time that it takes to change their own methods and habits. It is reasonable to expect "world class" performance from our children within the system that is already failing them (P. 8).

Concerns with Time

Chief among the report's recommendations was that learning time in the school day should be doubled. Anderson and Walberg (1993) found that increasing learning time has an effect comparable to the effect of superior rather than mediocre instruction. However, increasing school time could be wasteful, as Karweit (1985) showed in a study indicating that students spend a mere 38 percent of the school day engaged in academic work. This means that in a typical six-hour day, students are involved in academic learning for approximately 2.3 hours. It is impossible to double learning to 4.6 hours, Anderson and Walberg (1993) argue, without lengthening the school day or year.

Although absences, tardiness, and inattention are often beyond the teacher's control, the impact of interruptions, distractions, and non-academic activities can be managed. Seiffert and Beck (1984) found an average of only 28 minutes out of a 55-minute class period is spent engaged in instructional activities. This accounted for only

54.2 percent of the allotted time. Better instruction can also increase productive learning time.

There is evidence that approximately one-sixth of the time allocated to academic instruction is spent on non-instructional activities such as intercom announcements, attendance checks, tardy students, distributing and collecting papers, and student disputes. Additionally, in science classes, students lose instructional minutes setting up lab equipment or cleaning up at the end of the period. The range of allocated time actually spent on instruction varied from 7 to 24 percent (Anderson, Ryan, and Shapiro 1989) . Six or seven passing periods of from three to five minutes consume from 18 to 35 minutes of each school day (Canady and Rettig, 1995).

Ineffective use of instructional time is not the only identified problem. The traditional schedule also determines the use of space in our schools, the grouping of students, and the role of staff members in the educational process, all of which have remained stagnant through the decades (Kruse and Kruse 1995) .

In spite of the lack of attention given as to how time is actually spent, nearly all state graduation requirements are based on seat time. This is calculated in Carnegie units, each unit representing one credit for completion of a one-year course meeting daily (National Education Commission on Time and Learning, 1994).

The Carnegie Unit Question

The Carnegie unit system has a very long history in the American system of education. It is a creation of an 1892 commission that virtually chiseled the traditional

system of secondary education into stone, (Carroll, 1990). Other than a brief flirtation with modular scheduling in the 1960s and 1970s, the education community did not give serious consideration to altering the traditional school day until the 1983 publication of A Nation at Risk. This report, along with lower college entrance exam scores and poor performance by U.S. students in comparison to European and Asian students on standardized tests in science and math, provided impetus to the school reform movement. No longer were the traditional school day and year beyond reproach.

The Emergence of Block Scheduling

Even before A Nation at Risk was published, some educators were beginning to explore alternatives. In the early 1970s, Joseph Carroll, a school superintendent in Los Alamos, New Mexico, observed excellent results from a nonremedial summer school program in which classes met for four hours, five days per week for six weeks. Students were able to complete the course with 20 percent fewer hours than in the regular school year using the same standards. As a bonus, teachers reported an exceptionally good rapport with the summer students.

As superintendent of the Masconomet, Massachusetts Regional School District in the 1980s, Carroll responded to staff reductions due to budget cuts by introducing the Copernican Plan based on what he had witnessed in the summer program a decade earlier (Carroll, 1994). This plan was aptly named for Nicolaus Copernicus, a sixteenth century astronomer whose ideas met great resistance from the academic establishment of the time. The Copernican Plan assailed the Carnegie unit incorporating intensive instructional

periods (90 minutes, two hours, or four hours) and introduced an altered calendar (30, 45, 60 or 90 day terms). Enactment of the plan would, according to Carroll, allow for a reduction in class size of 20 percent.

Publication of the Copernican Plan helped spawn a scheduling reform movement that generated a variety of plans incorporating all or some of the changes to the school day and year advocated by Carroll. By 1994, Cawelti found that 39 percent of high schools nationwide had implemented or were intending to implement some form of block scheduling where time is divided into longer, more intensive periods.

The Issue of Block Scheduling

The Promise of Block Scheduling

Although a number of alternative schedule formats have been developed, there is some consistency with respect to the reformers' objectives. Canady and Rettig (1995) identified a number of goals of the burgeoning high school scheduling reform movement:

- Reduce the number of class changes and movements that large groups of students are required to complete during one school day.
- Reduce the duplication and inefficiency reportedly documented in many high schools using daily single-period high school schedules.
- Reduce the number of students for and with whom teachers must prepare and interact each day and/or each term.
- Reduce the number of classes, and the accompanying assignments, tests and projects that students must address during any one day or term.
- Reduce the fragmentation inherent in single-period schedules, a complaint that is especially pertinent to classes requiring extensive practice and laboratory work.

- Provide teachers with blocks of teaching time that allow and encourage the use of active teaching strategies and greater student involvement.

- Allow students variable amounts of time and learning, without lowering standards, and without punishing those who need more or less time to learn.

The Intensive Block Schedule: The Focus of This Study

The schedule that this study examines is known as the intensive block. Under this plan, each school day is divided into four block periods approximately 85 to 100 minutes long. The school year remains divided into two terms of approximately 90 days each. Students enroll in four new courses each term, offering them the opportunity for eight credits per year. Teachers are required to teach for three of the four periods per day (James, 1995).

As block scheduling emerged and gained acceptance, the literature began to identify potential positive impact. Canady and Rettig (1993) described the following advantages to this type of block scheduling:

- It can facilitate variety in educational approaches. Teachers no longer should be allowed to rely solely on lecture/discussion method of instruction.

- Students see fewer teachers, and teachers work with fewer students at one time. Students are no longer responsible to five or six bosses each day. They need not uproot themselves to change rooms and desks every forty to fifty minutes. Teachers are required to manage only 60 to 80 students a term, instead of the 120 to 160 under the traditional schedule.

- Discipline problems may be reduced. Fewer class changes mean less time with the entire student body floating through halls.

- Instructional time is increased. Three class changes of four to five minutes each are eliminated every day, adding a total of between 12 and 15 minutes of instructional time. But even more time is saved by eliminating time-consuming administrative business, roll, tardies, passing out and picking up

student work, conducted at the beginning and ending of each period, and the setup and cleanup time for science labs, fine arts classes, home economics, and technology classes.

- Teachers have fewer classes for which to prepare each day. Teachers should be expected to teach no more than three classes.

- Students have fewer home work assignments to concentrate on in any one evening.

- Possibilities for acceleration are provided during the regular school year. Students can take two years of math or English in one school year.

If utilized properly, the block schedule format theoretically allows for flexibility to adjust to individual students' needs. Under an Intensive Block Schedule, students taking four classes per term can complete all foundation classes in the first two years, leaving them two years to devote to a concentrated area of study (Edwards, 1995). Those students who are unable to master the core curriculum in two years still have their junior and senior years to do so. Students can repeat a failed course in the same year and not delay progress toward graduation, with the net effect being an increased graduation rate.

According to Furman (1995), the opportunity for students under a block schedule to assume more responsibility for their learning impels them to behave more maturely. Students are no longer forced to sit through study halls since they would determine their own study times. Furman describes the process as the "dejuvenilization" of the high school. A block schedule also provides more flexibility for students wishing to take university classes or participate in high school work release programs (Gerking, 1995).

Criticisms of Block Scheduling

Of course the block schedule is not a panacea for all our educational ills. Kruse and Kruse (1995) cite criticisms that the block schedule, like the traditional schedule, adheres to the Carnegie Standard by allowing that a specific amount of time still corresponds to successful educational achievement. Innovative scheduling alone does not necessarily alter the traditional lecture/discussion method of teaching, a method that has been shown to be less effective when used by itself than when used with a combination of other teaching methods. Instead, there is a danger that we will simply be feeding students the same diet, only in more concentrated form and with less study supervision.

Since block scheduling impacts every facet of the educational environment, its implementation requires adaptations in other traditional processes, sometimes to the point of requiring waivers from state mandates (Frost, 1993). Examples of such special waiver requirements from the State Departments of Public Education have included:

1. End of course testing. End of year tests were rescheduled to accommodate the block schedule.
2. Course credit. Courses under Asheboro's block plan offered only 135 in-seat hours compared to the 150 hour requirement by the state.
3. Athletic Eligibility. The standard requirement for student athletes is to pass five courses per term (Frost, 1993).

Apart from policy issues, teachers have raised a number of concerns related to block scheduling, including the need for more planning time, more resources needed for varying instruction, and greater preparations for a substitute (Buchman, King, and Ryan 1995).

Teachers' concerns often vary with their curricular areas. According to Jones (1995), because of the sequential nature of their curriculum, foreign language and math teachers are particularly concerned about retention. What would be the effect on students who took first year Spanish their first semester, and did not sign up for second year until the second semester of their sophomore year? Music teachers fear college-bound students will forego band, rather than sign up for enough blocks to accommodate the necessary daily sessions. Advanced Placement teachers worry that students taking first-term classes will have difficulty preparing for the exams which are administered in May.

Among the questions asked by teachers at Lakeside High in Nine Mile Falls, Washington, before they adopted a block schedule were:

1. Do we know if teaching effectiveness will change with a schedule change?
2. Do most students have a two-hour block attention span?
3. What will we do with transfer students from schools with a traditional schedule? Will they lose out on a whole semester's worth of credits? (Clauson, 1994).

Obviously, no scheduling system will be problem free. However, teachers and administrators will be more willing to address problems if they know that block scheduling can result in real improvements in student performance.

The Research on Block Scheduling Related to Student Performance

Because the introduction of block scheduling represents a restructuring of schools, it is important to know whether such a major change is expected to result in identifiable improvements in the educational process. Early alternative scheduling literature focused primarily on the planning and implementation process. More recent research examines the

effect of block scheduling on student academic performance and non-academic behavior.

Student Academic Performance

A number of recent studies have demonstrated positive outcomes related to student academic performance following implementation of block schedule formats. Other researchers indicate positive outcomes, but qualify their results to some extent.

An evaluation team from Harvard studied seven schools that adopted Copernican schedules, and found increased academic mastery at a median rate of 18 percent (Carroll, 1995). Hackman (1995) also found that the number of Center Middle School students failing at least one course declined, and that the number of students making honor roll increased, although neither was statistically significant.

Cawelti (1997) examined the effect of alternative scheduling in ten high schools and found the majority of the schools saw signs of progress related to academic performance. None had any significant decline in achievement. Significantly, Cawelti found that the high schools furthest along in their restructuring activities showed the most substantial gains in student achievement data and national standardized test results.

Hart (1994) examined student behavior in a suburban Philadelphia high school one year after the implementation of block scheduling. Hart's study demonstrated that after the implementation of intensive scheduling, the number of students making the honor roll increased significantly. Additionally, the number of student receiving grades of "D" and "F" decreased significantly.

At Orange County High School in Virginia, educators have compiled data that suggests positive effects resulting from their shift to an intensive block schedule . Students have, on the average, completed 18 percent more English classes, 43 percent more math, 10 percent more social studies, 11 percent more science, and 30 percent more foreign language courses. In the two years since they instituted the new schedule, the percentage of A grades has increased from 21 percent of all grades given to 32 percent (Edwards, 1995). Over the same reporting period, they also report a 3 percent increase in the number of failures, which Edwards attributes to a change in reporting procedures and to the elimination of basic level courses.

To combat difficulties other districts have encountered with integrating advanced placement courses into an intensive block schedule, Orange County advanced placement classes cover the entire year and offer students two credits. The number of students taking advanced placement exams rose from 30 to 50 in one year, with 63 percent of the students passing the exams with a score of 3 (letter grade of C) or better (Edwards, 1995).

In a study examining student performance at Wasson High School in Colorado Springs, the percentage of students on the honor roll jumped from 20.8 to 26.5. While 31 percent of the student body failed at least one class during the last year of traditional scheduling at Wasson, only 22 percent failed a course in the first year of block, and over the first five years of the new schedule that percentage hovered around 25 percent. Enrollment of seniors in a four-year college or university rose from 40.4 percent to 50.4

percent over that time period. There was no significant change in ACT scores for college bound students (Schoenstein, 1995).

Schoenstein (1995) noted that many of the concerns raised by other researchers relating to course sequencing and academic performance had been successfully addressed at Wasson. Sequential courses such as math or foreign languages could be completed in two-year blocks. If a gap was perceived to be a problem for retention of knowledge and skills, administrators at Wasson simply avoided scheduling a gap. Advanced placement classes were scheduled for three nine-week terms during which the students earned two credits.

Miles and Blocher (1996) examined block scheduling in four states--including Kentucky, Indiana, Michigan, and Wisconsin--and focused specifically on music instruction. Their study was wide-ranging and looked at over 150 high schools that had implemented a variety of different types of block scheduling. In three of the four states examined, schools reported the performance level of a majority of their music students either increased or remained constant after the implementation of block scheduling. Wisconsin schools indicated the overall student performance levels declined, although the researchers did not identify a rationale for these results.

In a study of the schools of Lincoln County, North Carolina, Queen, Algozzine and Eaddy (1996) found that the scores of Lincoln County students on a statewide social studies achievement exam increased in the two years following the introduction of an intensive block, while in that same time frame scores for the state declined significantly.

A study on the perceptions of teachers, teaching on a block schedule at Seward High School, Seward, Nebraska, revealed that teaching was teaching, whatever the amount of time in the class period. It may or may not make a difference whether class periods are forty-eight minutes or ninety minutes. It does make a difference whether effective, meaningful learning occurs during that time Fritz (1996). A similar study at the same school was conducted on student perceptions. Lyon (1996) found students shared some of the same common thoughts about block scheduling as their teachers did. Both teachers and students agreed that the schedule allows for more focus, a more relaxed environment, the notion of physical movement, and the need for variations in the use of time. Although both of these studies took place in one school setting, Fritz and Lyon agree a good portion of the literature also refers to these types of phenomena, usually listed as advantages, that occur as a result of block scheduling.

Other studies have indicated either no effect on academic performance or a negative effect. Bateson (1990) found that 10th grade students in British Columbia who took a science course over a years' time scored higher in cognitive tests then students who took the same course in term under a block schedule. Meadows (1995) found no improvement in scores on summative math and English finals at four high schools in Frederick County, Maryland, after the schools adopted intensive block schedules in the early 1990s. She reported no significant change in the percentage of students who received 80 percent or higher on the exams after implementation of an intensive block.

Averett (1994) examined scores on algebra and geometry achievement tests at

twenty-one North Carolina high schools that had introduced block schedules in the 1993-94 school year. She compared the examination results at the end of the first year under the intensive blocks with those from the previous year under traditional schedules, and found that there had been no significant change in mean scores. However, the new schedules had provided for only 135 hours of mathematics instruction versus 150 to 165 hours under the traditional schedules, so the parity of scores could be considered auspicious for alternative-scheduling advocates. Marshall, Taylor, Bateson, and Bridgen (1995) examined results of British Columbia's 1995 Mathematics and Science Assessment for tenth grade students. Students who were enrolled in a traditional schedule significantly out-scored those in semester-block and in quarter-block schedules.

However, Kramer (1996) points out that the British Columbia exam was administered in May. Students enrolled in the current block had completed less course work than their counterparts in traditional classes, while block students who had completed the course in earlier terms might have forgotten material due to the time gap before testing. According to Kramer, a second limitation of the Marshall, Taylor, Bateson, and Bridget (1995) study was the influence of a possible volunteer effect whereby schools that elect to undergo a change of schedule may be affected by other variables that have caused them to seek the change. Kramer (1996) suggests that there is evidence that indicates math performance under block schedule may initially drop and then improve. Kramer reports further research should be structured to examine this issue.

Raphael, Wahlstrom and Mcclean (1986) used data from the Second International

Mathematics Study and the Second International Science Study to compare the achievement of traditional and block students in Ontario. They found that traditional students significantly out-performed the block students in biology, physics, chemistry, and math, but again the timing of the test likely favored the traditional students. In addition, according to Kramer (1997), there is evidence to suggest that lower-ability students were more likely to be enrolled in the block classes than in the traditional classes further degrading the validity of the study.

Stennet (1985) investigated grade nine basic math achievement in Ontario and discovered no significant difference between traditional and block students. After undergoing the change to a block schedule, teachers at Boyd Anderson High School in Broward County, Florida, observed a slight increase in scores on international baccalaureate exams. But a comparison of SAT and ACT scores, and advanced placement exam results showed no significant difference between academic performance under the traditional schedule and the block schedule (Geismar and Pullease 1996).

Student Non-academic Behavior

Recent research has also examined whether block scheduling has impacted the non-academic behavior of students. Although the literature to date is limited, the majority of results have been positive.

The Harvard study that compiled results from seven schools following block scheduling implementation found:

1. Improved attendance in four of seven schools.
2. Four of five schools that could provide data showed reductions

of between 25 and 75 percent in rates of suspension.
3. Six of seven schools reported reductions in drop out rates from 17 to 63 percent (Carroll, 1995).

Schoenstein (1995) found that, following the implementation of a block schedule, disciplinary problems at Wasson High in Colorado Springs declined significantly. He noted fewer fights and less vandalism resulting from the slower pace.

To counter a declining building climate, Center Middle School of Kansas City, Missouri, changed to a block schedule in the fall of 1992. Hackman (1995) compared data from the 1991-2 and 1992-3 school years, and found evidence supporting informal observations and interviews with teachers and students that suggested an improved building atmosphere. These improvements include: office disciplinary referrals decreased by 57.9 percent; in-school suspensions decreased by 60.1 percent; and out-of-school suspensions decreased by 62 percent. In addition, the average daily attendance at Center Middle School increased from 92.1 percent to 94.0 percent.

The study of a suburban high school in the Philadelphia area conducted by Hart (1994) one year after the implementation of intensive block scheduling examined student behavior as well as academic achievement. Hart examined the number of disciplinary referrals, the number of warnings to the office, and the drop-out rate both before and after the restructuring. In each case, results were generally positive and indicated improvements, but Hart's results in this area were not statistically significant. Hart concludes that additional studies that examine results over several years would be helpful.

Summary

With the decline of public confidence in the American system of education during the 1980s, the effectiveness of the traditional high school schedule, which had remained sacrosanct for nine decades, was finally brought into question. Research shows that the traditional day wastes huge amounts of academic time and hampers efforts to steer teachers toward methods proven more effective than the traditional lecture/discussion.

In the late 1980s and early 1990s educational reformers introduced a variety of plans involving a restructuring of the school day into four class periods, or blocks, of 85 to 100 minutes each. With fewer classes per day, passing periods and start up and wind down time would be reduced, freeing up valuable instructional minutes. The longer periods created by this block scheduling enable teachers to engage in more creative classroom activities.

This literature review indicates that improvements in student behavior and academic behavior have been associated with the introduction of block scheduling. However, results are inconsistent and much of the literature focuses on implementation rather than long-term results. More information is needed, especially with regard to academic and social impact on students. This study is important because it will provide additional student-based data. It looks beyond the implementation stage and focuses in depth on statistical data at one urban high school both before and after block scheduling was implemented.

Chapter III

Research Methodology

The purpose of this study is to investigate whether, and to what extent, the implementation of block scheduling at one senior high school impacted student academic performance, and other non-academic student behavior. Chapter three includes descriptions of the study's content and rationale, sample populations, instrumentation, data collection, data analysis, and a summary of procedures used to produce the findings reported in chapter four.

Context for the Evaluation

School restructuring is a recent and recognized trend. The literature offers a number of potential educational advantages stemming from this school reform movement. This study addresses whether restructuring the school day is related to academic performance and other non-academic behavior of students including attendance, discipline problems, and participation in extracurricular activities. The specific restructuring model examined is intensive block scheduling.

The use of intensive block scheduling was nonexistent in secondary schools in the State of Nebraska until the fall of 1994. At that time, three high schools (Omaha Bryan Senior High, Seward High School, and North Platte High School) implemented intensive block schedules after several years of study by administrators and staff members in those districts. Since the successful implementation of intensive block scheduling in these three

Nebraska high schools, interest in non-traditional scheduling has increased. This study provides an in-depth quantitative case study comparing selected data before and after the implementation of block scheduling at Bryan Senior High School.

Description of the Population

The study population was limited to Bryan Senior High School, a four-year comprehensive high school offering both academic and vocational courses, in the Omaha Public School District in Omaha, Nebraska. At the time of this study and currently, Bryan High served slightly less than 1,280 students enrolled in grades 9 through 12.

Bryan draws the majority of its student population from one junior high school which, in turn, draws students from three elementary schools. In order to maintain a representative student population reflecting the demographics of the City of Omaha, the Omaha Public School District transports students from diverse ethnic backgrounds to Bryan from throughout the city based on a district-level open enrollment policy designed to foster racial desegregation. According to a document developed by Bryan faculty, "The student body (attending Bryan) is a microcosm of the national population of middle income wage earners and reflects the entire range of socio-economic status and demographics of Omaha."

Approximately 30 percent of the Bryan student population are from minority ethnic backgrounds. African-American students represent the largest portion of that 30 percent and make up approximately 16 percent of the total Bryan student population. During a recent school year, 34 percent of the student population participated in free or

reduced-price lunch programs, 47 percent of the student population was female and 53 percent male, 6 percent of the student population was enrolled in special education programs, and 2 percent of the student population was enrolled in English as a second language. Bryan employs 72 full-time certified instructional staff members, five guidance counselors, four administrators, three security guards, one nurse, one librarian, two curriculum specialists, two department heads, nine para professionals, seven secretaries, day and night custodial staff, and full food service staff.

It is important to note that over the six years examined in this research project, the curriculum offerings for English, social studies, math, and science at Bryan Sr. High had few major changes, although there were some additions and deletions of course offerings. The English department added one course (journalism experience in 94-95) and eliminated one course (creative writing in 94-95) due to low enrollments. The science department eliminated three courses due to low enrollments (biology fundamentals and physical science fundamentals in 94-95, and environmental science in 93-94). The mathematics department eliminated pre-algebra in 92-93 which was replaced by applied math 1-2 and applied math 3-4. However, the social studies department curriculum remained constant and unchanged from 1991-1997.

The staff at Bryan Sr. High experienced few instructor changes in the school years 1991-1997. Due to the retirement of one male English instructor in 1992-1993, a first year female English instructor replaced him. In 1994-95 one female math instructor was added and in 1995-96 a first year male English instructor was added. The above staff

changes reflect the Bryan Sr. High English, social studies, math, and science departments only.

Bryan High staff initiated the restructuring activities that are the subject of this study during the 1994-95 academic year after a three-year planning process. Prior to the implementation of the block schedule, Bryan staff operated with traditional year-long courses and an eight period day, with each period lasting 43 to 45 minutes. On the traditional schedule students generally attended six to seven classes per day and were assigned one to two study halls per day. Passing periods, four minutes in length, totaled 28 minutes per day. The length of the traditional school day remains constant on both schedules. The school day begins at 7:45 a.m. and ends at 2:50 p.m. Both schedules offer a 30-minute lunch period for both students and staff.

Bryan administration currently schedules four 88-minute classes per day and operates courses on a quarter basis. What previously was a year-long course now is completed in one term (a semester). On the block schedule at Bryan High, students in grades 9-11 are required to take four classes per term and have an opportunity to earn 16 credits per year. The block schedule at Bryan High has no study halls. Seniors are allowed a late start (starting the school day after first block ends) or an early out (leaving the building after third block ends). Passing periods on the block range from 4 to 10 minutes, totaling 30 minutes per day.

Graduation requires a total of 45 credits, which remained constant on both schedules. A Bryan High student is required to complete seven terms (3 ½ years) before a

senior can request to be a January graduate.

One issue unique to the class of 1998 is that after three years on the block schedule, over 53 percent of these students will have obtained 40-48 credits at the end of their junior year. The design of the schedule splits the required academic and elective courses. For example, a freshman would not be able to take math and science during the same term nor would he/she be able to take English and social studies during the same term. This trend continues through a student's high school career. Counselors are allowed the flexibility to (hand) schedule students as necessary to accommodate special scheduling needs.

Research Questions and Instrumentation

This study was designed to identify some of the effects of implementation of block scheduling at Bryan High School on student academic and non-academic performance. A comparative analysis of selected measurements both before and after the implementation of block scheduling at Bryan was conducted. The comparative analysis was done to help answer the following research questions:

1. To what extent have changes in student academic performance occurred since the implementation of block scheduling?
2. To what extent have changes in student behavior occurred since the implementation of block scheduling?

The review of literature indicates that improvements in academic performance and student behavior may be achieved through the implementation of block scheduling. This study was conducted in order to test previous research and to generate additional insights.

To address the research questions, comparative data on selected criteria from Bryan High School for the three academic years prior to the implementation of block scheduling--1991-92, 1992-93, and 1993-94 was compiled as a baseline. These data were compared and contrasted with data on the same selected criteria for the 1994-95, 1995-96, and 1996-97 academic years, after block scheduling was implemented.

Certain selected measurements relevant to each research question were obtained for the study. In each case data were available from records tabulated and maintained at the Omaha Public School's Teacher Administrative Center or Bryan Senior High (for other purposes). In the case of the first research question, regarding changes in student academic performance, seven variables were selected for comparison:

1. Student Grade Distributions
    a. English
    b. Social Studies
    c. Mathematics
    d. Science
2. Cumulative Grade Point Averages by grade levels 9-12.
3. Number of Academic Excellence Students by grade levels 9-12.
4. Number of students achieving honor roll status by grade levels 9-12.
5. Number of National Honor Society Students
6. Number of seniors receiving scholarships
7. California Achievement Test Scores

The variables collected and compared in connection with the second research question regarding changes in student non-academic behavior after the implementation of

block scheduling were:

1. Suspension rate out-of-school.
2. Student transfer rate.
3. Suspension rate in-school.
4. Student attendance rate.
5. Student tardies to school.
6. Participation rate in co-curricular activities.
7. Participation rate in athletics.

Data Collection

Data were collected from historical records located in the Omaha Public School's Teacher Administrative Center or Bryan Sr. High after central administrative approval was received from the Omaha Public School District. Data were gathered and reported in two possible forms: 1) grade level by semester or term end, 2) one score reported per year by school (for example CAT scores, out-of-school suspensions and number of National Honor Society Students. The data collected for this study span the time period from January 1992 (end of the first semester on traditional) to June 5, 1997 (end of second term block schedule).

Data Analysis

The basic analysis compares measures that describes conditions before block scheduling with the same measures describing conditions after block scheduling. Before and after proportions are compared using z- tests to determine whether differences are

statistically significant. For example, is there a difference between the proportions of students suspended before the implementation of block schedule and after? Effect size is also calculated and compared to conventional standards for effect size indices.

Summary of Methods

The purpose of the study was to investigate the effect of block scheduling on student academic performance and student non-academic behavior over six academic years at one urban Nebraska high school.

Chapter IV

Presentation and Analysis of Data

A. OVERVIEW

This study was designed to determine the impact of block scheduling on students' academic performance and behavior in one high school setting. The study compares and contrasts relevant data for three academic years (fall 1991-spring 1994) before and three academic years (fall 1994-spring 1997) after the implementation of block scheduling at Bryan High School, a public school in Omaha, Nebraska.

This study posed two research questions:

1. To what extent have changes in academic performance occurred since the implementation of block scheduling?

2. To what extent have changes in student behavior occurred since the implementation of block scheduling?

The two parts of this chapter reflect the design of the study. Results and discussion are first presented for the identification and analysis of changes in student academics. The next section examines changes in student behaviors.

B. PROCEDURES AND FINDINGS RELATED TO ACADEMIC PERFORMANCE

The documents and records of Omaha Bryan Sr. High were utilized to determine if students have academically performed differently following the adoption of an intensive block scheduling model. Seven indicators of student achievement measures were chosen; these indicators together were used to test the hypothesis that after the reallocation of time in an intensive block schedule format by Bryan Sr. High School a change would be observed in student achievement.

The time periods used for comparison were the: 1991-1992, 1992-1993, and 1993-1994 school years, in which a traditional scheduling model was used, and the 1994-1995, 1995-1996, and 1996-1997 school years, in which block scheduling was adopted. Data were collected for grades 9, 10, 11, and 12, academic performance was measured by the number of grades "1" and "2" earned and the number of grades "4" and "5" earned in English , social studies, mathematics courses, and science courses. In addition, data were collected regarding the number of students who earned cumulative grade point averages of 5.0 - 3.0 and 1.9 and below, the number of students achieving Academic Excellence, the number of honor roll students, the number of National Honor Society students, seniors receiving scholarships, and California Achievement scores.

Bryan Sr. High school official enrollment figures collected in late September of each school year were used. These figures are reported to the Nebraska Department of

Education. For the purpose of this study the official enrollment reported to the state at the start of each school year was used.

The enrollments for pre-block were as follows:

1991-1992	1,152
1992-1993	1,188
1993-1994	1,151

The enrollments for post-block were as follows:

1994-95	1,192
1995-96	1,251
1996-97	1,310

Student Grade Distributions

Over the course of this study student enrollment increased slightly, with enrollment beginning at 1,198 and concluding at 1,310. In the information and tables to follow, a comparison for final course marks in curriculum areas of English, social studies, mathematics and science will be discussed for school years 1992-94 (traditional schedule) and 1995-97 (block scheduling). Each of the reported course marks reflect two final grades for each student completing both semesters traditional schedule and two quarters on block schedule. Final course marks may also include a student earning one final grade due to a semester course or a quarter course on block schedule. Courses that are included in this study are identified in the definition of terms.

For the purpose of this study course marks are compiled as frequency counts. These counts in turn are broken down by school year and frequency count of grades 1s

(A), 2s (B), 4s (D) and 5s (F). The middle grade of 3s (C) were not be included in this study for the subject areas of English, mathematics, social studies, and science. The grade of 3 (C) was not used in this study because the analysis was not expected to provided additional information.

Table 1 presents a data comparison of the number of "1s" and "2s" and the number of "4s" and "5s" marks earned by all Bryan Sr. High students as a final course grade in English courses between school years 1992-94 and 1995-97, respectively, for all grade levels (9 through 12 reported on a cumulative basis). A total of 6,643 English course marks were earned by students in grades 9-12 in school years 1992-94. A total of 6,917 English course marks were earned by students in grades 9-12 in school years 1995-97. A total of 2,516 (37.8%) of final grades of "1s" and "2s" were earned as English course marks by students in school years 1992-94 as compared to 2,876 (41.5%) as final course marks in school years 1995-97. The results indicate a noticeable difference in proportion, with more students earning "1s" and "2s" on the block schedule.

A total of 2,342 (35.2%) final grades of "4s" and "5s" were earned as English course marks by students in school years 1992-94 as compared to 2,876 (33.2%) as final course marks in school years 1995-97. The results indicate a noticeable difference in proportion, with fewer students earning "4s" and "5s" on the block schedule.

TABLE 1.

Grades "1" - "2" and "4" - "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in English courses pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of final grade of "1" and "2"	866 (37.3%)	861 (37.5%)	789 (39.5%)	2,516 (37.8%)	909 (40.4%)	955 (43.2%)	1,012 (41.3%)	2,876 (41.5%)
Total number of final grade of "4" and "5"	808 (34.8%)	849 (37%)	685 (33.8%)	2,342 (35.2%)	735 (32.7%)	738 (33.3%)	830 (33.8%)	2,876 (33.2%)
Total number of final grades	2,321	2,300	2,022	6,643	2,250	2,221	2,456	6,917

Table 2 summarizes the observed changes in English grades for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of students earning "1s" and "2s"as a final grade in English scores in school years 1995-97 was statistically significant at the .01 level. The observed decrease in the number of students earning "4s" and "5s"as a final grade in English scores in school years 1995-97 was also statistically significant at the .01 level. Table 2 also shows the effect size estimates for the differences in proportions using criteria shown at the bottom of the table. As shown in the table, these estimates indicated that the differences in proportions were small.

TABLE 2.

Proportional Z test and effect size of grades of grades "1" - "2" and "4" - "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in English courses pre and post Block Schedule.

School years	1992-94 Totals	1995-97 Totals	Z Value	p	Effect size index h*
Total number of final grade of "1" and "2"	2,516 (37.8%)	2,876 (41.5%)	4.41	<.01	.08
Total number of final grade of "4" and "5"	2,342 (35.2%)	2,303 (33.2%)	2.42	<.01	.04
Total number of final grades	6,643	6,917			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 3 presents a data comparison of the number of "1s" and "2s" and the number of "4s" and "5s" marks earned by Bryan Sr. High students as a final grade in social studies courses between school years 1992-94 and 1995-97 for all grade levels (9 through 12). A total of 6,716 social studies course marks were earned by students in grades 9-12 in school years 1992-94. A total of 6,946 social studies course marks were earned by students in grades 9-12 in school years 1995-97. A total of 3,298 (49.1%) of final grades of "1s" and "2s" were earned as social studies course marks by students in school years 1992-94 as compared to 3,894 (56%) as final course marks in school years 1995-97. The results indicate a observed difference in proportion, with more students earning "1s"

and "2s" on the block schedule. A total of 1,896 (28.2%) final grades of "4s" and "5s" were earned as social studies course marks by students in school years 1992-94 as compared to 1,607 (23.1%) as final course marks in school years 1995-97. The results indicate a observed difference in proportion with fewer students earning "4s" and "5s" on the block schedule.

TABLE 3.

Grades "1" and "2" and "4" and "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in Social Studies courses pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of final grade of "1" and "2"	1,215 (48.2%)	1,130 (50.1%)	953 (49.6%)	3,298 (49.1%)	1,241 (56%)	1,311 (56.7%)	1,342 (55.6%)	3,894 (56%)
Total number of final grade of "4" and "5"	756 (30%)	639 (28.3%)	501 (26%)	1,896 (28.2%)	530 (23.7)	506 (21.9%)	571 (23.6%)	1,607 (23.1%)
Total number of final grades	2,522	2,260	1,934	6,716	2,222	2,311	2,413	6,946

Table 4 summarizes the observed changes in social studies grades for the period 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of students earning "1s" and "2s" as a final grade in social studies scores in school years 1995-97 was statistically significant at the .01 level. The observed decrease in the number of students earning "4s" and "5s"as a final grade in social studies scores in school years 1995-97 was also statistically significant at the .01 level. Table 4 also shows the effect size estimates

for the differences in proportions using criteria shown at the bottom of the table. As shown in the table, these effect size estimates indicate the difference in proportions were small.

TABLE 4.

Proportional Z-test and effect size of grades "1" and "2" and "4" and "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in Social Studies courses pre and post block schedule.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of final grade of "1" and "2"	3,298	3,894	8.20	<.01	.14
Total number of final grade of "4" and '5"	1,896	607	6.67	<.01	.12
Total number of final grades	6,716	6,946			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 5 presents a data comparison of the number of "1s" and "2s" and the number of "4s and "5s" marks earned by Bryan Sr. High students as a final grade in mathematics courses between school years 1992-94 and 1995-97 for all grade levels (9 through 12). A total of 5,896 math course marks were earned by students in grades 9-12 in school years 1992-94. A total of 6,155 math course marks were earned by students in grades 9-12 in school years 1995-97. A total of 1,916 (32.4%) final grades of "1s" and "2s" were earned as math course marks by students in school years 1992-94 as compared to 2,543

(41.3%) as final course marks in school years 1995-97. The results indicate a observed difference in proportion, with more students earning more "1s" and "2s" on the block schedule. A total of 2,756 (46.7%) final grades of "4s" and "5s" were earned as mathematics course marks by students in school years 1992-94 as compared to 2,323 (37.7%) as final course marks in school years 1995-97. The results indicate a noticeable difference in proportion with fewer students earning "4s" and "5s" on the block schedule.

TABLE 5

Grades "1" and "2" and "4" and "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in Math courses pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of final grade of "1" and "2"	632 (31.4%)	674 (32.7%)	610 (33.5%)	1,916 (32.4%)	796 (39.8%)	812 (41.6%)	935 (42.4%)	2,543 (41.3%)
Total number of final grade of "4" and "5"	1,013 (50.1%)	964 (46.7%)	779 (42.4%)	2,756 (46.7%)	778 (38.9%)	725 (37%)	820 (37.2)	2,323 (37.7%)
Total number of final grades	2,020	2,063	1,813	5,896	1,998	1,953	2,204	6,155

Table 6 summarizes the observed changes in mathematics grades for the period 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of students earning "1s" and "2s" as a final grade in mathematics scores in school years 1995-97 was statistically significant at the .01 level. The observed decrease in the number of students earning "4s" and "5s"as a final grade in math scores in school years 1995-97 was also

statistically significant at the .01 level. Table 6 also shows the effect size estimates for the differences in proportions using criteria shown at the bottom of the table. As shown in the table, the size of the differences can best be characterized as "small" (i.e. very close to .20).

TABLE 6.

Proportional Z test and effect size of grades "1" and "2" and "4" and "5" in all grade level (9 - 12) earned by Bryan Sr. High students as final course grade in Math courses pre and post Block Schedule.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of final grades of "1" and "2"	1,916	2,543	10.02	<.01	.17
Total number of final grades of "4" and "5"	2,756	2,323	10.00	<.01	.18
Total number of final grades	5,896	6,155			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 7 presents a data comparison of the number of "1s" and "2s" and the number of "4s" and "5s" marks earned by Bryan Sr. High students as a final grade in science courses between school years 1992-94 and 1995-97 for all grade levels (9 through 12). A total of 5,101 Science course marks were earned by students in grades 9-12 in school years 1992-94. A total of 6,010 science course marks were earned by students in grades 9-12 in school years 1995-97. A total of 1,825 (35.75%) final grades of "1s" and "2s" were

earned as science course marks by students in school years 1992-94 as compared to 2,654 (44.1%) as final course marks in school years 1995-97. The results indicate a noticeable difference in proportion, with more students earning more "1s" and "2s" on the block schedule.

A total of 2,213 (43.3%) final grades of "4s" and "5s" were earned as science course marks by students in school years 1992-94 as compared to 2,075 (34.5%) as final course marks in school years 1995-97. The results indicate a noticeable difference in proportion, with fewer students earning "4s" and "5s" on the block schedule.

TABLE 7.

Grades "1" and "2" and "4" and "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in Science courses pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of final grade of "1" and "2"	632 (35%)	614 (35.2%)	579 (37.3%)	1,825 (35.7%)	812 (42.3%)	855 (44.2%)	987 (45.6%)	2,654 (44.1%)
Total number of final grade of "4" and "5"	785 (43.5%)	797 (45.6%)	631 (40.3%)	2,213 (43.3%)	689 (35.9%)	639 (33.1%)	747 (34.5%)	2,075 (34.5%)
Total number of final grades	1,804	1,746	1,551	5,101	1,919	1,933	2,158	6,010

Table 8 summarizes the observed changes in science grades for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of students earning "1s" and "2s" as a final grade in science scores in school years 1995-97 was statistically significant at the .01 level. The observed decrease in the number of students earning "4s"

and "5s"as a final grade in science scores in school years 1995-97 was also statistically significant at the .01 level. Table 8 also shows the effect size estimates for the differences in proportions using criteria shown at the bottom of the table. As shown in the table, both differences were small.

TABLE 8.

Proportional Z-test and effect size of grades "1" and "2" and "4" and "5" in all grade levels (9 - 12) earned by Bryan Sr. High students as a final course grade in Science Courses.

School years	1992-94 Totals	1995-97 Totals	Z Value	p	Effect size index h*
Total number of final grades of "1" and "2"	1,825	2,654	7.00	<.01	.16
Total number of final grades of "4" and "5"	2,213	2,075	8.62	<.01	.16
Total number of final grades	5,101	6,010			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Cumulative G.P.A.

Table 9 presents a data comparison of the number of ninth grade students at Bryan Sr. High that have a cumulative G.P.A. of 3.0 or higher and 1.9 or below between the school years 1992-94 and 1995-97. The cumulative G.P.A. of 2.0-2.9 were not used for this study because the analysis does not provide additional important information. A total of 954 ninth grade students were included in this study for the school years 1992-94. A total of 243 (25.4%) ninth grade students earned a G.P.A. of 3.0 or higher for the school

years 1992-94, and 393 (49.2%) students earned a G.P.A. of 1.9 or below. A total of 1,008 ninth grade students were included in this study for the school years 1995-97. A total of 312 (30.9%) ninth grade students earned a G.P.A. of 3.0 or higher for the school year 1994-1997 and a total of 407 (40.3%) ninth grade students earned a G.P.A. of 1.9 or below.

TABLE 9.

Cumulative G.P.A. of ninth grade students between 5.0 - 3.0 and between 1.9 - 0 earned by Bryan Sr. High students at the end of their ninth grade school year pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of Ninth grade students earning 3.0 or higher	76 (25.8%)	86 (26.2%)	81 (24.3%)	243 (25.4%)	81 (24.6%)	110 (32.9%)	121 (34.9%)	312 (30.9%)
Total number of ninth grade students earning 1.9 and below	138 (47.2%)	151 (46.1%)	181 (54.3%)	393 (49.2%)	161 (49%)	111 (33.2%)	135 (39.0%)	407 (40.3%)
Total number of students in ninth grade	294	327	333	954	328	334	346	1,008

Table 10 summarizes the observed changes in ninth grade G.P.A. for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of ninth grade students earning cumulative G.P.A. of 3.0 or higher in school years 1995-97 was statistically significant at the .01 level. However, the observed decrease in ninth grade students earning cumulative G.P.A. of 1.9 or lower for the school years 1995-97 was not

significant. Table 10 also shows the effect size estimates for the differences in proportions. The effect size of the differences in G.P.A. above 3.0 was small.

TABLE 10.

Proportional Z-test and effect size of cumulative G.P.A. of 5.0 - 3.0 and 1.9 and below earned by Bryan Sr. High ninth grade students.

School years	1992-94 total	1995-97 total	Z value	p	Effect size index h*
Total number of cumulative G.P.A. of 3.0 or higher.	243	312	2.96	<.01	.13
Total number of cumulative G.P.A. of 1.9 or below.	393	407	.45	>.05	**
Total number of ninth grade students	954	1,008			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

** Effect size was not calculated because the difference was not statistically significant at the .05 level..

Table 11 presents a data comparison of the number of tenth grade students at Bryan Sr. High who have a cumulative G.P.A. of 3.0 or higher and 1.9 or below between the school years 1992-94 and 1995-97. A total of 789 tenth grade students were included in this study for the school years 1992-94. A total of 221 (28%) tenth grade students earned a G.P.A. of 3.0 or higher for the school years 1992-94 and 295 (37.3%) tenth grade students earned a G.P.A. of 1.9 or below. A total of 963 tenth grade students were included in this study for the school years 1995-97. A total of 283 (29.3%) tenth grade

students earned a G.P.A. of 3.0 or higher for the school year 1994-1997, and a total of 401 (41.6%) students earned a G.P.A. of 1.9 or below.

TABLE 11.

Cumulative G.P.A. of tenth grade students between 5.0 - 3.0 and between 1.9 and below earned by Bryan Sr. High students at the end of their tenth grade school year pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of tenth grade students earning 3.0 or higher	69 (26.3%)	70 (27%)	82 (30.5%)	221 (28%)	86 (26%)	90 (28.5%)	109 (33.4%)	283 (29.3%)
Total number of tenth grade students earning 1.9 and below	104 (39.6%)	106 (40.9%)	85 (31.7%)	295 (37.3%)	161 (51.8%)	128 (40.6%)	103 (31.5%)	401 (41.6%)
Total number of students	262	259	268	789	322	315	326	963

Table 12 summarizes the observed changes in tenth grade G.P.A. for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of tenth grade students earning a cumulative G.P.A. of 3.0 or higher in school years 1995-97 was not statistically significant. However, the unexpected increase in 1.9 and below G.P.A. was statistically significant. Table 12 also shows that the effect size for the 1.9 or below category was small.

TABLE 12.

Proportional Z-test and effect size of cumulative G.P.A. of 5.0 - 3.0 and 1.9 and below earned by Bryan Sr. High tenth grade students.

School years	1992-94 total	1995-97 total	Z value	p	Effect size index h
Total number of cumulative G.P.A. of 3.0 or higher.	221	283	.46	> .05	**
Total number of cumulative G.P.A. of 1.9 or below.	295	401	2.13	< .02	.10
Total number of tenth grade students	789	963			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

** The effect size was not calculated because the difference was not significant at .05 level.

Table 13 presents a data comparison of the number of eleventh grade students at Bryan Sr. High who have a cumulative G.P.A. of 3.0 or higher and 1.9 or below between the school years 1992-94 and 1995-97. A total of 711 eleventh grade students were included in this study for the school years 1992-94. A total of 213 (29.9%) eleventh grade students earned a G.P.A. of 3.0 or higher for the school years 1992-94 and 253 (35.5%) eleventh grade students earned a G.P.A. of 1.9 or below. A total of 793 eleventh grade students were included in this study for the school years 1995-97. A total of 271 (34.1%) eleventh grade students earned a G.P.A. of 3.0 or higher for the school year 1994-1997, and a total of 253 (31.9%) students earned a G.P.A. of 1.9 or below.

TABLE 13.

Cumulative G.P.A. of eleventh grade students between 5.0 - 3.0 and between 1.9 - 0 earned by Bryan Sr. High students at the end of their eleventh grade school year pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of eleventh grade students earning 3.0 or higher	77 (28.9%)	69 (29.6%)	67 (31.6%)	213 (29.9%)	83 (31.3%)	91 (35.2%)	97 (35.9%)	271 (34.1%)
Total number of eleventh grade students earning 1.9 and below	110 (41.3%)	75 (32.1%)	68 (32%)	253 (35.5%)	78 (29.4%)	85 (32.9%)	90 (33.3%)	253 (31.9%)
Total number of students	266	233	212	711	265	258	270	793

Table 14 summarizes the observed changes in eleventh grade G.P.A. for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of eleventh grade students earning cumulative G.P.A. of 3.0 or higher in school years 1995-97 was statistically significant at the .01 level. The observed decrease of the eleventh grade students earning cumulative G.P.A. of 1.9 or below in years 1995-97 was statistically significant at the .05 level. As shown in Table 14, the effect size estimates indicate the differences in proportions were less than small, as defined by the criteria of Cohen.

TABLE 14.

Proportional Z-test and effect size of cumulative G.P.A. of 5.0 - 3.0 and 1.9 and below earned by Bryan Sr. High eleventh grade students.

School years	1992-94 total	1995-97 total	Z value	p	Effect size index h*
Total number of cumulative G.P.A. of 3.0 or higher.	213	271	1.66	< .05	.09
Total number of cumulative G.P.A. of 1.9 or below.	253	253	1.63	< .05	.08
Total number of eleventh grade students	711	793			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 15 presents a data comparison of the number of twelfth grade students at Bryan Sr. High who have a cumulative G.P.A. of 3.0 or higher and 1.9 or below between the school years 1992-94 and 1995-97. Out of a total of 698 twelfth grade students who were included in this study for the school years 1992-94, 232 (33.2%) students earned a G.P.A. of 3.0 or higher, and 223 (31.9%) students earned a G.P.A. of 1.9 or below. Out of a total of 678 twelfth grade students were included in this study for the school years 1995-97, 244 (36.7%) students earned a G.P.A. of 3.0 or higher, and a total of 183 (26.9%) students earned a G.P.A. of 1.9 or below.

TABLE 15.

Cumulative G.P.A. of twelfth grade students between 5.0 - 3.0 and between 1.9 - 0 earned by Bryan Sr. High students at the end of their twelfth grade school year pre and post Block Schedule.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of twelfth grade students earning 3.0 or higher	79 (32.5%)	81 (32%)	72 (35.6%)	232 (33.2%)	63 (30.8%)	96 (38.5%)	90 (35.2%)	244 (36.7%)
Total number of twelfth grade students earning 1.9 and below	78 (32%)	95 (37.5%)	50 (24.7%)	223 (31.9%)	58 (28.4%)	60 (24%)	65 (25.4%)	183 (26.9%)
Total number of students	243	253	202	698	204	244	255	678

Table 16 summarizes the observed changes in twelfth grade G.P.A. for the period 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of twelfth grade students earning a cumulative G.P.A. of 3.0 or higher in school years 1995-97 was not statistically significant. The observed decrease in the number of twelfth grade students earning a cumulative G.P.A. of 1.9 or below in the school years 1995-97 was statistically significant at the .02 level. Table 16 also shows a small effect for this decrease, as defined by the Cohen scale.

TABLE 16.

Proportional Z-test and effect size of cumulative G.P.A. of 5.0 - 3.0 and 1.9 and below earned by Bryan Sr. High twelfth grade students.

School years	1992-94 total	1995-97 total	Z value	p	Effect size index h*
Total number of cumulative G.P.A. of 3.0 or higher.	232	244	1.17	> .05	**
Total number of cumulative G.P.A. of 1.9 or below.	223	183	2.02	< .02	.11
Total number of twelfth grade students	698	678			

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

** The effect size was not calculated because the difference was not significant.

Academic Excellence

Table 17 presents a data comparison of the number of ninth grade students at Bryan Senior High earning "Academic Excellence"(cumulative G.P.A. of 3.50 or above throughout a students' high school career) status for school years 1992-94 and 1995-97. A total of 133 ninth grade students earned the status of Academic Excellence for school years 1992-94. A total of 195 ninth grade students earned the status of Academic Excellence for school years 1995-97.

TABLE 17.

Academic Excellence status earned by 9th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9th grade Academic Excellence students	41 (13.9)	48 (14.7)	44 (13.2)	133 (13.9)	51 (15.5)	57 (17.1)	87 (25.3)	195 (19.4)

Table 18 summarizes the observed changes in ninth grade Academic Excellence students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the proportion of ninth grade students earning Academic Excellence of 3.5 or higher in the school years 1995-97 was statistically significant at the .01 level, with a small effect.

TABLE 18.

Proportional Z test and effect size of Academic Excellence for 9th grade students at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 9th grade Academic Excellence students	133	195	-3.71	<.0001	.14

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 19 presents a data comparison of the number of tenth grade students at Bryan Senior High earning Academic Excellence status for school years 1992-94 and

1995-97. A total of 131 tenth grade students earned the status of Academic Excellence for school years 1992-94. A total of 150 tenth grade students earned the status of Academic Excellence for school years 1995-97.

TABLE 19.

Academic Excellence status earned by 10th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 10th grade Academic Excellence students	44 (16.8)	42 (16.2)	45 (16.8)	131 (16.6)	45 (14.0)	47 (14.9)	58 (17.8)	150 (15.6)

Table 20 summarizes the observed changes in tenth grade Academic Excellence students for the periods 1992-94 and 1995-97. A proportional z-test revealed that the observed proportions were the same, pre- block and post- block.

TABLE 20.

Proportional Z test and effect size of Academic Excellence for 10th grade students at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 10th grade Academic Excellence students	131	150	0.00	The proportions are the same, pre (.15) and post (.15)	**

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

** These values were not calculated because the difference was not significant

Table 21 presents a data comparison of the number of eleventh grade students at Bryan Senior High earning Academic Excellence status for school years 1992-94 and 1995-97. A total of 108 eleventh grade students earned the status of Academic Excellence for school years 1992-94. A total of 152 eleventh grade students earned the status of Academic Excellence for school years 1995-97.

TABLE 21.

Academic Excellence status earned by 11th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 11th grade Academic Excellence students	42 (15.8)	34 (14.6)	32 (15.1)	108 (15.2)	51 (19.2)	49 (19.0)	52 (19.1)	152 (19.1)

Table 22 summarizes the observed changes in eleventh grade Academic Excellence students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the proportion of eleventh grade students earning Academic Excellence in the school years 1995-97 was statistically significant. The effect size for this increase indicates a small effect.

TABLE 22.

Proportional Z test and effect size of Academic Excellence for 11th grade students at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 11th grade Academic Excellence students	108	152	-1.80	<.04	.11

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 23 presents a data comparison of the number of twelfth grade students at Bryan Senior High earning Academic Excellence status for school years 1992-94 and 1995-97. A total of 142 twelfth grade students earned the status of Academic Excellence for school years 1992-94. A total of 153 twelfth grade students earned the status of Academic Excellence for school years 1995-97.

TABLE 23.

Academic Excellence status earned by 12th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9th grade Academic Excellence students	74 (30.9)	35 (13.8)	32 (15.8)	142 (20.3)	35 (17.2)	58 (23.3)	60 (27.0)	153 (22.7)

Table 24 summarizes the observed changes in the proportions twelfth grade academic Excellence students for the periods 1992-94 and 1995-97. A proportional z-

test was used to determine if changes in proportions were statistically significant. The observed increase in the number of twelfth grade students earning Academic Excellence of 3.5 or higher in the school years 1995-97 was not statistically significant.

TABLE 24.

Proportional Z test and effect size of Academic Excellence for 12th grade students at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 12th grade Academic Excellence students	142	153	-.39	>.05	--

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Honor Roll

Table 25 presents a data comparison of the number of ninth grade students at Bryan Senior High earning Honor Roll status for school years 1992-94 and 1995-97. Honor Roll is calculated at the end of each semester on the traditional schedule and at the end of each of four quarters on the block schedule. A total of 192 ninth grade students earned Honor Roll status for school years 1992-94. A total of 287 ninth grade students earned Honor Roll status for school years 1995-97.

TABLE 25.

Honor Roll status earned by 9th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9th grade Honor Roll students	56 (19.0)	72 (22.0)	64 (19.2)	192 (20.1)	87 (26.5)	101 (30.2)	99 (28.8)	287 (28.5)

Table 26 summarizes the observed changes in ninth grade Honor Roll students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of ninth grade students earning Honor Roll of 3.25 or higher in the school years 1995-97 was statistically significant at the .01 level. As shown in table 26, the effect size estimates indicate the differences in proportions were small.

TABLE 26.

Proportional Z test and effect size of 9th grade Honor Roll Students.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 9th grade Honor Roll students	192	287	-4.93	<.0001	.22

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 27 presents a data comparison of the number of tenth grade students at Bryan Senior High earning Honor Roll status for school years 1992-94 and 1995-97. A

total of 179 tenth grade students earned Honor Roll status for school years 1992-94. A total of 271 tenth grade students earned Honor Roll status for school years 1995-97.

TABLE 27.

Honor Roll status earned by 10th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 10th grade Honor Roll students	58 (22.1)	55 (21.2)	66 (24.6)	179 (22.7)	81 (25.2)	94 (29.8)	96 (29.5)	271 (28.2)

Table 28 summarizes the observed changes in tenth grade Honor Roll students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the proportion of tenth grade students earning Honor Roll of 3.25 or higher in the school years 1995-97 was statistically significant at the .01 level, and the effect size estimates indicate the difference in proportions was small.

TABLE 28.

Proportional Z test and effect size of 10th grade Honor Roll Students.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 10th grade Honor Roll students	179	271	-3.58	<.0001	.17

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 29 presents a data comparison of the number of eleventh grade students at Bryan Senior High earning Honor Roll status for school years 1992-94 and 1995-97. A total of 178 eleventh grade students earned Honor Roll status for school years 1992-94. A total of 282 eleventh grade students earned Honor Roll status for school years 1995-97.

TABLE 29.

Honor Roll status earned by 11th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 11th grade Honor Roll students	60 (22.6)	67 (28.8)	51 (24.1)	178 (25.0)	93 (35.1)	96 (37.2)	93 (34.2)	282 (35.5)

Table 30 summarizes the observed changes in eleventh grade Honor Roll students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the proportion of eleventh grade students earning Honor Roll of 3.25 or higher in the school years 1995-97 was statistically significant at the .01, level and the effect size estimate indicates the difference in proportions was small.

TABLE 30.

Proportional Z test and effect size of 11th Grade Honor Roll Students.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 11th grade Honor Roll students	178	282	-4.2	<.0001	.21

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 31 presents a data comparison of the number of twelfth grade students at Bryan Senior High earning "Honor Roll" status for school years 1992-94 and 1995-97. A total of 252 twelfth grade students earned Honor Roll status for school years 1992-94. A total of 295 twelfth grade students earned Honor Roll status for school years 1995-97.

TABLE 31.

Honor Roll status earned by 12th grade students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 12th grade Honor Roll students	100 (41.2)	84 (33.2)	68 (33.7)	252 (36.1)	84 (41.2)	114 (45.8)	97 (43.7)	295 (43.7)

Table 32 summarizes the observed changes in twelfth grade Honor Roll students for the periods 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in

the proportion of twelfth grade students earning Honor Roll of 3.25 or higher in the school years 1995-97 was not statistically significant.

TABLE 32.

Proportional Z test and effect size of 12th grade Honor Roll students.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 12th grade Honor Roll students	252	295	-1.59	>.05	--

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 33 presents a data comparison of the number of tenth through twelfth grade students at Bryan Sr. High who have been inducted to the National Honor Society between the school years 1992-94 and 1995-97. A total of 312 tenth through twelfth grade students were included in this study for the school years 1992-94. A total of 404 tenth through twelfth grade students were included in this study for the school years 1995-97.

TABLE 33.

National Honor Society for students 10th -12th grade at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 10-12th grade	106	102	104	312	127	148	129	404
National Honor Society students	(13.7)	(13.7)	(15.2)	(14.2)	(16.1)	(18.0)	(15.8)	(16.6)

Table 34 summarizes the observed changes in National Honor Society members in 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions were statistically significant. The observed increase in the number of National Honor Society members in the years 1995-97 was statistically significant at the .01 level and the effect size estimate for the difference in proportions was small.

TABLE 34.

Proportional Z test and effect size of National Honor Society students 9- 12th grade at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 9-12th grade National Honor Society students	312	404	-2.33	<.01	.06

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 35 presents a data comparison of the number of Senior students at Bryan Sr. High who have earned scholarships between the school years 1992-94 and 1995-97. A total of 186 Senior students were included in this study for the school years 1992-94 and a total of 198 Seniors students were included in this study for the school years 1995-97.

TABLE 35.

Senior Scholarships for students at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of senior scholarships.	74 (30.5)	56 (22.1)	56 (27.7)	186 (26.6)	59 (28.9)	64 (25.7)	75 (33.8)	198 (29.3)

Table 36 summarizes the observed changes in the number of seniors earning scholarships in 1992-94 and 1995-97. A proportional z-test was used to determine if changes in proportions was statistically significant. This difference was not significant.

TABLE 36.

Proportional Z test and effect size of Senior Scholarships at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of senior scholarships.	186	198	0.00	1.00	--

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)
-- not calculated because of no difference

Table 37 presents the California Achievement Test scores . These scores combine total battery scores of all Bryan Senior High tenth grade students. The combined scores include subject areas of reading, language, and mathematics. This table is presented only for the purpose of illustration and reporting. Due to a major change in the format (1991-93 CAT version E was administered, 1994-97 version 5 was administered) of the California Achievement Test in the school year 1993 a longitudinal statistical comparison can not be made. It is however, worthwhile to note the observable differences in the comparison of the same test totals from the school years 1993-1994 at a test score of 48 and the 1996-1997 test scores increased (see appendix F.) 13 points to a test battery of 61.

TABLE 37.

California Achievement Test 10th Grade Students Total Battery Scores.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
California Achievement Test	55	51	48	51.333	51	51	61	54.333

C. PROCEDURES AND FINDINGS RELATED TO STUDENT BEHAVIORS.

The documents and records of Omaha Bryan Sr. High were utilized as a source of data to test the hypothesis that students' behavior would change following the adoption of an intensive block schedule model. Data were collected for grades 9, 10, 11, and 12 and the comparisons were made in the following categories: suspension rate out-of-school, student transfer rate, suspension rate in-school, student attendance rate, student tardy rate, co-curricular activities participation, and athletic participation.

Table 38 presents a comparison of the number of Bryan Senior students who have been suspended out-of-school between 1992-94 and 1995-97. A total of 561 students were included in this study for the school years 1992-94. A total of 549 students were included in this study for the school years 1995-97.

TABLE 38.

Out-of-school suspensions for students 9th -12th grade at Bryan Sr. High

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th grade students with out-of-school suspensions	208	143	210	561	211	143	195	549

Table 39 summarizes the observed changes in the proportions of out-of-school Suspensions in 1992-94 and 1995-97. A proportional z-test was used to determine if the observed decrease in proportions was statistically significant. This difference was significant, and the effect size estimates for the difference in proportions was small.

TABLE 39.

Proportional Z test and effect size of Out-of-School suspensions grades 9-12 at Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 9-12th grade students with out-of-school suspensions	561	549	1.70	<.04	.03

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 40 presents a data comparison of the number of students that have transferred to Bryan High from another school setting or out-of Bryan High to another school setting between 1992-94 and 1995-97. A total of 696 students were included in this study for the school years 1992-94. A total of 677 students were included in this study for the school years 1995-97.

TABLE 40.

Transfers-in or Transfers-out of Bryan Sr. High School for students 9th -12th grade.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th grade students that transferred out.	222	235	239	696	252	230	195	677

Table 41 summarizes the observed changes in the number of students transfers in and out to another school setting 1992-94 and 1995-97. A proportional z-test was used to determine if the observed decrease in proportions after block scheduling was statistically significant. This difference was significant at the .01, level and the effect size estimates for the difference in proportions was in the small category established by Cohen.

TABLE 41.

Proportional Z test and effect size of Students 9- 12th grade students that transferred out of Bryan Sr. High School.

School years	1992-94 totals	1995-97 totals	Z Value	p	Effect size index h*
Total number of 9-12th grade students that transferred out	696	677	2.17	<.02	.05

*Conventional standards for the effect size index h are small (h = .20), medium (h = .50), and large (h = .80). (Cohen, 1988)

Table 42 presents the number of students in grades 9-12 who served one or more days as an in-school-suspension penalty at Bryan Senior High for school years 1992-94 and 1995-97. This table is presented only for the purpose of illustration and reporting. Due to the record keeping format followed at Bryan Senior, statistical comparison can not be made (for example a single student could receive one or more penalties to the room for repeated rule violations). It is, however, important to note the observable differences in the comparison of the school years 1992-95 at a total of 4,037 students assigned penalties as compared to 4,120 student penalties in school years 1995-1997.

TABLE 42.

In-school suspension days served by students 9th -12th grade at Bryan Sr. High School.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th grade students that served in-school suspension	1,314	1,394	1,329	4,037	1,364	1,386	1,370	4,120

Table 43 presents the percentage of average daily attendance for students in grades 9-12 at Bryan Senior High for school years 1992-94 and 1995-97. This table is presented only for the purpose of illustration and reporting. Attendance record keeping format has remained consistent at Bryan Senior High pre and post block scheduling, with attendance being reported to the attendance clerk at the start of each morning. It is, however important to note the observable differences in the comparison of the school years 1992-94 with total average daily attendance at 91.4% and school years 1995-97 average daily attendance at 90.3%.

TABLE 43.

Student attendance rate for students 9th - 12th grade at Bryan Sr. High.

School years	91-92	92-93	93-94	Average (92-94)	94-95	95-96	96-97	Average (95-97)
Student Attendance Rate for 9-12th grade Students	91.9	91.6	90.6	91.366	90.5	90.1	90.3	90.3

Table 44 presents the percent of tardies to school for students in grades 9-12 at Bryan Senior High for school years 1992-94 and 1995-97. This table is presented only for the purpose of illustration and reporting. A tardy to school is recorded for any student reporting after 7:45 a.m. All tardies are reported to the attendance clerk at the start of each morning. Due to the number of students earning repeated tardies to school a statistical comparison was not useful. It is, however, important to note the observable increase in the comparison of the school years 1992-94 with a total of 22,792 tardies to school and with school

years 1995-97 38,217 tardies. This illustrates 15,415 additional tardies on the block schedule.

TABLE 44.

Student tardy rate for students 9th - 12th grade at Bryan Sr. High.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th Student Tardies to School	6,783	8,340	7,669	22,792	11,966	10,462	15,786	38,217

Table 45 presents the number of students in grades 9-12 that participated in sponsored co-curricular activities at Bryan Senior High, for school years 1992-94 and 1995-97. These activities are reported to the Nebraska State School Activities Association at the end of end of fall, winter, and spring reporting deadlines. This table is presented only for the purpose of illustration and reporting. Due to the record keeping format followed at Bryan Senior High a statistical comparison cannot be made; there were missing records in school year 1991-92. It is, however, important to note the observable differences in the comparison as the number of students participating in co-curricular activities remained fairly consistent on both schedules.

TABLE 45.

Co-curricular activities for students 9th - 12th grade at Bryan Sr. High.

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th grade students that participate in co-curricular activities	no scores	265	386	N/A	264	392	421	1,077

Table 46 presents the number of students in grades 9-12 who participated in athletics at Bryan Senior High for school years 1992-94 and 1995-97. Students that participate in-school sponsored athletics are reported to the Nebraska State School Activities Association three times per year at the end of end of fall, winter, and spring reporting deadlines. This table is presented only for the purpose of illustration and reporting. Due to the record keeping format followed at Bryan Senior High, a statistical comparison cannot be made; there were missing records in school year 1991-92. It is, however, important to note the observable differences in the comparison as the number of students participating in school sponsored athletics remained fairly consistent on both schedules.

TABLE 46.

Athletic Participation for Bryan Sr. High School 9-12 Grades

School years	91-92	92-93	93-94	Total (92-94)	94-95	95-96	96-97	Total (95-97)
Total number of 9-12th grade students that participated in athletics	no scores	467	588	N/A	565	584	616	1,765

Chapter V

Conclusion, Summary and Recommendations

This chapter presents a summary of the results of the study, together with conclusions, implications, and recommendations for future research.

During its existence of twenty-four school years, William Jennings Bryan High School, an Omaha, Nebraska urban public school utilized an eight-period daily schedule very typical of many American public schools. Students from grades 9-12 generally enrolled in 6 or 7 required and elective classes and would sit in 1 or 2 study halls per day. In the fall of 1991 the certified staff of Bryan Sr. High were invited by the principal of the school, Robert Whitehouse, to investigate the possibility of restructuring the school day. After three school years of investigating the block schedule and visiting campuses on a 4 period day (Block Schedule) by a faculty vote, certified staff members agreed to adopt an intensive schedule. The school year 1994-95 began the start of a four period day at Bryan High in which courses lasting a full year or 36 weeks would now be completed in 18 weeks or one term.

Block schedule is a change in the way classes are scheduled. The traditional period of time is replaced by a block of time. The block schedule is not, in itself, a change in curriculum. It is a restructuring of the amount of time spent in the classroom. Instead of the standard 45 to 55 minute classes, block scheduling institutes a unique school day consisting of four 88 minute blocks. This means that the students are enrolled in four classes as opposed to the customary six or seven classes and a study hall. Students in

block classes will earn the same amount of credit in eighteen weeks that would have taken a year under the traditional approach.

The block schedule promised numerous advantages for staff and students alike. The advantages for students include decreased class load, less hurried learning and less fragmentation of learning concepts. Furthermore, each student has the opportunity to earn 16 credits per school year due to no study halls and each student has the opportunity to develop a working relationship with a reduced number of teachers. One disadvantage of the block schedule at Bryan High is the impact of absences; every one day missed can equal the amount of work of two days on the traditional schedule. Also, the block schedule at Bryan High excludes study hall, which increases class size in most elective classes.

The objective of this study was to identify and analyze the changes in student academic performance and student behavior. The following two research questions were formulated from the expectations that Bryan High administrative and instructional staff had before adopting the block schedule model.

Research question one: To what extent have changes in academic performance occurred since the implementation of block schedule? Research question two: To what extent have changes in student behavior occurred since the implementation of block scheduling?

To examine research question one, seven indicators of student academic performance were chosen, using data from a six year period including school years 1991-

97, in which school years 1991-94 data gathering was based on a traditional schedule and school years 1994-97 data gathering was based on the block schedule. Bryan High administrators and certified instructional staff anticipated the following under the block schedule: more students would make better grades and fewer failures; grade point averages would increase; and more students would make honor roll.

ACADEMIC PERFORMANCE SUMMARY

For the number of student grade distributions in the subject areas of English, mathematics, social studies, and science, statistically significant improvements were made in each of the subject areas. In each case the block schedule improved the number of 1s and 2s students earned and decreased the numbers of 4s and 5s as a whole for the school. In each case, the effect size for the comparisons of 1s, 2s, 4s and 5s earned on the block schedule was small or less than small. The largest increases were in the mathematics and science curricular areas. Specifically, the largest increases in 1s and 2s were in the areas of mathematics and science. The largest decreases in 4s and 5s were also found in the areas of mathematics and science, however, the effect size of these changes generally were small.

For those earning a cumulative G.P.A. of 3.0 - 5.0 students on the block schedule show statistically significant improvements at all grades levels. Decreases in students earning a cumulative G.P.A. of 1.9 or below were statistically significant in grade levels 9, 11, and 12. In each case the effects were small or less than small as determined by the Cohen effect size scale. In the case of the 10^{th} graders, this group indicates improvement

in 3.0 - 5.0, while the proportions of students 1.9 - or below increased for this group of students on block schedule, however, the effect size of these changes generally were small.

The numbers of Academic Excellence Students in each grade level 9th - 12th increased significantly on the block schedule. Once again 10th grade students show no significant improvement in this area. The proportions of students achieving Honor Roll status in grade levels 9, 10, and 11 indicate a significant improvement on block schedule. The proportions of 12th grade students attaining honor roll status indicate no significant difference on the block schedules. The proportions of students in the National Honor Society increased significantly on the block schedule. The numbers of senior students receiving scholarship indicates no significant difference pre or post block scheduling.

Lastly , due to a major change in format in the standardized California Achievement Test in school year 1993-1994, a statistical analysis comparing pre and post block schedule achievement test scores could not be conducted. However, it is interesting to compare the test results from 1993-94 (traditional schedule) and 1996-97 (block schedule). In 1993-94, 10th grade students taking this test at Bryan High compiled a total battery score of 48 as reported to the Omaha Public School Central Administrative office. In the school year 1996-97 the tenth grade students taking the same series E test had an average total battery score of 61, (see appendix F) an all time high score for the school.

STUDENT BEHAVIOR SUMMARY

The data on student behavior do not show improvements on the block schedule to

the same extent that were presented with respect to academic performance . The numbers of students suspended out-of-school, although very close in proportion, did indicate a small effect indicating fewer suspensions out-of-school on the block schedule. Regarding student transfers, the proportions were very close and indicated a significant. difference with fewer students transfers on the block schedule. The effect size was small, when examining effect size statistically.

The average daily attendance for grades 9 - 12 decreased on the block schedule. Tardies to school increased significantly on the block schedule. Due to a record keeping change in school years 1991-92, an accurate count of students participating in athletic and other co-curricular activities could not be compiled to compare the three years before and after block schedule, but a comparison of two years before and two years after the implementation of block schedule indicated little difference pre and post block schedule for both athletics and co-curricular activities.

CONCLUSIONS

This study was based on one urban high school and the results presented were obtained after three academic school years under the intensive block schedule. The data provided evidence that the expectations of the Omaha Public School officials and school board members prior to the adoption of the intensive schedule were fulfilled.

There were a number of statistically significant changes with respect to student achievement after the adoption of intensive block scheduling: the proportions of students earning more 1s and 2s increased in the curricular areas of English, social studies, mathematics, and science; the proportion of students earning 4s and 5s decreased in the curricular areas of English, social studies, mathematics, and science; the proportion of students with improved cumulative G.P.A. increased; the proportion of student achieving honor roll status increased, the proportion of students achieving Academic Excellent status increased; the number of National Honor Society students increased; and the proportion of seniors receiving scholarships improved. The effect size of these changes generally were small. Such results would be desirable in any school.

Change in regards to student behavior after the adoption of the intensive block schedule were not as evident as academic success as mentioned above. After the adoption of the intensive block schedule, statistically significant results included a decrease in the proportion of student suspended out-of-school and a decrease in the proportion of students transferring. There was no significant difference in the reduction

of students serving in-school suspensions, nor did the adoption of the intensive block schedule have a significant impact on daily attendance. Student tardies were increased on the block schedule.

The data support the conclusion that student academic performance improved at a statistically significant level. Students at all grade levels are performing better, however the effect size is small to very small. A conclusion that can be drawn is that when students are required to focus on only four courses per day, their academic performance can be enhanced.

In the study of student behavior it is interesting that the behaviors measured illustrate no significant results or changes. In the case of out-of-school suspensions, it must be acknowledged that while the number decreased on the intensive block schedule the severity of the suspension pre or post block was not measured. The results of this six-year study suggest that the intensive scheduling brought about enhanced academic success in one school. It is important to continue to examine this success and see if it can be replicated in other schools.

RECOMMENDATION FOR FUTHER RESEARCH

The concept of the block schedule is still fairly new as compared to how schools have been scheduling classes over the past 80 years. More studies are needed to examine the effects of the adoption of intensive block scheduling.

Within William Jenning Bryan High School and elsewhere:

1. Studies should include measures of teacher behavior, particularly as it relates teaching techniques.
2. Studies should include measures to provide data within individual curricular areas.
3. Studies need to be done on the intensive block schedule results in student academic performance as compared to student academic performance on other block schedules such as a A/B block schedule.
4. Qualitative case studies are needed to learn about student and teacher reactions to the on intensive block schedule.
5. Studies should be conducted to analyze whether teaching is improved and whether student achievement continues to improve during the fourth, fifth, and sixth year implementation.

In other schools using intensive block scheduling:

1. Studies similar to this one are needed at schools that have adopted intensive block scheduling.
2. Schools with similar schedules need to compare and analyze characteristics to determine the effectiveness of the block schedule.
3. Studies need to determine how successful implementation for change can be attained in schools on the intensive block schedule.

Other Research:

1. Studies are needed that examine the change process from traditional scheduling to intensive block scheduling.
2. Studies are needed that examine the change process regarding the delivery of instruction in successful block schedules.
3. Research is needed regarding building leadership skills and central office support with successful implementation of the block schedule.
4. Studies are needed to analyze the difference in instructional delivery methods between traditional and block schedules.

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Appendix A

Request Form to Omaha Public Schools

OMAHA PUBLIC SCHOOLS

BRYAN HIGH SCHOOL
4700 GILES ROAD OMAHA, NEBRASKA 68157-2699

February 10, 1997

Dr. John Jorgensen
Research Department
Omaha Public Schools

Re: Margaret (Peg) Naylon
Assistant Principal Bryan Senior High
UNL-UNO Joint Doctoral Program

Dear John:

I am currently a doctoral student in the joint doctoral program with the University of Nebraska-Lincoln and University of Nebraska-Omaha. My doctoral proposal seeks to examine certain statistical data at Bryan Senior High School before and after the implementation of block scheduling . The title of the study is "A Comparison of Selected Measures of Academic Performance and Student Behavior of Bryan Senior High School Before and After Implementation of Block Scheduling". The purpose of this letter is to obtain the district's permission to use Bryan Senior High School's name and permission to report "hard" (tallied) data. No student or staff name or number will be used for this study. The data I propose to examine is already gathered by OPS for other purposes.

This study asks two questions with respect to Bryan's block scheduling curriculum:

1. To what extent have changes in student academic performance occurred since the implementation of block scheduling?
2. To what extent have changes in student behavior occurred since the implementation of block scheduling?

The data requested will include school years 1991 through 1994 (three years before the implementation of block scheduling) and years 1994 through the current school year, (three years after implementation of block scheduling).

Please indicate whether the district will permits the use of Bryan's name and statistical data as described in this letter by countersigning in the space provided below. I appreciate your assistance and cooperation. Please feel free to contact me if you have any questions or concerns.

Sincerely,

Peg M. Naylon

Peg Naylon,
Assistant Principal,
Bryan Senior High School

Permission to use Omaha Public School - Bryan Senior High's name and certain statistical data for the purpose of a doctoral dissertation is granted ✓
is denied _____.

Dated: 12-15-97
By: Galen C. Jamison
Title: Coordinator of Research

Appendix B

Sample of Senior Schedule

STUDENT SCHEDULE
REGULAR

12 F

GM1 01 364 BRYAN SENIOR HIGH COMP

C	ALL	00	ADVISEMENT	BAILEY G	GM1	C.CC	T45	99
3	ALL	00	ADVISEMENT	BAILEY G	GM1	C.CC	T45	02
1	ALL	01	CONCERT BAND	ABRAHAMS	BND	1.CC	SF2	01
2	ALL	01	CONCERT BAND	ABRAHAMS	BND	1.CC	SF2	02
4	ALL	01	CONCERT BAND	ABRAHAMS	BND	1.CC	SF2	03
8	ALL	01	CONCERT BAND	ABRAHAMS	BND	1.CC	SF2	04
1	ALL	02	ENGLISH 7	BOND	131	1.CC	AE3	01
2	ALL	02	ENGLISH 8	BOND	131	1.CC	AE3	02
4	ALL	02	WORLD HIST 1	BOETTCHER	117	1.CC	CC8	17
8	ALL	02	WORLD HIST 2	BOETTCHER	117	1.CC	CC8	18
1	ALL	03	MED BIOLOGY 1	OLSON J	222	1.CC	FD9	03
2	ALL	03	MED BIOLOGY 2	OLSON J	222	1.CC	FD9	04
4	ALL	03	ALGEBRA 3	THIESSEN	221	1.CC	DB9	11
8	ALL	03	ALGEBRA 4	THIESSEN	221	1.CC	DB9	12
1	ALL	04	GEOMETRY 1	MCNAMARA	217	1.CC	DC5	03
2	ALL	04	GEOMETRY 2	MCNAMARA	217	1.CC	DC5	04
4	ALL	04	CHEMISTRY 1	COLANTONI	226	1.CC	FE5	13
8	ALL	04	CHEMISTRY 2	COLANTONI	226	1.CC	FE5	14
8	ALL	12	JUNE GRADUATE	NAYLON	OUT	C.CC	T15	01
F	ALL	17	PUBLIC/HUM CLUSTER	STAFF	XXX	C.CC	374	01
F	ALL	19	YOUR COUNSELOR	HANN	GDC	C.CC	T27	01

12 F

Appendix C

Sample of Freshmen Schedule

STUDENT SCHEDULE

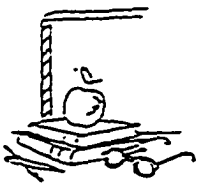
REGULAR

	1				09 M			3
227			01 364	BRYAN SENIOR HIGH				COMP
C	ALL	00	ADVISEMENT	CLINE	227	0.00	T45	99
3	ALL	00	ADVISEMENT	CLINE	227	0.00	T45	56
1	ALL	01	LIFE TIME SPORTS	MOORE	GM3	1.00	GC9	01
2	ALL	01	LIFE TIME SPORTS	MOORE	GM3	1.00	GC9	02
4	ALL	01	TECH EXPLORATION	DOSTAL	103	1.00	QA8	03
6	ALL	01	TECH EXPLORATION	DOSTAL	103	1.00	QA8	04
1	ALL	02	BIOLOGY 1	SEVERSON	214	1.00	FD1	03
2	ALL	02	BIOLOGY 2	SEVERSON	214	1.00	FD1	04
4	ALL	02	KEYBRD/TYPE 1	HESS	230	1.00	LF5	13
6	ALL	02	KEYBRD/TYPE 2	HESS	230	1.00	LF5	14
1	ALL	03	HON GEOMETRY 1	DINEEN	109	1.00	QC6	01
2	ALL	03	HON-GEOMETRY 2	DINEEN	109	1.00	QC6	02
4	ALL	03	SPANISH 3	STANGL	231	1.00	PE1	19
6	ALL	03	SPANISH 4	STANGL	231	1.00	PE1	20
1	ALL	04	HONS ENGLISH 1	LEE	PT3	1.00	AC5	01
2	ALL	04	HONS ENGLISH 2	LEE	PT3	1.00	AC5	02
4	ALL	04	WLD GEO HONS 1	STUDT	111	1.00	CB2	03
6	ALL	04	WLD GEO HONS 2	STUDT	111	1.00	CB2	04
F	ALL	17	HEALTH/SERV CLUSTER	STAFF	XXX	0.00	378	01
F	ALL	19	YOUR COUNSELOR	MANN	GOC	0.00	T27	01

09 M

Appendix D

Sample of Teacher Schedule



MATH

FIRST TERM

Block	Room					SECOND TERM			
Time	7:45	8:02	9:40	11:14	1:22	8:02	9:40	11:14	1:22
Teacher	7:58	9:30	11:08	1:12	2:50	9:30	11:08	1:12	2:50
	CF4	DG7-01-02 Applied Math 3-4 223	DC8-01-02 Fr. Algebra 3-4 210	DC8-03-04 Fr. Algebra 3-4 221	PLAN	DG7-03-04 Applied Math 3-4 223	DC8-05-06 Fr. Algebra 3-4 221	DG7-05-06 Applied Math 3-4 223	PLAN
	109	DC5-01-02 Geometry 1-2 109	PLAN	DC5-01-02 Fr. Geometry 1-2 109	DD6-01-02 Calculus AP 109	DD6-03-04 Calculus AP 109	DC5-09-10 Geometry 1-2 109	PLAN	DC5-03-04 Fr. Geometry 1-2 109
	ALT	PLAN	DB7-01-02 Algebra 1-2 109	DB7-03-04 Algebra 1-2 210	DC5-03-04 Geometry 1-2 217	DB7-13-14 Algebra 1-2 219	PLAN	DG2-07-08 Applied Math 1-2 109	DB7-15-16 Algebra 1-2 217
	CF3	PLAN	IF4-07-08 Math S 1-2 IF5-07-08 Math S 3-4 IF3-07-08 Math S 219	DB7-05-06 Algebra 1-2 219	DB7-07-08 Algebra 1-2 219	PLAN	DB7-17-18 Algebra 1-2 219	DB7-19-20 Algebra 1-2 219	DC5-11-12 Geometry 1-2 219
	221	DB9-01-02 Algebra 3-4 221	DB9-03-04 Algebra 3-4 221	PLAN	DB9-05-06 Algebra 3-4 221	PLAN	DB7-21-22 Algebra 1-2 221	DB9-11-12 Algebra 3-4 221	DB9-09-10 Algebra 3-4 221
	217	DD1-01-02 Pre Cal/Trig 217	DC5-19-20 Geometry 1-2 217	DD1-03-04 Pre Cal/Trig 217	PLAN	DD1-07-08 Pre Cal/Trig 217	DC5-13-14 Geometry 1-2 217	DD1-09-10 Pre Cal/Trig 217	PLAN
	114	DB7-09-10 Algebra 1-2 114	DB7-11-12 Algebra 1-2 114	DC5-07-08 Geometry 1-2 114	PLAN	DC5-15-16 Geometry 1-2 114	DB8-01-02 Fr. Algebra 1-2 114	DC5-17-18 Geometry 1-2 114	PLAN
	220	FE5-07-08 Chemistry 1-2 220	DG2-01-02 Applied Math 1-2 223	DG2-03-04 Applied Math 1-2 223	PLAN	PLAN	DG1-01-02 Discovery Math 223	FE5-15-16 Chemistry 1-2 220	DG2-05-06 Applied Math 1-2 223
	CF1	PLAN	Family & Consumer Science	Family & Consumer Science	Family & Consumer Science	DF4-01-02 Consumer Math 213	PLAN	Family & Consumer Science	Family & Consumer Science

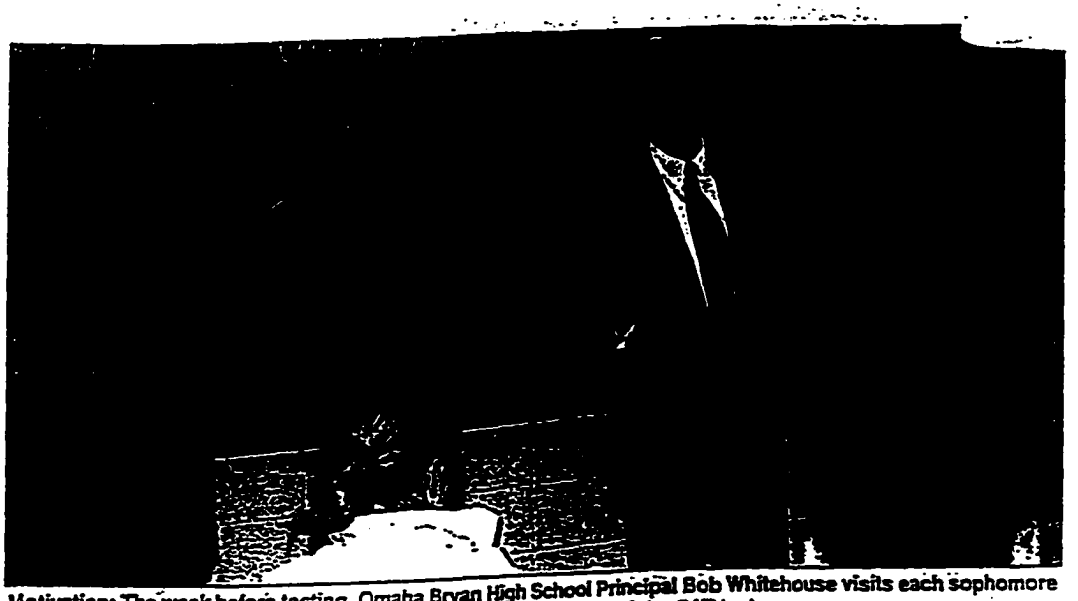
Appendix E

Sample of Bell Schedule

BELL AND LUNCH SCHEDULE
1997 - 98

7:40	Warning Bell Students Report to Class
7:45	Tardy Bell
7:45 - 7:58	Advisement (4 Minute Passing Period)
8:02 - 9:30	BLOCK 1 (10 Min. Passing Period - 9:36 *WARNING BELL)*
9:40 - 11:08	BLOCK 2 (6 Minute Passing Period)
11:14 - 1:12	BLOCK 3 (LUNCH) LUNCH SCHEDULE
11:14 - 11:44	Second Floor & P.E. (Except Business and Family Consumer Science) (Third block begins at 11:44)
11:44 - 12:14	Tech., Music, Social Studies and JROTC (Reports to class at 11:14)
12:00 - 12:30	All Other classes (Reports to class at 11:14) (10 Minute Passing Period) (1:18 *WARNING BELL)*
1:22 - 2:50	BLOCK 4
2:55	Co-Curricular Activities

Raising Test Scores



Motivation: The week before testing, Omaha Bryan High School Principal Bob Whitehouse visits each sophomore classroom to build student confidence and stress the importance of the CAT test.

Raising test scores

Omaha Bryan builds right climate for testing

When the staff at Omaha Bryan High School set out to raise the school's California Achievement Test (CAT) scores last year, they approached the challenge the way they usually do—as a team.

Students, staff and parents joined forces in an effort to prepare for the standardized tests given to sophomores each February.

The result? Bryan students increased their test scores in all three categories—reading, language and math—while raising their total battery score by 10 points.

How did they do it?

"Our overall goal," said Bryan principal and long-time NSEA member Bob Whitehouse, "was to make the test meaningful and the testing environment positive. We wanted students to take the CAT seriously and do their best."

Curriculum Specialists Rozanne Murphy and Fred Schoning developed teacher CAT packets loaded with English and math review materials, along with a timeline. These cross curriculum review activities were designed to reflect Bryan High's performance goals and School Improvement Plan.

"When educators set out to raise test scores, there is the risk they will end up merely 'teaching to the test,'" said Murphy, "but we wanted to be sure our efforts at Bryan were more far-reaching and beneficial to our students."

Before each class, master math teacher Pars Dineen checked her CAT packet for practice tests and overheads.

"It's a good way to get them to settle into their seats and get them motivated to learn," she said.

Dineen noticed a major improvement in student attitude toward the CAT last year.

"They sat down and took a minute to look over the questions, then marked their answers carefully," she said.

In the past, she said, students who were disinterested or overwhelmed by the test sometimes would often give up and haphazardly fill in the answer sheet.

LAST YEAR students told her the CAT was "more important" to them and that they "weren't afraid of taking the test."

The key to successful use of the review material, said Honors English teacher Cathy Pierson, is working it into the lesson plan.

"If you're sneaky, the students don't even know they're learning a specific skill," she said.

How do you get students excited about a naturally-dreaded test? Motivation was twofold. You encourage them to set personal goals and then bribe them with pizza.

Sophomores looked at their eighth grade scores and set individual improvement goals. If they raised their score in at least one of the three categories by one percentage point, they would be invited to a PTSA-sponsored pizza party.

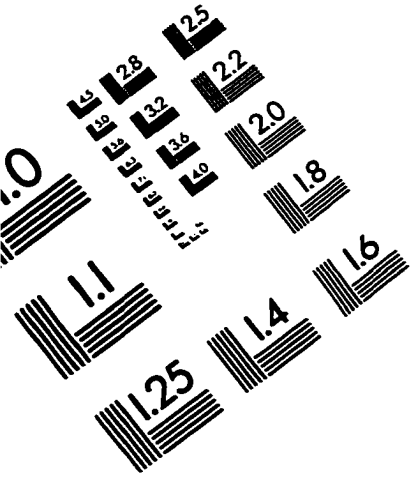
Spirits were boosted by pep talks from the principal and classroom captains. National Honor Society students decorated the school with "good luck" banners.

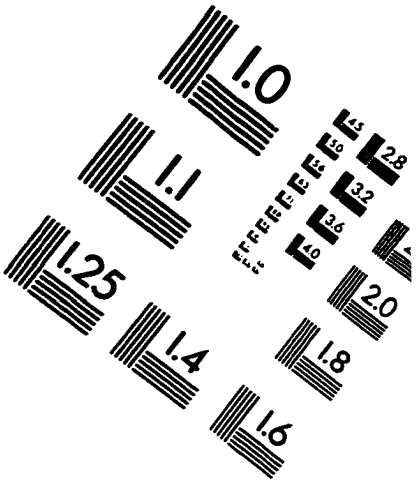
Advisement teachers telephoned parents the night before the test to encourage proper food, sleep and relaxation. Host teachers made sure they were well-fed the following morning.

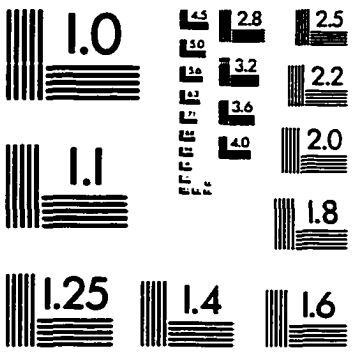
Tests were scheduled into smaller classrooms to reduce test anxiety.

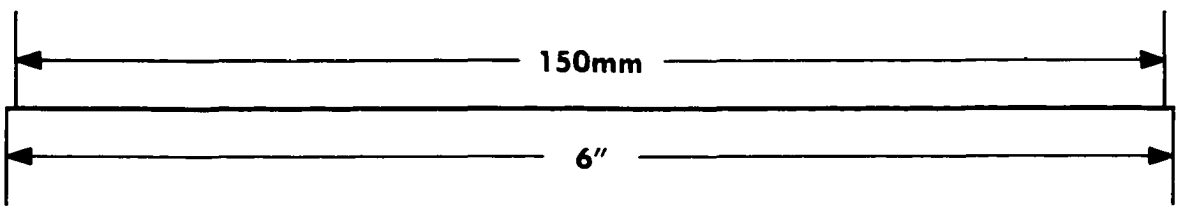
"Our sophomore class felt good about working to raise our individual and school scores," says student Jamie Haines. "We felt pride when we learned that we'd done a good job. It was like being on a team and winning."

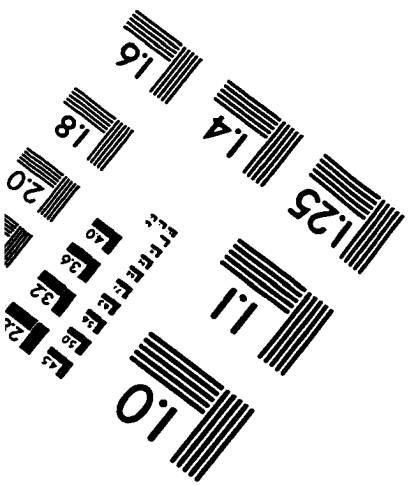
IMAGE EVALUATION TEST TARGET (QA-3)

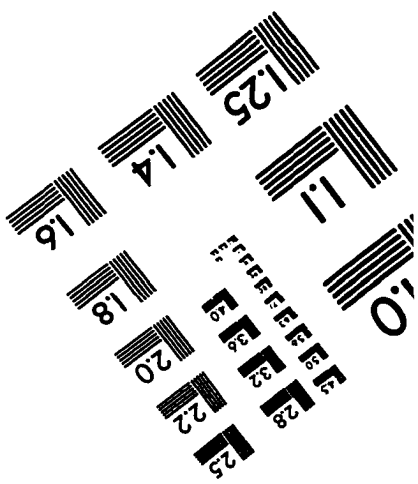












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