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Block Scheduling: A Comparative Study Of Learning Activities And Strategies In Selected New Jersey Public High Schools

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BLOCK SCHEDULING: A COMPARATIVE STUDY OF LEARNING ACTIVITIES AND STRATEGIES IN SELECTED NEW JERSEY PUBLIC HIGH SCHOOLS

BY

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Seton Hall University
2001
TABLE OF CONTENTS

LIST OF TABLES................................................................. iv

I  INTRODUCTION............................................................. 1
   Rationale for the Study................................................. 4
   Statement of the Problem............................................. 6
   Hypothesis................................................................. 6
   Definition of Terms................................................... 7
   Limitations of the Study.............................................. 8
   Summary........................................................................10

II REVIEW OF THE LITERATURE.............................................. 11
   Historical Review........................................................ 11
   Reform........................................................................... 14
   Restructuring............................................................... 17
   Block Scheduling.......................................................... 21
   Examples and Results................................................... 21
   Conclusion...................................................................... 27

III METHODOLOGY.............................................................. 44
   Introduction................................................................... 44
   Research Design........................................................... 44
   First Hypothesis............................................................ 45
   Second Hypothesis........................................................ 46
   Third Hypothesis........................................................... 47
   Participating School Profiles.......................................... 47
   Instrumentation............................................................. 48
   Data Collection............................................................. 51
   Methods of Analysis..................................................... 52
   Summary........................................................................ 52

IV ANALYSIS OF THE DATA.................................................. 54
   Research Question........................................................ 56
   Research Question........................................................ 58
   Research Question........................................................ 60
LIST OF TABLES

Tables

1  Major Components and Elements of High School Restructuring. ......................... 18
2  Analysis of Variance - Student Survey Score Results .............................. 57
3  Summary for Scheffe's Test - Student Survey Score Results ................. 58
4  Analysis of Variance - Teacher Survey Score Results ............................ 59
5  Summary for Scheffe's Test - Teacher Survey Score Results ................. 60
6  Analysis of Variance Table - District Factor Groups and Participants ......... 61
7  Summary for Scheffe's Test - District Factor Groups ............................ 62
8  Summary for Scheffe's Test - Participants ........................................... 63
CHAPTER I
INTRODUCTION

Since the publication of A Nation at Risk (National Commission on Excellence, 1983) improving the achievement levels of American students remains atop many state as well as the national policy making agendas. Academic achievement is still linked to the state of the U.S. economy and its competitiveness in the world market. The National Commission on Excellence in Education issued its findings on the “rising tide of mediocrity” prior to the technological revolution and the development of a global economy (p. 2).

The debate on educational reform was fueled by Prisoners of Time (National Commission on Time and Learning, 1994). This comprehensive review of the relationship between time and learning identified the six-hour-180 day school year as the “unacknowledged design flaw” in American education (p. 8). The conclusion of the National Commission on Time and Learning states; “Learning in America is a prisoner of time” (p. 7). Specific recommendations were made for schools to be reinvented around learning rather than time.

Throughout this period, 1983 to the present, many secondary schools nationwide have been engaged in reform efforts to improve upon student achievement, graduation rates, and the preparation of students to successfully live and work in today's highly competitive global community. Such efforts have been organized around one or more of the following components: more participative management at the school level, outcome-based education or the 1994 Title II national curriculum goals, expanded use of computers and other instructional technology, or comprehensive staff development programs focused on more effective instructional approaches.
In *High School Restructuring: A National Study*, Cawelti (1994) surveyed all regionally accredited public and private high school principals in the United States regarding the extent to which their schools had implemented each of the elements classified as indicators of restructuring activity. The five major elements of high school restructuring were categorized as: curriculum and teaching, school organization, community outreach, technology, and monetary incentives. School organization also includes the daily class schedule. Cawelti’s survey found one in ten high schools nationwide to be using “block scheduling.”

“Block scheduling” as defined in the study included: “At least part of the daily schedule is organized into larger blocks of time (more than sixty minutes, for example) to allow flexibility for varied instructional activities” (Cawelti, 1994, p.31). Although varying tremendously in format, block schedules have an overarching commonality - the departure from the traditional forty-five to fifty-five minute class period.

*Breaking Ranks: Changing an American Institution*, (National Association of Secondary School Principals, 1996), recognized that old ways which no longer work must yield to change. Several areas of recommendations contained in the report impact instruction, organization and time.

1. Engaging Students in Their Own Learning: Responsibility for implementing instructional strategies ultimately rests in the hands of individual teachers who should prepare themselves well and be able to utilize a variety of strategies, in addition to lecturing, for effective student learning. The principal will lead a constant search for better instruction, setting standards for acceptable teaching practices and providing support, resources, and ongoing professional development to facilitate effective instructional strategies . . .

2. Teachers will know and be able to use a variety of strategies and settings that identify and accommodate individual learning styles and engage students (p. 17).

3. The manner in which a high school organizes itself and the ways in which
it uses time create a framework that affects almost everything about teaching and learning in the school.

3. High schools will develop flexible scheduling that allows for more varied uses of time in order to meet the requirements of the core curriculum.


As more high schools nationally and in New Jersey examine their school schedule the number of high schools employing block schedules continues to increase. Reasons often cited in schedule modifications include the following:

1. The industrial age assembly-line model, the difficulty students and teachers face each day. Students attending six, seven, or eight different classes require adjustments to differing academic standards, behavior codes, teaching styles, homework assignments and tests. Teachers must address the intellectual and emotional needs of more than one hundred adolescents each day.

2. Limited possibilities for in-depth study, short single periods limit the flexibility of instructional strategies. Faced with short periods, teachers often rely on lecturing in order to cover the curriculum.

3. Students learn at different rates, the only means of accommodating students needing more time to learn is failure and repeating the course. Acceleration possibilities are limited. In order to take calculus in the twelfth grade a student must complete Algebra I in grade eight.

4. Improved school climate, the traditional schedule creates six, seven, or eight transitions from class to class each day. Many discipline situations occur during these periods of mass student movement. Also, longer periods of instruction make it less likely for a misbehaving student to be referred immediately to the office. Researchers cite advantages observed at high schools using block schedules.
School climate is improved; teaching is more active; assessment is more accurate; teachers deal with a smaller number of students; and subject areas are explored in greater depth (Carroll, 1994; Canady & Rettig, 1995). Edwards (1995) and O'Neil (1995) have described block schedules as conducive to classroom innovation. Canady and Rettig see block scheduling as a “catalyst for change” (1995, p. xi).

However, a clear picture of block scheduling is needed if restructuring efforts in the areas of school organization and time are to have depth and weight. Does block scheduling result in the conditions needed for more effective teaching and learning? Have high schools changed and improved instruction through modifying schedules? How have teachers adjusted their teaching techniques and learning strategies as a result of extended blocks of instruction? Simply changing a schedule is no guarantee of an accompanying change in beliefs, habits, skills or behaviors.

Rationale for the Study

The rationale for the study is to provide a useful basis for future recommendations as to whether block scheduling is a catalyst for modifying and improving instructional practices in New Jersey public high schools.

The wave of scheduling modification, called block scheduling, has resulted in the majority of high schools changing their organization of time in Georgia, Indiana, Maryland, Minnesota, Mississippi, North Carolina, Pennsylvania, Virginia, and other states. In New Jersey the reorganization of time has been slower. In 1995, fewer than five of the State's nearly five hundred high schools used any form of block scheduling. A 1998 survey by the New Jersey Principal and Supervisors Association reported twenty-eight high schools in the state were using or would be implementing block scheduling by September 1998.

Block scheduling has been the subject of researchers collecting objective data to measure its impact on attendance, disciplinary referrals, grade distribution and
standardized test scores. There appears to be a body of evidence supporting claims that block scheduling has a positive impact on school climate: student and faculty attendance and incidence of student discipline referrals. Under block scheduling students seem to earn higher grades as measured by honor roll and grade distribution. However, the results for standardized test scores present mixed and varied findings.

The link between form and function lies at the center of this investigation. In Block Scheduling: A Catalyst for Change in High Schools (1995), Canady and Rettig state:

We predict that the single most important factor in determining the success or failure of block scheduling programs will be the degree to which teachers successfully alter instruction to utilize extended time blocks effectively. If instructional practices do not change, the block scheduling movement of the 1990s, like the flexible modular movement of the 1960s and 1970s will be buried in the graveyard of failed educational innovations. (p. 22)

Efforts to reorganize the school day cannot effect student performance and learning until instructional practices of the traditional schedule change to reflect both the longer blocks of time for engaging learners as well as shifting toward greater emphasis on a student-centered environment.

In 1995, Bryant conducted a study of teaching strategies used in block and traditionally scheduled high schools in Wyoming. Results indicated:

- teachers in block scheduled schools used more strategies which engaged students in interaction with other students or in creating and presenting projects or other work to their peers. Teachers in blocked schools also used more activities on an average than those in unblocked schools” (p.70)

A review of the literature revealed there has been no state-wide investigation of block scheduling efforts in New Jersey. It has been a common practice for individual schools to collect data for use in evaluating the effectiveness of a reorganized school day.
As the implementation of core curriculum content standards progresses, much useful information can be gained from a study and an analysis of the effects block scheduling has had on instructional practices. This study then, may provide a useful basis for future recommendations as to whether block scheduling is a catalyst for improving instructional practices in New Jersey public high schools.

A comparative study of teachers' perception of instruction provided, and students' perception of the impact of learning activities and strategies provide an effective means of assessing what impact block scheduling has had on instructional practices. This study of New Jersey public high schools includes three public high schools using block scheduling. These schools are from different counties across New Jersey (Burlington, Hudson and Warren) as well as from three different district factor groups (A, DE and FG). In this way variables impacting educational expectations and performance, such as community influence and affluence can better be isolated from instructional time and the impact time has on learning activities and strategies.

Statement of the Problem

The problem investigated by this study was to determine whether the implementation of block scheduling in New Jersey public high schools results in a higher frequency and greater variety of learning activities and strategies used by teachers in the classroom as perceived by students and teachers.

Hypothesis

The hypothesis for this study states that teachers in block scheduled public high schools in New Jersey use a greater variety and greater frequency of learning activities and strategies as perceived by students and teachers. The null hypothesis tested by this study states: That there will be no significant difference in the variety or the frequency of block schedules as perceived by learning activities and strategies used by teachers in New
Jersey public high schools using students and teachers.

Definition of Terms

1) Block scheduling: One of two types of schedules: The first utilizes a four period day schedule with the same four classes held each day for eighty to ninety minutes with courses completed in one ninety day semester. The second option is an eight block schedule with alternating days having four periods, periods 1, 3, 5, 7 one day and periods 2, 4, 6, 8 the next day. Each class meets ninety days every other day for eighty to ninety minutes each session. (Cawelti, 1994)

2) District factor group: The New Jersey Department of Education looks at school performance in eight groups assembled according to a complex weighting of factors, such as the income and education of residents. (New Jersey State Department of Education, 1997).

3) Learning activities and strategies- One of the following activities: a) Teacher lecture or presentation to the whole class allowing the transfer of information from teacher to student; b) Student presentations in class enabling students to demonstrate and communicate personal application and synthesis of information and knowledge previously presented; c) Class discussions that create opportunities for students to engage in critical thinking and higher order thinking skills; d) Use of technology including computers, video, audio, or other types of electronic equipment to produce projects relevant to student lives through disciplined inquiry; e) Working in small groups to engage in worthy problems or questions of importance, in which students must use knowledge to fashion performances effectively and creatively resembling the real-life tests of adult life; f) Work on independent projects permits individual interests to guide the process of application and synthesis of knowledge produced by the student; g) Methods requiring active participation (i.e.: role playing, debates, and mock trials) to generate interest in the subject as well as engaging students in learning; h) A variety of
resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines to stimulate student interest and create a broader relationship to the students environment; i) Teams with teachers from other subjects to create lessons to more clearly reinforce connections between subjects and life beyond the classroom; j) Time given to do homework in class for students to recognize answers and/or generate brief responses to questions. (Carroll, 1994b)

4) Traditional scheduling: A five, six, seven or eight period day, each period of forty-five to fifty-five minutes meeting each day of a one hundred eighty day school year.

Limitations of the Study

Research of public high schools in New Jersey designated Atlantic, Gloucester, Somerset, Sussex, and Union Counties as counties in the state that do not have public high schools which used block scheduling prior to 1999. An initial study design was considered that would have compared student and teacher perceptions of learning activities and strategies in pairs of New Jersey public high schools to compare such perceptions from both traditionally scheduled high schools as well as block scheduled high schools. Each pair of New Jersey public high schools was to be matched using the following criteria: county, district factor group, and enrollment. This was believed to be the best manner to isolate the variable of time in relationship to instruction while minimizing the effect of various other factors.

Unfortunately, the climate for public school participation in surveys had been negatively impacted by a lawsuit filed against a northern New Jersey school district by parents. Willing participation by New Jersey public high schools was difficult to gain and consequently limited the usefulness of this study. Repeated attempts to contact the limited number of New Jersey public high schools using block scheduling, as well as efforts to gain participation from comparative traditionally scheduled New Jersey public were unsuccessful. Ultimately, the design for a comparative study including block and
traditional scheduled public high schools in New Jersey had to be discarded.

Though requests for participation in this study reached nearly one-quarter of the more than five hundred public high schools in New Jersey, the ultimate outcome was participation by five New Jersey public high schools using block scheduling. In this group of five New Jersey public high schools, only three district factor groups were represented. Selection of the three New Jersey public high schools reported on in this study was intended to offer the widest range of settings from north to south, east to west, as well as rural, suburban, and urban.

The learning activities and strategies used in the survey instrument were derived from research instruments reported in the Copernican Plan Evaluated: The Evolution of Revolution (Carroll, 1994) and in A Comparative Study of Teaching Strategies Used in Block and Traditionally Scheduled High Schools in the State of Wyoming (Bryant, 1995). Past use of the survey instrument would seem to address any issues regarding the validity of this study.

Concerns regarding reliability may stem from the use of student responses in this study. The question of high school students providing valid and reliable responses to the survey questions was addressed by the analysis design in which teacher responses are compared with students. The importance of reliable data was balanced by the view of student responses as being essential to this study.

Summary

Chapter I describes the problem addressed by this study. High schools throughout the United States and New Jersey are engaged in a restructuring movement aimed at raising student performance and achievement. Block scheduling represents an area of restructuring school organization. This study will investigate the impact of block scheduling on the variety and frequency of learning activities and strategies being used in New Jersey public high school classrooms.
Chapter II offers a review of literature on the historical background of high school scheduling, as well as national educational and high school reorganization efforts. Literature on instructional practices and their relationship to class time will also be examined.

Chapter III outlines the research procedures, methodology, the development of the survey instrument, as well as the sampling and treatment of the data in this study.

Chapter IV presents a statistical analysis and interpretation of the findings.

Chapter V presents a summary of the study with conclusions and implications for future research.
CHAPTER II

REVIEW OF LITERATURE

Current efforts aimed at improving student achievement as well as the systemic reform reorganization of American public schools can best be understood when viewed from a broader context. To provide such a context, this study will examine the literature in five areas including:

1) a historical review of the traditional structuring of public schools;
2) the major national reports signaling the need for significant reform of public schools;
3) a discussion of the elements of the restructuring movement and the critical role of time;
4) an outline of block scheduling, its evolution and the process of its implementation; and
5) a review of examples of block scheduling in practice and the results.

Historical Review

In 1892, the National Education Association’s Committee of Ten established the foundation for today’s rigidly structured high school schedule. The purpose “was to encourage every high school to center the work of each student upon five or six academic areas in each of the four high school years” (Secondary Education: The High School America Needs, Gorman, 1971, p. 112). The development of the “Carnegie Unit” early in the 20th century helped to standardize the every-day-period schedule. The Carnegie Foundation proposed a standard unit to measure high school work based on time. A total of 120 hours in one subject - meeting 4 or 5 times a week, for 40 to 60 minutes, for 36 to
40 weeks each year - earns for the student one “unit” of high school credit. “The Carnegie Unit,” became a convenient, mechanical way to measure academic progress throughout the country. And, to this day, this bookkeeping device is the basis on which the school day, and indeed the entire curriculum is organized. And at some schools, adding up Carnegie units seems to be the main objective (Boyer, 1983). This scheduling structure, begun over 80 years ago, and has proven very resistant to change. The typical high school still operates on an instructional model implemented during the Industrial Age with a school calendar that is a relic from the agrarian period.

During the sixties and seventies, the flexible modular schedule was an attempt to break from the every-day-period schedule. The flexible modular schedule designed by J. Lloyd Trump in 1959, called for instructional sessions of varying length. Students would spend their time in a variety of instructional formats. These included large group (100 or more), small group, individual and study settings depending on the needs of the students and subjects (Images of the Future: A New Approach to the Secondary School, Trump, 1959). For example, a biology class might meet for two forty-minute lectures, a one-hundred minute lab, and a single twenty-minute help session.

In the late sixties and early seventies, estimates of fifteen percent of American high schools were using flexible modular scheduling. Initially, early efforts employing Trump’s scheduling concepts were viewed favorably by students and teachers. Goldman (1983) reported that both teachers and students preferred flexible modular high school schedules over traditional schedules of six or seven single daily periods. Parents and community members did not share such a favorable perception of this scheduling innovation. The results of flexible modular scheduling were at best mixed.

Based on a synthesis of over two dozen studies, (Flexible Modular Scheduling: Results of Evaluations in its Second Decade, Goldman 1983) indicates that student achievement in schools using flexible modular schedules was probably no better than the achievement of students in traditionally scheduled schools. Although flexible modular
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Based on a synthesis of over two dozen studies, (Flexible Modular Scheduling: Results of Evaluations in its Second Decade, Goldman 1983) indicates that student achievement in schools using flexible modular schedules was probably no better than the achievement of students in traditionally scheduled schools. Although flexible modular scheduling has been mostly discontinued, the current movement to improve high school scheduling is re-examining the flexible modular schedule.

Much of the criticism of Trump’s Plan centered on student discipline. A major feature of the plan was the allocation of 30% to 40% of the school day to unscheduled student time, independent study, and individual tutorials. Though this concept was consistent with the free-spirited sixties, individualization of learning and student discipline problems were cited as the major factor for the discontinuation of flexible modular scheduling. Teaching methods and teacher behavior posed additional areas of objection. Teachers often found it difficult to tailor their teaching practices to the varying lengths of time (Goldman, 1983).

It is important to categorize and note criticisms leveled at flexible modular scheduling:

1) Student achievement in flexible modular scheduling was not significantly better than the traditional schedule;

2) Student discipline, and possibly school climate, was impacted negatively;

3) Individualizing instruction, via independent study and/or individual tutors,
was a goal difficult to achieve for a vast majority of students;
There was no accompanying change in instructional methods to best utilize increased periods of class time. Goldman's final comment on flexible modular scheduling has proven to be prophetic:

"Some form of flexible, adapted scheduling is a sophistication which we probably cannot afford to overlook; the lesson to be learned from the flexible modular schedule experience is that flexibility must be real, must produce significantly better results than any system it replaces, and must not cause more problems than it solves." (p.209)

Reform

The National Commission of Excellence in Education (1983) delivered its famous report to the nation, stating that the weakness of our schools menaced our well-being as a country. This report called for the emphasis on a new set of basics, the need for a more intensive school experience for all young people, and the need for a better trained teaching profession in the nation's schools. The focus on an intensive school experience was further emphasized by the National Education Commission on Time and Learning report of 1994:

"For the past 150 years, American public schools have held time constant and let learning vary. The rule only rarely voiced, is simple: learn what you can in the time we make available. It should surprise no one that some bright, hard-working students do reasonably well. Everyone else - from the typical student to the dropout - runs into trouble. Time is learning's warden." (p.7)

This study added, "the degree to which today's American school is controlled by the dynamics of clock and calendar is surprising, even to people who understand school operations" (National Education Commission on Time and Learning, 1994, p.7). Several observations regarding the rigidity of time schedules in public schools clearly illustrate this point:
1) With few exceptions, schools open and close their doors at fixed times in the morning and afternoon.

2) With few exceptions, the school year lasts nine months, beginning in late summer and ending in late spring.

3) According to the National Center for Education Statistics, schools typically offer a six-period day, with about 5.6 hours of classroom time a day.

4) No matter how complex or simple the school subject - literature, shop, physics, gym, or algebra - the school assigns an impartial national average of 51 minutes per class period, no matter how well or poorly students comprehend the material.

5) The norm for required school attendance, according to the Council of Chief State School Officers, is 180 days. Eleven states permit school terms of days or less: only one state requires more than 180.

6) Secondary school graduation requirements are universally based on seat time - "Carnegie units," a standard of measure representing one credit for completion of a one-year course meeting daily.

7) Despite the obsession with time, little attention is paid to how it is used: in 42 states examined by the commission, only 41 percent of secondary school time must be spent on core academic subjects. (National Education Commission on Time and Learning, 1994).

"The results are predictable." According to the Commission, "The school clock governs how families organize their lives, how administrators oversee their schools, and how teachers work their way through the curriculum" (p.8). Most importantly, it
governs how material is presented to students and the opportunity they have to comprehend and master it.

Research in the eighties further supported the view that educators need to be more efficient in their use of allotted time. One teacher described the problem as follows: “Time is the currency of teaching. We barter with time. Every day we make small concessions, small trade-offs, but in the end, we know it’s going to defeat us” (Boyer, p.30). Gilman and Knoll (Increasing Instructional Time: What Are the Priorities and How Do They Affect the Alternatives?, 1984) observe that a fair estimate of the average time devoted to instruction during a school day is probably less than 30%. Karweit’s (Should We Lengthen the School Term?, 1985) research reported that students are engaged in productive academic activities only 38% of the school day. Rossmiller’s (Time on Task: A Look at What Erodes Time for Instruction, 1983) observations found that only 60% of the school day is actually available for instruction. Justiz’s (It's Time to Make Every Minute Count, 1984) work indicates the process of organizing the class and distractions caused by student conduct, interruptions, and administrative processes resulted in the loss of approximately one hour of instructional time each school day.

The evidence clearly indicates a need for schools to shift the paradigm used in organizing the school day. The Carnegie structure of scheduling several classes a day for periods of fifty minutes or less has become a system in which teachers and students cannot teach and learn effectively (The Copernican Plan Evaluated: The Evolution of a Revolution, Carroll, 1994b).

Specific recommendations by the National Education Commission on Time and Learning having direct implications for scheduling the school day include:

1) Schools should be reinvented around learning not time.

2) State and local school boards should work with schools to redesign
education so that time becomes a factor supporting learning, not a boundary marking its limits.

3) Schools should provide additional academic time by reclaiming the school for academic instruction.

4) Teachers should be provided with the professional time and opportunities they need to do their jobs well.

These points make clear an emphasis and focus be placed primarily on learning with time in a secondary and supporting role.

Restructuring

In High School Restructuring: A National Study lists the following as the five major components of high school restructuring: curriculum/teaching, school organization, community outreach, technology, and monetary incentives. Additionally, the seven primary indicators of major restructuring occurring at the high school level were identified (see Table 1). These elements were as follows: outcome-based teaching; alternative assessment; interdisciplinary teaching work; site-based management; block scheduling; business/industry alliances; and the use of modems. Table 1 provides a further breakdown of restructuring characteristics resulted in 36 specific indicators across the five broader areas.
Table 1

Major Components and Elements of High School Restructuring

<table>
<thead>
<tr>
<th>Curriculum and Teaching</th>
<th>School Organization</th>
<th>Community Outreach</th>
<th>Technology</th>
<th>Monetary Incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative learning</td>
<td>Shared school governance</td>
<td>Community use of school</td>
<td>Video instructional materials</td>
<td>Career ladder plan</td>
</tr>
<tr>
<td>Nat'l Mathematics Standards</td>
<td>Site-based management</td>
<td></td>
<td>Word processing applications</td>
<td></td>
</tr>
<tr>
<td>Staff development in teaching strategies</td>
<td>Teacher team responsibilities</td>
<td>Allied youth services</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transition to upper grades</td>
<td></td>
<td>CD-ROM technology</td>
<td>Administrative incentive pay</td>
</tr>
</tbody>
</table>

| Thinking skills | Teacher-advisee system | Business/Industry alliances | | |
| Outcome-based education | School-within-a-school | School/College partnerships | Computer literacy | |
| School-to-work transition | Block schedule | | | Teacher incentive pay |
|                        | Total quality management | Adult volunteer program | Modems | |
| Alternative assessment techniques | Divisional organization | | | |
| Inter-disciplinary teaching | Extended school year | Community service | Multimedia systems | Group incentive pay |

Scheduling has become a critical factor in the restructuring efforts of schools across the country (Canady & Rettig, 1995). The concepts of scheduling and altering scheduling are primary features of Carroll’s Copernican Plan. "In theory," Carroll (1990) states, "the outcome of the Copernican Plan should be schools that are more successful" (p. 359). This results from a classroom environment which fosters improved relationships between teachers and students and more manageable workloads for both teachers and students. Classes are scheduled in blocks of time of ninety minutes, two or four hours per day, and for only part of the school year, such as
30, 45, 60, 90 days per class (Carroll 1990). Students in the plan are enrolled in significantly fewer classes each day, and teachers deal with significantly fewer classes and students each day (Canady & Rettig, 1993). The specific advantages of such scheduling are as follows: Virtually every high school in this nation can decrease its average class size by 20%; increase its course offerings or number of sections by 20%; reduce the total number of students with whom a teacher works each day by 60% to 80%; provide students with regularly scheduled seminars dealing with complex issues; establish a flexible, productive instructional environment that allows effective mastery learning as well as other practices recommended by research; get students to master 25% to 30% percent more information in addition to what they learn in the seminars; and do all of this within approximately present levels of funding (Carroll, 1994b).

Carroll (1994c) reported extensively in 1994 on the results of eight high schools utilizing various forms of the Copernican Plan. Some of the findings of these evaluations were:

1) Six of eight schools reported improved school attendance.
2) Four of six schools reported that student suspension data experienced a decrease.
3) Seven of eight schools reported reductions in the dropout rate.
4) All eight schools reported greater content mastery as measured by student grades.
5) In the 33 comparisons made between traditional and Copernican programs, 27 favored the Copernican plan, five favored traditional plans, and one showed
no change.

"Several major aspects of a high school's program were identified as being affected by scheduling. The conceptual examination of high school scheduling revealed its influence on time and sequence, curriculum and instruction, students, teachers, space and materials" (Teacher Perceptions of Three Models of High School Block Scheduling, Sessoms, 1995, p.210). Clearly the school schedule has an enormous impact on a school's instructional climate. The resulting nationwide review of high school scheduling practices and a search for models better able to meet the needs of teachers and students indicate the following:

1) A schedule can be viewed as a resource; it is the schedule that permits the effective utilization of people, space, time, and resources in an organization.

2) A schedule can help solve problems related to the delivery of instruction; or a schedule can be a major source of problems.

3) A schedule can facilitate the institutionalization of desired programs and institutional practices. (Canady & Rettig, 1995)

Clearly it can be argued, "the problem with our schools is not that they are not what they used to be, but that they are what they used to be" (National Education Commission on Time and Learning, 1994, p.21).

During the spring of 1993, all regionally accredited public and private high school principals in the United States were surveyed regarding the extent to which their schools had implemented each of the elements classified as indicators of restructuring activity. Approximately 33% of the schools responded to the survey. National and state-by-state summaries were produced (Cawelti, 1994).

Block scheduling was defined in the study as: "At least part of the daily schedule organized into larger blocks of time (more than 60 minutes, for example) to allow flexibility for varied instructional activities" (Cawelti, 1994, p.31). Canady and Rettig (1995) believe the definition used in the study that the use of a school-wide
program of block scheduling may be far less than indicated. For example, science lab
classes and vocational class double periods meet the threshold of “at least part of the
daily schedule organized into larger blocks of time (more than 60 minutes, for
example)” (p.17).

**Block Scheduling**

In addition to Cawelti’s (1995) definition of block scheduling, the variations
on the format are endless and may involve reconfiguring the lengths of terms as well
as the daily schedule (Block Scheduling, Irmsher, 1996). Some of the possibilities
detailed by Canady and Rettig (1995) include:

1) Four ninety-minute blocks per day; the school year divided into two
   semesters; former year-long courses are completed in a half-year semester.

2) Alternate day block schedule; six or eight courses spread out over two
days; teachers meet with half of their students each day.

3) Two large blocks and three standard-sized blocks per day; year divided
   into sixty-day trimesters with a different subject taught in the large blocks each
   trimester.

4) Some classes (such as band, typing, foreign language) taught daily, others
   in longer blocks on alternate days.

5) Six courses; each meeting in three single periods, and one double period
   per week.

6) Seven courses; teachers meet with students three days out of four - twice in
   single periods, one in a double period. (Irmsher, 1996)

There are many more. Any of these can be modified to meet the specific needs
of a school. According to Irmsher (1996), “Scheduling changes are usually linked to
decreased reliance on the standard lecture-discussion-seat work pattern and an
increase in individualization and creative teaching strategies” (p.2). The scheduling
alternatives listed need to be viewed as the means for achieving effective change to successfully increase the individualization of instruction as well as emphasizing creative teaching strategies.

Among the purported benefits of block scheduling, Cawelti (1995) notes that it:

1) Increases length of class periods;
2) Enables teachers to use a variety of instructional approaches;
3) Decreases the number of class changes;
4) Saves time;
5) Limits the number of preparations for teachers;
6) Provides the opportunity for interdisciplinary teaching;
7) Decreases the number of students taught each day by a teacher;
8) Increases planning time for teachers;
9) Helps teachers to develop closer relationships with their students;
10) Provides the opportunity for project work; and
11) Provides additional opportunities for teachers to help students. (p. 15)

Canady and Rettig (1993) indicated that at least one form of block scheduling, the 75-75-30 plan, offers the following advantages:

1) It facilitates variety in the use of instructional approaches;
2) Students see fewer teachers each term and teachers see fewer students;
3) Discipline problems are reduced;
4) Instructional time is increased;
5) Teachers and students are able to focus on fewer subjects;
6) The benefits of summer school can be offered to all students at no additional cost to students or the school district;
7) Possibilities for acceleration are provided at least twice during the regular school year;
8) Students can repeat a failed course during the regular school year.

Imposing a scheduling model on a school will not ensure success. A period of at least two years planning time is recommended before implementing a block schedule, to make sure the new schedule meets the needs of all concerned. Moreover, all change is painful and often controversial. “The process of making the transition is probably the biggest challenge: building support for altering such a time-honored tradition, and finding/creating the planning time needed to make the change” (The First Year Experience: A High School Restructures Through the Copernican Plan, Strock and Hottenstein, 1994, p.30).

Much research has been reported over the years regarding the implementation of various innovations in education. Fullan’s (1991) book, The New Meaning of Educational Change, provides a guide for understanding the many mistakes and few successes of the past. Change in educational practice is defined as a change in materials, teaching approaches, and/or beliefs. The process of change can be subdivided into three interacting and overlapping stages: initiation, implementation, and continuation. As Fullan states:

“The initiation of an innovation is dependent upon a combination of three factors: relevance, readiness, and resources. Relevance refers to a perceived need for a change, the clarity in which the innovation is understood by practitioners, and the practical utility of the innovation. Readiness for the initiation of change includes a number of organizational and individual factors. Organizationally, is there a school culture and resource infrastructure in place to support the effort? Are other change efforts in progress? Do individuals see a need which they believe can be met by the change? Do they possess appropriate knowledge and skills? Do they have time for implementation? Simply put, what is the school’s capacity for change? Finally, are there resources available to both begin and continue the change effort? (p.63)
During the initiation or study phase, as a school investigates the possibilities of block scheduling, a number of activities are suggested. In addition to creating a representative study committee which deliberates on the details of various plans and brings a proposal to the entire faculty, Canady and Rettig (1995) recommend that all stakeholders be provided opportunities to learn about this innovation by engaging in many of the following activities:

1) A general presentation regarding the pros and cons of various models of block scheduling;
2) Visits by teachers, students, parents and school board members to schools having block scheduling;
3) Panel presentations by teachers from schools operating block schedules;
4) Faculty discussion meeting, leading to vote or consensus;
5) Parent and community meetings;
6) Assemblies for students conducted by students from other schools, or by their peers who have visited schools using block schedules;
7) Distribution of relevant research data and implementation procedures;
8) School board presentations and approval;
9) Staff development focused on the appropriate design of curriculum and use of extended blocks of time for instruction (p. 40).

Ideally, meeting the conditions of relevance, readiness, and resources should improve the likelihood of success. While successful initiation is important, well-designed implementation strategies are crucial. For it is the process of implementation which determines the success or failure of a change effort (Fullan, 1991).

Fullan’s (1991) description of implementation includes certain key factors to be considered. The four characteristics of the innovation itself are important: need, clarity, complexity and the quality and the practicality of the program. The existence of a perceived need for change has been important for successful implementations.
Lack of clarity in terms of both the goals and means of change has been linked to unsuccessful implementations. The complexity of the change attempted also affects success, but often in unexpected ways. It would seem, that small, simple change efforts would have a greater likelihood of success than major restructuring efforts would. However, stakeholders may view a minor change as not worth their attention, while a more complex and ambitious program may inspire more enthusiasm and commitment. Finally, the quality and practicality of the program itself affects implementation. The choice of a program can be made for the wrong reasons. Only those programs that pass the "practicality ethic" of teachers can be successful. That is, the change must address a need, fit the teachers' situation, be focused, and include concrete strategies.

The variety of local and external contextual factors affect implementation as well. Local influences include the school district, the school board and community, the principal and the teachers. These groups often have a history of interaction which can be a positive influence in support of implementation. To gain the active support of as many of these groups can only aid the process of change. Schools with the greatest success in implementing change have a culture of collegiality which is conducive to open communication, trust, support and help, learning on the job, and getting results. Teachers and administrators in successful schools engage in frequent discussions about teaching improvement; observe each other teaching and provide feedback; plan, design, research, evaluate, and prepare teaching materials together; and finally, teach others the practice of teaching (Fullan, 1991).

After a program has been adopted, a school's efforts should focus on ensuring that all details of the schedule are addressed and that all relevant stakeholders are made aware of these details. More important, say Canady and Rettig (1995), teachers should be provided time to alter their curriculum appropriately and get training in suitable instructional strategies that will be effective in the block schedule. Irmscher's
general suggestions include:

1) Planning lessons in three parts: explanation, application and synthesis;
2) Have teachers gain experience in the areas of application and synthesis;
3) Training in cooperative learning, class building, and team formation.

More recent research has taken place in Alabama, Arkansas and Florida that illustrates the importance of investigating scheduling options, discussing the reasons for altering the schedule, involving all of the key stakeholders, and developing a thought out on-going plan of implementation. In each focus was on the perceptions of students and teachers toward block scheduling.

In Arkansas (Students Perceptions of Block Scheduling Practices in a Selected Arkansas High School, Calvery, Sheets and Bell, 1998) student perceptions of the block schedule were compared with those of the traditional seven-period schedule. Twelve Likert-scaled questions were used to evaluate student perceptions in one Arkansas high school. The high school had voted to implement a modified three-block schedule with two traditional classes in moving from a traditional seven-period day. Over a two year period an increase in student preference for block scheduling was measured. However, a 59% majority of the students expressed a preference for the traditional schedule. The area of biggest concern for students had to do with making up work.

Teachers in two metropolitan Florida high schools were surveyed (Perceptions of Teachers in South Florida Toward Block Scheduling, Hamdy and Urich, 1998) for their perceptions of block scheduling. The findings reveal teacher attitudes indicate the block schedule contained too many time gaps for teaching English, math and world languages. An additional finding was the belief block scheduling was more beneficial to advanced students than average achieving students.

Liu and Dye (Teacher and Student Attitudes Toward Block Scheduling in a Rural School District, 1998) studied students and teachers a two rural high schools in
Alabama for their perceptions of block scheduling. Both groups supported the block schedule, and the teachers responses reflected a more positive view than that of the students. Interestingly, 58% of the students surveyed wanted classes of shorter duration.

Canady and Rettig (1995) predict that the single most important factor in determining the success or failure of block scheduling programs will be the degree to which teachers successfully alter instruction to utilize extended time blocks effectively. Failure to do so would sentence block scheduling to the fate of flexible modular scheduling. Evidence of continuance or institutionalization includes policy, budgets, timetables and procedures for continuing assistance and training of new teachers and administrators (Fullan, 1991).

Finally, any program a school implements should be evaluated. If a school opts for an alternative schedule, a variety of data should be collected to provide documentary support for the innovation (Canady and Rettig, 1995).

Examples and Results

What follows is a review of several attempts by high schools across the United States to shift from the traditional school day structure by implementing block scheduling. Changing a traditional school schedule to a form of block scheduling is a restructuring reform that may affect teaching and learning, and the conditions of teachers’ work in schools. The school schedule itself is restructured and this may affect the way all members of the organization spend their time doing their work - teaching and learning.

A quick review of the problems presented by flexible modular scheduling is in order to ensure the past is not revisited. Student achievement and discipline, the individualization of instruction, and altering teaching methods for increased instructional time were identified as problematic areas. Recommendations from the
National Education Commission on Time and Learning (1994) report made learning the primary focus with time supporting this process.

It is important to keep the following questions in mind:

1) Is this a better way to organize school, a way that enhances teaching and learning?

2) Does block scheduling create the best workplace conditions for teachers and students?

3) How should an effective school be structured?

4) What are the best conditions for teaching and learning?

Wasson High School in Colorado Springs adopted a block schedule, the 4x4 plan where students take four classes for ninety minutes for ninety days, in 1990 seeking better instruction and improved student outcomes. Since the scheduling change “daily attendance, the percentage of students making the honor roll or going on to four year colleges, and the number of course credits earned by students are all higher. The failure rate is lower” (Finding Time to Learn, O'Neill, 1995, p. 11).

Roger Schoenstein (1995), a veteran teacher at Wasson High School is now able to use various instructional strategies. “In ninety minutes, he can present information, organize students in pairs or cooperative learning groups, have a lively discussion, and get them to do some writing” (p. 11). Despite such testimony, hard data on the effects of block scheduling on instruction are scarce. In general, research has found that students and teachers like longer classes, and that student achievement is comparable with either form of scheduling.

Schoenstein (1995) offers the following suggestions in to those schools, administrators, parents, teachers and students considering changing to a block schedule:

1) Pick a schedule that fixes the things you want to fix;

2) If you pick a block schedule, make a three or four-year commitment to trying it out;
3) Check on district and state policies that might be affected;
4) Caution teachers against trying to plan lessons too far ahead for that first year;
5) Limit your visitors;
6) Watch for students who need early intervention;
7) Give the school time to change;
8) Recognize that more is changing than the length of class periods.

Guskey (1995) describes a high school block scheduling restructuring program at Governor Thomas Johnson High School in Frederick, Maryland. The decision to restructure the school was based on the belief it would provide benefits to students and teachers alike. Student benefits were thought to include the following:

1) The opportunity to take one additional class per year, or four additional classes during their high school career;
2) Increased flexibility in scheduling, which would allow students to accelerate their academic program;
3) Fewer courses to attend to at one time so that learning efforts can be more focused;
4) Increased opportunities for active involvement during the longer classes so that course work is more tailored to individual needs (Guskey, 1995).

Teacher benefits were viewed as:

1) Teaching fewer classes per semester (three instead of six);
2) Increasing planning time each day (90 minutes instead of 48 minutes);
3) Being responsible for fewer students per semester but for longer periods of time, thus allowing teachers to get to know students better. (Guskey, 1995)

Jointly these proposed benefits give students and teachers more opportunities for flexible teaching and learning arrangements. They offer the chance for students and teachers to interact more regularly and to develop better personal relationships.
They also allow for greater curricular focus and integration. Obvious outcomes would include:

1) Higher achievement and more positive attitudes for students;
2) Higher morale and more positive attitudes for teachers (Guskey, 1995).

A 4x4 block schedule format was adopted. That is, each day would consist of four 90 minute classes, each semester would last 18 weeks or 90 instructional days. Students would be able to take eight courses each year, although students would never be enrolled in more than four classes at a time. Teachers would instruct three classes each semester and have a 90 minute planning period each day.

Guskey's (1995) study covered a program begun in the 1992-93 school year. “Results indicate students’ performance on the Maryland Functional Tests, the Frederick County Summative Tests, and various college entrance examinations have remained much the same since the implementation of the block schedule. . . . The distribution of students’ final course grades also has remained unchanged. However, the scores of African-American students on the Maryland Functional Tests have shown significant improvement, particularly in Mathematics and Citizenship. . . . In addition, scores on Advance Placement tests have markedly improved, especially in the areas of Composition and U.S. History. Increased numbers of students are taking Advanced Placement tests as well” (p.7-18).

Records show student daily attendance and student dropout rates have not changed since the introduction of block scheduling, but there has been a dramatic reduction in student behavior problems. The perceptions of both students and faculty members regarding block scheduling are overwhelmingly positive, with nearly 70% of students and 95% of the faculty indicating they prefer the new four-period day to the seven-period format (Guskey, 1995).
Procedural problems encountered by Governor Thomas Johnson High School include the following:

1) Extended staff development opportunities should be provided for teachers and other instructional staff members to broaden their repertoire of instructional activities and materials;

2) Guidance personnel, teachers, parents and students should work together to develop specifications for various course options in order to balance the difficulty of students' course load across semesters;

3) A brief, but rigorous program of review should be planned for students who take an Advance Placement course in the fall but will not take the advanced placement test until the spring;

4) The school schedule should be adapted to allow for a weekend between the end of the fall semester and the beginning of the spring semester;

5) Specific procedures should be developed to ease the difficulties experienced by students who transfer from other schools;

6) Procedures should be developed to document the progress and achievement of students in sequential courses;

7) Data should be gathered on changes in students programs of studies under the block schedule program;

8) Efforts to gather information on the results of the program from administrators, teachers, student and parents should continue through the third year of implementation (Guskey, 1995).

Governor Thomas Johnson High School is critical to understanding the role played by block scheduling in the overall scheme of restructuring high schools. Though Guskey (1995) reports positive and significant early results, the recommendations point toward deeper and more far-reaching changes that must be implemented to effectively restructure Governor Thomas Johnson High School. It is
in this manner that block scheduling serves as a catalyst from the traditional school
structure to a more highly effective restructured school organization. However, one
area where critical information is missing has to do with the impact of changing
teaching methodology to parallel the schedule difference, classes of fifty minutes to
classes of ninety minutes.

Many schools in states across the nation have implemented block scheduling
to benefit learners who have not thrived in the traditional classroom setting. Georgia,
Indiana, Maryland, Minnesota, Mississippi, North Carolina, Pennsylvania, Tennessee,
Virginia, and other states represent the fore-front of the block scheduling movement.
What follows are the findings of several states reporting on the early effects generated
by block scheduling.

In the 1995-1996 school year 64 schools in 50 Mississippi school districts
piloted block scheduling. Through a series of visits with administrators, teachers,
counselors and students and the completion of surveys the pilot year findings
indicated the following major success factors (Final Report on Modular/Block
Scheduling, Mississippi Department of Education, 1997):

1) Uninterrupted instructional time in critical subject areas permits focused
work with ample time for labs;

2) Integration of subject matter, interdisciplinary team teaching, research
projects, group work, and immediate feedback on work;

3) The increased use of community resources and the involvement of
volunteers;

4) Student/teacher interaction and student advisement were enhanced;

5) Changes in the way teachers teach were cited as requiring more creativity,
more planning, better classroom management, and varied teaching strategies;

6) Decreased discipline referrals and improved student attendance;

7) Improvement in student achievement was documented in several schools;
8) Increases in independent study skills, time management, and student accountability were evidenced;

9) Flexibility of scheduling, early completion of required courses, additional opportunities to take elective courses, and easy repetition of classes were also discerned (Mississippi Department of Education, 1997).

In 1994 the North Carolina Department of Public Instruction conducted a survey of all high schools in the state to determine the extent of the use of block scheduling. Since two years had passed and many other high schools have begun using block scheduling, the Department of Public Instruction wanted to examine student achievement in these schools compared to the non-blocked schools (Blocked Scheduled High School Achievement: Comparison of 1995 End-of-Course Test Scores for Blocked and Non-Blocked High Schools, North Carolina Department of Public Instruction, 1997).

1) Generally speaking, students in block scheduled schools have end of course test scores at least equal to students in non-blocked schools;

2) After adjustment, block scheduled schools show significantly higher 1995 scores than non-blocked schools in almost all major subjects (English 1, Algebra, Economics, Legal and Political Systems, Biology, and U.S. History subjects having higher scores, Chemistry and Physics indicated no statistical difference);

3) Most block scheduled schools may have somewhat lower socio-economic student populations;

4) Students completed less homework in most block scheduled schools;

5) At present, length of time in a block schedule is not related to higher student end of course scores.

During the 1994-1995 school year, 25 secondary schools in Tennessee implemented block scheduling. Data was collected from a survey administered to the
25 schools as well as from a group interview at each site. The pilot study (A Status Report on Alternative Scheduling in Tennessee High Schools, State of Tennessee Center of Excellence, 1997) reports the results of the implementation year:

1) Positive changes in teaching styles, enabling teachers to move towards hands-on teaching strategies;
2) More student-centered teaching and learning;
3) An increase in elective courses;
4) A reduction in serious disciplinary problems;
5) Quieter, less stressful days as perceived by both students and teachers;
6) Improved student/teacher morale;
7) Decreases in failure and drop-out rates;
8) A general perception, of both students and teachers, that students were learning more.

Two Canadian studies, Bateson (1990), and Raphael, Wahlstrom and McLean (1986), must be addressed due to findings regarding student achievement with regard to block scheduling. In 1985, Bateson (1990) studied 30,116 tenth graders to compare student achievement in science with regard to traditional and block schedules. The findings indicated students in year-long, traditional science classes significantly outperformed students taking half-year block scheduled science classes. Raphael et al (1986) examined the effect of block scheduling on mathematics courses in Ontario schools. Overall, block scheduling resulted in lower student achievement than students in year-long classes.

The caveat in both studies places the focus on instructional practice. There was no significant increase in project-based work, debates, Dr. Bateson stated:

"or any other techniques that should lead to better and higher-level teaching skills. If you don’t change teaching methods, any of the benefits that are supposed to accrue don’t come about. It could be if time and in-service
education is provided, it is quite possible the results will literally
reverse themselves." (Bateson, p. 239)

Raphael et al (1986) found evidence that students in block scheduling scored higher
on attitudinal scales indicating these students enjoyed the courses or thought they
were worthwhile.

The next step is to identify examples of how block scheduling has impacted
the paradigm of human development, learning and teaching, the nature and structure
of knowledge, and the cultural and social realities of the present, as well as
expectations for the future. Marshak (1997), in *Action Research on Block Scheduling*
previews findings on effective teaching and learning in high school block schedules.

During the 1995-96 school year, 40 teachers from 10 Seattle-Puget Sound,
Washington, areas high schools that had already adopted some form of block
scheduling conducted action research studies within their own schools. The purpose
of the research was to develop the beginnings of a useful knowledge base about
effective teaching and learning in block periods of 80 minutes or more. Four teachers
from each participating high school worked together as a research team, while
Marshak supported each team as the project coordinator (Marshak, 1997).

Each research team first articulated its own research question. Then each team
developed a number of data collection instruments pertinent to its question. Each team
field-tested its instruments, revised them as needed, and employed them with various
numbers of teachers, students and administrators. When the teams had collected their
data, each team devoted significant time and energy to considering the data, drawing
conclusions and findings as appropriate, and eventually exploring the meanings and
implications of what had been learned (Marshak, 1997).

The studies were completed in July 1996. In addition, most of the studies
were critiqued by teams of two Puget Sound area high school teachers who
themselves teach within a block schedule (Marshak, 1997).
The nature and quality of these action research studies are illustrative of the entire process of transformation now begun in many high schools in this nation. Each of these teams of teacher-researchers set off on this journey of action research with a high level of interest and motivation, good intentions, and a commitment to professional growth. (p. xiv-xvi)

Shorewood High School initiated block scheduling in the 1994-95 school year. The action research team at Shorewood High School selected as its topic: How have teaching techniques and strategies changed as a result of block periods, and what does this tell us about teacher values regarding what leads to learning? Four instruments were used to gather data: a teacher survey, teaching activity log survey, teacher interviews, and student survey (Marshak 1997).

The findings of the action research team at Shorewood High School present an interesting outcome. Attempts to examine the patterns of activities that teachers construct for use in longer periods of instruction, as well as the comparison of teachers' reports about their teaching practice with the perception of students about what kinds of teaching they experience within block periods are inconclusive.

Action research has two principal aims: contribution to the knowledge base of the profession, and improvement of teaching and learning at the research site. However, Shorewood's research process emphasized self-reflection at several stages: by the researchers themselves, by participating teachers, and by students who completed the survey. The research helped staff members to focus and frame their concerns and then to bring these to a general discussion in ways that likely will lead to modifications and resolutions. Educators have constantly struggled against the heavy isolation inherent in these institutions. This research project has accomplished very much simply by bringing teachers together to look at and talk about their values and their work. (p.51)

Since 1993 when Cedarcrest High School opened its doors, it has operated on
a block schedule. The action research team settled on the following central research question: How does one structure time for effective teaching and learning in a block period? This overall research question was broken down into these subquestions: How much time is spent in each type of activity in the classroom? How is effective teaching defined (Marshak, 1997, p. 93)? The first question was researched through faculty survey and followed up by individual teacher lesson plan survey. Information on the second question was gathered by conducting interviews with administrators, teachers, and students. As Marshak (1997) reports:

In sum, the data suggest several themes as central to definitions of effectiveness in a 100-minute period. Variety was mentioned many times by teachers, administrators, and students. All three agreed that a variety of activities, if properly used, creates a learning opportunity that is effective as well as enjoyable. An effective teacher uses variety, but has carefully prepared the activities considering the needs and learning styles of the students. It seems that an effective teacher should devote a portion of the time to communicating the objectives of each activity to the students. Time is easier to structure if one is teaching to an objective and giving reasons helps students to see the purpose of each activity. Perhaps when students learn why they are being asked to engage in a given activity, the learning becomes more meaningful, and the activity can then be seen as more effective by all involved. Though these themes were clearly seen in all participants' responses, the variety of activities used is dependent upon the teacher and the content being taught. While all agree that variety and preparedness are important, how this variety is implemented looks very different from classroom to classroom. (p.105)

The primary message from Cedarcrest demonstrates the importance of variety, organization and involvement for effective instruction in block schedule periods. In
critiquing the action research team effort it was noted (Marshak, 1997):

This process of action research emphasized the importance of asking students to reflect seriously on classroom activities as they unfold, not just in an occasional study. Again, this area pushes us to be more specific in our reflection on our teaching. As teachers, we must set up an arena in which students are encouraged to critique the teaching and learning that occur in the classroom seriously and thoughtfully so that meaningful improvements can be made by both the teacher and the students. The enactment of the activities described in this statement would move these particular teachers deeply into a new model of high school. (p. 115)

Tahoma High School was the site of the third action research team. Block scheduling was begun in the 1994-95 school years. Part of the instructional program at Tahoma High School includes an integrated offering of social studies, science, and English for ninth and tenth graders. Consequently, the research question framed was: Can direct instruction of connected learning impact student skills? Data was collected via numerous surveys completed by teachers and students at each of the four grade levels (Marshak, 1997).

After collecting and analyzing the data, student data was then compared and contrasted to teacher data focusing on four areas:

1) The perceived value and importance of connected learning;
2) Connected learning in block periods;
3) Connected learning and the integrated program;
4) Strategies for connected learning. (p. 121)

As with other action research teams the results were mixed. "Unfortunately, we didn't gain much new information in this area," was the conclusion of the team (Marshak, 1997, p. 128). However, Marshak's observations offer important insights. The researcher notes:
Students seemed less able to make connections between content areas except in the case of the students currently involved in the integrated program. The integrated-program students seemed both to value connected learning and to be able to recognize when it happened. (p.130)

This conclusion suggests that the integrated-program classrooms are enacting a different kind of high school education than are the regular ones.

However, many students expressed a lack of desire to make the connections themselves. When “forced” to use connected learning, as with an assignment, students in the integrated program felt they could make connections on their own, yet they did not necessarily choose to do so. One hypothesis to explain this phenomenon is that a year or two in a program that is moving toward a different model of school is not enough to shift the majority of students from a passive, receiving set to an active, creating orientation. Many students had learned this new set of thinking skills, but they hadn’t yet consistently accepted responsibility for using them. (p. 130)

As Marshak (1997) explains:

Since students learn at different rates and with different styles, the extra time in block periods allows for a variety of ways to move beyond the content to the connections. For some teachers, block periods are the only opportunity to bring out connections between classroom study and experiences outside of the classroom. Projects, group discussions, and individual attention are a few of the strategies teachers use to allow students to make connections between content areas and life experiences. (p.131)

The outcome of the action research on Tahoma High School has been the addition of new elements to teaching practices, such as the following:

1) Engagement of a variety of learning activities;
2) An implied movement from coverage of a set curriculum toward an understanding that the curriculum explored within the classroom needs to be connected to phenomena and experiences outside the classroom if it is to have meaning for the student;

3) An implicit recognition that perceived meaning, as gauged by the level of student involvement, is important in the high school classroom. (p. 131)

The work of the action research team at Tahoma High School suggests that the list of elements within a new model of high school needs to be expanded to include integrated curriculum and integrated learning. As Marshak (1997) explains:

In 1992 the Renton School district passed a $17 million technology levy that allowed the district to become one of the most technologically advanced districts in the state. At Lindbergh High School, each room in the building is connected to the rest of the district via a computer network. Also, each classroom has at least two computers with direct access to the Internet. The main computer lab has 57 Power Macintosh computers, each of which is also connected to the network. There are also two mini-labs, one with 14 Macintosh computers and the other with 30. The building has a variety of other technologies available to faculty and students, such as scanners, digital cameras, and PC viewers. (p.157)

At the beginning of the 1995-96 school year, Lindbergh High School switched from the traditional six-period day to block scheduling. The action research team posed the question: How can block scheduling allow for an increased use of technology to engage students more actively in the learning process? The following sub-questions emerged:

1) What kinds of effective, engaging activities are possible with technology?

2) What keeps teachers from using technology more often and more effectively?
A faculty survey, an “expert” survey and a student survey were employed to gather information. The findings of the Lindbergh study identify three elements that suggest steps toward a new model of high school: teachers’ perceptions of the need to employ a variety of activities that encourage student engagement in block periods; teachers’ beliefs that block scheduling increases the opportunities for using technology in class; and an acknowledgment by teachers of the need for ongoing exploration and experimentation, in this case with a focus on the teaching and learning uses of new technologies, particularly computer-related ones. The researchers finding that the majority of technology use occurred in teacher preparation for classes, not in hands-on student activities is telling. It informs us that in this school, at least, and probably in many others, there is a significant gap between the availability of computer hardware and software and teachers’ development of skills for using these tools for teaching and learning in the classroom. One hypothesis about this gap is that without block periods, teachers will have less motivation to close the gap. Why learn a set of new teaching skills if you never have the time to employ them in your classroom? (p. 169)

These action research studies reveal a great deal about the perceptions of teachers and students regarding their experience with block scheduling. As Marshak (1997) states:

Taken together as a group of related studies, they offer some steps toward a knowledge base for effective teaching and learning in block schedules – a few steps toward a new idea, a new model, a new paradigm of high school for what various observers have called a postmodern, post-industrial, information era culture. (p.1)
Conclusion

The literature suggests time and the structure of the school day once served education in America's public schools. However, several national reports make clear contemporary concerns that too few students are achieving at satisfactory levels. Recent information indicates students learn at different rates, placing a greater premium than previously on the individualization of instruction. At present, time in schools is not structured to support and foster widespread student achievement. Furthermore, many teachers are not able to balance the variables of class periods of less than fifty minutes today and other demands such as course content standards to provide teaching techniques and learning strategies that effectively engage students in learning and promote student achievement. Instruction, organization and time are critical issues in education today.

Efforts of reform and restructuring have directed educators to examine the use of time as well as the implementation of teaching techniques and learning strategies within the school organization. The reintroduction of flexible modular scheduling as block scheduling attempts to address these areas. Experts and researchers point to many advantages to be gained from scheduling that include: improved school climate, more active teaching, more accurate assessment, and believe scheduling plays a key role as a catalyst of change.

Goldman's review of flexible modular scheduling echoes Bateson's findings in Canada. That is, efforts to re-organize the school day cannot effect student performance and learning until instructional practices of the traditional schedule change to reflect both the longer blocks of time for engaging students as well as shifting toward greater emphasis on a student-centered environment.

In New Jersey, public schools are busy implementing core curriculum standards as a means of addressing the issue of accountability for learning. A study and analysis of the effects of block scheduling has on instructional practices would
seem useful indeed. This study may provide a basis for future research as to whether block scheduling is a catalyst for improving instructional practices in New Jersey public high schools.
CHAPTER III
METHODOLOGY

Introduction

The purpose of this study was to determine whether the implementation of block scheduling in New Jersey public high schools results in a higher frequency and greater variety of learning activities and strategies. Data was to be collected to compare student and teacher perceptions of learning activities and strategies found in block scheduled public high schools in New Jersey. Three public high schools using block schedules agreed to participate in the survey and have students and teachers complete the requisite questionnaires. Each of the three New Jersey public high schools was located in a different county and setting (i.e. rural, suburban and urban) as well as being classified in different district factor groups by the New Jersey Department of Education.

This chapter is organized as follows: presentation of the research question and three hypotheses, a description of the New Jersey public high schools the sample was drawn from, the instrument used for collecting data, the process for analysis of the data, and a summary.

Research Design

This study was designed to answer the question of whether block scheduling makes a difference in the variety and frequency of learning activities and strategies used in a classroom. The learning activities and strategies used in the survey instrument were derived from a research instrument reported by Carroll (1994b) and


The hypothesis for this study states teachers in block scheduled public high schools in New Jersey use a greater variety and a greater frequency of learning activities and strategies as perceived by students and teachers in these schools. In order to answer the research question three null hypotheses were developed and tested.

First Hypothesis

There will be no significant difference between students' perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules:

1) Lecture or presentation to the whole class;
2) Student presentations in class;
3) Class discussions;
4) Use of technology including computers, video, audio, or other types of electronic equipment to produce projects;
5) Working in small groups;
6) Assigning students to work on independent projects;
7) Methods requiring active participation (i.e.: role playing, debates, and mock trials);
8) A variety of resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines;
9) Teams with teachers from other subjects to create lessons;
10) Time given to do homework in class.

The null hypotheses will be tested by an analysis of variance (ANOVA) for each group of students from each of the three different district factor groups to examine if district factor group had an effect on the variety and frequency of learning activities and strategies used by teachers as perceived by students.

Second Hypothesis

There will be no significant difference between teachers’ perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules:

1) Lecture or presentation to the whole class;
2) Student presentations in class;
3) Class discussions;
4) Use of technology including computers, video, audio, or other types of electronic equipment to produce projects;
5) Working in small groups;
6) Assigning students to work on independent projects;
7) Methods requiring active participation (i.e.: role playing, debates, and mock trials);
8) A variety of resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines;
9) Teams with teachers from other subjects to create lessons;
10) Time given to do homework in class.

The null hypotheses will be tested by an analysis of variance (ANOVA) for each group of teachers from each of the three different district factor groups to examine if district factor group had an effect on the variety and frequency of learning activities and strategies used by teachers as perceived by teachers.

**Third Hypothesis**

There will be no significant effect by district factor group, nor will there be any significant effect by the participants, students and teachers, on the perceptions of the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules. A two-way analysis (ANOVA) will be conducted to determine if there is any interaction between district factor groups and the participants, students and teachers.

**Participating School Profiles**

The sample for this study included teachers and students from three public high schools in New Jersey. Three New Jersey public high schools using block schedules participated in the study and each school has been on a 4×4 block scheduling since school year 1996-1997. District factor groups represented, included A, DE, and FG. The schools were from Burlington, Hudson and Warren Counties representing the suburban south central part of New Jersey, the urban northern area of New Jersey and the rural northwestern portion of the state.

Rancocas Valley High School in Burlington County has an enrollment near 1500 students. The curriculum includes nine Advanced Placement courses and the average SAT score for the top 25% of students is 1107, while 75.9% of juniors
pass the HSPT (state minimum proficiency level for math, reading and writing) the first time. Rancocas Valley High School is classified as district factor group DE.

Lincoln High School in Hudson County has an enrollment near 1200 students. The curriculum includes three Advanced Placement courses and the average SAT score for the top 25% of students is 870, while 28.0% of juniors pass the HSPT (state minimum proficiency level for math, reading and writing) the first time. Lincoln High School is classified as district factor group A.

Hackettstown High School in Warren County has an enrollment near 900 students. The curriculum includes seven Advanced Placement courses and the average SAT score for the top 25% of students is 1128, while 84.1% of juniors pass the HSPT (state minimum proficiency level for math, reading and writing) the first time. Hackettstown High School is classified as district factor group FG.

Instrumentation

An eleven item survey instrument, using a five point Likert scale was completed by students and teachers. Both survey instruments were used by Bryant (1995). This evaluation indicated the format of the survey instrument, the directions for completion, and the survey questions were clearly understood, thus no revision of the instrument were necessary. Bryant’s questions were crafted primarily using the Masconomet High School Student Questionnaire published in Carroll (1994c). The questions were used with the permission Dr. Carroll and Dr. Bryant (See Appendix D and Appendix F).

Student respondents were asked to identify the frequency of which ten specified teaching techniques and learning strategies were used in the classroom with the following options: a) never; b) rarely; c) some of the time; d) frequently; and e) almost always. A final question asked student respondents to identify the average number of separate learning activities their teachers used in their classes.
Senior students at each of the three New Jersey public high schools were asked to complete The Masconomet High School Student Questionnaire on Instructional Strategies (See Appendix A).

The Wyoming Teacher Questionnaire of Instructional Strategies (See Appendix B) was created in the same fashion as the Masconomet High School Student Questionnaire on Instructional Strategies was. The language was amended to reflect a teacher perspective (Bryant, 1995).

The questions posed were intended to have students and teachers report on observed learning activities and strategies used in their classrooms. Question #1 solicited information on the frequency of lecture, the dominant form of instruction found in high schools (Goodlad, 1984). Lecture dominated instruction typically results in passive learning where the individual does not assume responsibility for his/her own learning (Cawelti, 1994).

A more engaging learning activity than lecture is student presentations. Question #2 was to determine the frequency of such active participation by students. Slavin's (1989) findings demonstrate a positive correlation among students having a greater degree of interest in learning, on-task behavior and higher achievement gains.

Class discussions represent a valuable alternative to the lecture. The effectiveness of class discussions is dependent largely on the degree of student participation in the interaction, the critical thinking, and higher order thinking skills generated by questions and discussion. Question #3 addresses this activity designed to provoke and stimulate student-thinking skills.

The use of technology has been widely documented as a tool for increasing student engagement and raising student achievement. Cawelti (1994) stated the growing availability and use of electronic technology was creating more opportunities for students to become engaged in the learning process as well as using multi-media for presenting information. Question #4 targeted the frequency of opportunities for
using technology in support of learning.

Small groups is another strategy for increasing student engagement with the subject material and objectives. Though Question #5 was general in scope, not requesting the type of group work, research indicates cooperative group learning is effective in raising student achievement.

Question #6 on independent projects was designed to examine other strategies for learning than the teacher-centered lecture method. No distinction was made between independent work completed in school, away from school, or some combination of the two. Research results demonstrate student engagement in the learning process is greater through independent projects (Slavin, 1989).

Role playing, debates, and mock trials are examples of activities requiring active student participation. Goodlad (1984) and Cawelti (1994) cited such activities as being more engaging and interesting for students due to the physical activity required for completing such assignments. Question #7 was important for collecting data on the frequency of such learning methods.

The use of resources other than textbooks is viewed as a technique for increasing student interest as well as adding to the classroom experience. Question #8 asked students and teachers to respond to the use of resource materials beyond the textbook. It should be noted, a variety of resources like the lecture method tend to support passive learning rather than actively involving students in their learning.

Teaming with other teachers is the foundation for inter- and multi-disciplinary teaching. Team teaching enables students to make connections easier between subjects and between the classroom and their environment. Question #9 was aimed at identifying the frequency and use of such collegial instructional teams.

Homework and other in-class written assignments were seen as activities not engaging students in the learning process. Typical assignments focus on the identification of factual information rather than requiring higher order thinking skills.
to challenge and engage students. The importance of Question #10 rests on the frequency instructional time is used in such a fashion.

Question #11 served to identify the variety of teaching and learning strategies and activities used daily. Variety of instructional methods better meet the needs of students possessing varying learning styles. Fundamental to block scheduling is the belief that teachers will employ a greater number of techniques within an extended block of instructional time.

Data Collection

A proposal for this dissertation research project was submitted to the Seton Hall University Institutional Review Board for Projects Involving Human Subjects (IRB). A request for obtaining parental permission in order for students to complete the survey instrument was included. Each student participant was required to complete a Student Assent form indicating the individual’s willing participation. Following a review by the IRB, the study was conducted.

The use of the Masconomet High School Student Questionnaire, the Wyoming Student Survey of Instructional Strategies, and the Wyoming Teacher Survey of Instructional Strategies served as pilot studies of the survey instrument. The results indicate the format of the survey instrument, the instructions for completion, and the survey questions were clearly understood and no revision was necessary.

The student survey was administered at the selected school sites on a date agreed upon by the principal of each school. The surveys were administered in individual classrooms by teachers. Directions for administering the survey were identical to ensure there was no effect from the different administration settings.

The teacher survey was administered at the selected school sites on a date agreed upon by the principal of each school. The surveys were administered in a large group setting. Directions for administering the survey were identical to ensure there
was no effect from the different administration settings.

Each survey was scored assigning a value of “1” to “A-Never” responses and a value of “5” to “E-Almost always” responses with corresponding values assigned to responses between these extremes. Two questions, number one pertaining to lecture, and number ten pertaining to class time provided for homework were scored with a value of “5” to “A-Never” responses and a value of “1” to “E-Almost always” responses with corresponding values assigned to responses between these extremes. These two distinctions were made in order to achieve a scoring procedure consistent with weighting those learning activities and strategies for engaging students. It is believed the survey questions canvas the range of teaching techniques and learning strategies typically used in classrooms. Survey item one: “Lecture or presentation to the whole class.” and survey item ten: “Time is given to do homework in class.” are typically activities associated with teacher-centered instructional delivery methods. The remaining survey items identify teaching and learning strategies and activities found in student-centered classrooms where students are engaged in the learning process.

Methods of Analysis

The first and second hypotheses will be tested by a one-way analysis of variance (ANOVA) measure for a level of significance at the alpha equal .05. The analysis will be performed for both student groups and teacher groups completing the survey instrument to determine if there is a significance on survey scores existing due to district factor group classification.

The third hypothesis will be tested by a two-way analysis of variance (ANOVA) measure for a level of significance at the alpha equal .05. The analysis will be performed to examine what if any interaction exists between district factor groups and the participants, students and teachers.
Additional analysis of student and teacher responses to individual survey items will be conducted to identify any trends regarding the perceived use of specific learning activities and strategies at the alpha equal .05 level of significance. An examination of this type may reveal a link between block scheduling and certain learning activities and strategies.

Summary
This chapter outlined the methodology to be followed by this study. The research question and hypothesis were restated. The population of students and teachers were described as well as the selection process of the sample from that population. The methods for developing the survey instrument, data collection, and the process for data analysis were reviewed. The next chapter will present the data and the findings of the statistical analysis.
CHAPTER IV
ANALYSIS OF THE DATA

The purpose of this study was to determine whether the implementation of block scheduling in New Jersey public high schools results in a higher frequency and greater variety of learning activities and strategies by comparing student and teacher perceptions of learning strategies found in block scheduled public high schools in New Jersey.

Three research questions were answered in this study using the Masconomet High School Student Questionnaire on Instructional Strategies (Appendix A) and the Wyoming Teacher Questionnaire on Instructional Strategies (Appendix B).

1) There will be no significant difference between students’ perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules.

2) There will be no significant difference between teachers’ perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules.

3) There will be no significant effect by district factor group, nor will there be any significant effect by the participants, students, and teachers, on the perceptions of the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules.

Students and teachers were asked to respond to a series of ten questions, each identifying a specific learning activity or strategy commonly used for classroom
learning. For each learning activity or strategy students and teachers indicated their perception of the frequency of use of that learning activity or strategy in all of their classes.

1) Lecture or presentation to the whole class.
2) Student presentations in class.
3) Class discussions.
4) Use of the computer lab or other types of technology including computers, video, audio, or other electronic equipment to produce projects.
5) Working in small groups.
6) Assigning students to work on independent projects.
7) Methods requiring active participation (i.e., role playing, debates, mock trials, etc.)
8) A variety of resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines.
9) Teams with teachers from other subjects to create lessons.
10) Time is given to do homework in class.

The final question requested students and teachers to identify their perception of the average number of learning activities and strategies typically used in their classes.

11) On the average, my teachers use the following number of separate activities or teaching methods each day in each of my classes.

The responses were presented in the form of a Likert scale with possible choices of: never, rarely, some of the time, frequently, and almost always. Each survey was scored assigning a value of “1” to “A-Never” responses and a value of “5” to “E-Almost always” responses with corresponding values assigned to responses between these extremes. Two questions, number one pertaining to lecture, and number ten pertaining to class time provided for homework were scored with a value of “5” to “A-Never” responses and a value of “1” to “E-Almost always” responses with
corresponding values assigned to responses between these extremes. These two distinctions were made in order to achieve a scoring procedure consistent with weighting those learning activities and strategies for engaging students. It is believed the survey questions canvas the range of teaching techniques and learning strategies typically used in classrooms.

**Research Question #1**

There will be no significant difference between students perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules.

Assumptions made for the one-way analysis of variance (ANOVA) measure at a level of significance at the alpha equal .05 included the following:

1) Each group of district factor group students were independent random samples;
2) The normality of populations;
3) Homogeneity of variance.

The decision to reject the hypothesis, there will be no significant difference between students perceptions of block scheduled high schools of different district factor groups in the variety of the learning strategies used by teachers in New Jersey public high schools using block schedules, was based on $F = 3.04$. Computations produce $F = 5.95$, indicating there is a difference between students perceptions of block scheduled high schools of different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.

The important finding from the ANOVA analysis is that students perceptions as to the variety of learning activities and strategies used by their teachers is
significant with regard to district factor group. Table 2 makes clear the statistically significant difference between student perceptions between district factor groups A and FG.

Table 2

Analysis of Variance - Student Survey Score Results

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>188.06</td>
<td>94.03</td>
<td>5.95</td>
</tr>
<tr>
<td>Within groups</td>
<td>237</td>
<td>3743.93</td>
<td>15.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td>3931.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Scheffe test was then employed to examine the observed difference between district factor group means to avoid incorrectly rejecting the hypothesis. The simple contrasts are significant and validate the rejection of the hypothesis to answer the research question. Simply stated, there is a difference between students perceptions of block scheduled high schools of different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.

The Scheffe test provides a critical value for evaluating the observed difference between means for any pair of district factor groups. The observed mean difference between district factor groups A and DE as well as F and DE offers additional evidence for the decision to reject the null hypothesis.
Table 3
Summary for Scheffe’s Test - Student Survey Score Results

<table>
<thead>
<tr>
<th>Population Comparison</th>
<th>Observed Mean Difference</th>
<th>Scheffe’s Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>[DFG-A] - [DFG-DE]</td>
<td>-0.21</td>
<td>2.47</td>
</tr>
<tr>
<td>[DFG-A] - [DFG-FG]</td>
<td>1.77</td>
<td>2.47</td>
</tr>
<tr>
<td>[DFG-DE] - [DFG-FG]</td>
<td>1.98</td>
<td>2.47</td>
</tr>
</tbody>
</table>

Research Question #2

There will be no significant difference between teachers perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules.

Assumptions made for the one-way analysis of variance (ANOVA) measure at a level of significance at the alpha equal .05 included the following:

1) Each group of district factor group teachers were independent random samples;
2) The normality of populations;
3) Homogeneity of variance.

The decision to reject the hypothesis, there will be no significant difference between teachers perceptions of block scheduled high schools of different district factor groups in the variety of the learning strategies used by teachers in New Jersey public high schools using block schedules, was based on $F = 3.08$. Computations produce $F = 5.95$, indicating there is a difference between teachers perceptions of block scheduled high schools of different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.
The important finding from the ANOVA analysis is that teachers' perceptions as to the variety of learning activities and strategies used is significant with regard to district factor group. Table 4 makes clear the statistically significant difference between teacher perceptions between the district factor groups.

Table 4
Analysis of Variance - Teacher Survey Score Results

<table>
<thead>
<tr>
<th>Sources of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2</td>
<td>1088.15</td>
<td>544.08</td>
<td>33.09</td>
</tr>
<tr>
<td>Within groups</td>
<td>117</td>
<td>1923.98</td>
<td>16.44</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>119</td>
<td>3012.13</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Scheffe test was then employed to examine the observed difference between district factor group means to avoid incorrectly rejecting the hypothesis. The simple contrasts are significant and validate the rejection of the hypothesis to answer the research question. Simply stated, there is a difference between teachers' perceptions of block scheduled high schools of different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.

The Scheffe test provides a critical value for evaluating the observed difference between means for any pair of district factor groups. The observed mean difference between the district factor groups offers additional evidence for the decision to reject the null hypothesis. The simple contrasts are significant and validate the rejection of the hypothesis to answer the research question. Simply stated, there is a difference between teachers' perceptions of block scheduled high schools of different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.
Table 5

Summary for Scheffe's Test - Teacher Survey Score Results

<table>
<thead>
<tr>
<th>Population Comparison</th>
<th>Observed Mean Difference</th>
<th>Scheffe's Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>[DFG-A] - [DFG-DE]</td>
<td>-7.37</td>
<td>2.48</td>
</tr>
<tr>
<td>[DFG-A] - [DFG-FG]</td>
<td>-3.57</td>
<td>2.48</td>
</tr>
<tr>
<td>[DFG-DE] - [DFG-FG]</td>
<td>3.8</td>
<td>2.48</td>
</tr>
</tbody>
</table>

Research Question #3

There will be no significant effect by district factor group, nor will there be any significant effect by the participants, students and teachers, on the perceptions of the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules. A two-way analysis of variance (ANOVA) measure at a level of significance at the alpha equal .05 was conducted testing three null hypotheses:

1) There is no district factor group effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies.
2) There is no participant effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies.
3) District factor groups show no interaction effect with participants in New Jersey public high schools using block scheduling with respect to learning activities and strategies.

Assumptions made for the two-way analysis of variance (ANOVA) included the following:

1) The various effects are additive;
2) The experimental errors must be random and independent of the main effects, and interaction, and of each other;
3) The experimental errors must have common variance;
4) The experimental errors must be normally distributed.

The explanation for the decision to reject each of the three null hypotheses follows: There is no district factor group effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. This hypothesis was rejected based on $F = 3.04$. Computations produce $F = 28.32$, indicating there is a district factor group effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. The important finding from the ANOVA analysis is that there does appear to be a significant district factor group effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. Table 6 makes clear the statistically significant difference between teacher perceptions between the district factor groups.

Table 6

Analysis of Variance Table - District Factor Groups and Participants

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between district factor groups</td>
<td>1</td>
<td>901.88</td>
<td>450.94</td>
<td>28.32</td>
</tr>
<tr>
<td>Between participants</td>
<td>1</td>
<td>126.15</td>
<td>126.15</td>
<td>7.92</td>
</tr>
<tr>
<td>Interaction</td>
<td>2</td>
<td>304.68</td>
<td>152.34</td>
<td>9.57</td>
</tr>
<tr>
<td>Error</td>
<td>234</td>
<td>3725.9</td>
<td>15.92</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>239</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The Scheffe test was then employed to examine the district factor group effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. The simple contrasts are significant and validate the rejection of the hypothesis to answer the research question. Simply stated, there appears to be an effect due to the different district factor groups in the variety of the learning
activities and strategies used by teachers in New Jersey public high schools using block schedules.

The Scheffe test provides a critical value for evaluating the observed difference between means for any pair of district factor groups. The observed mean difference between the district factor groups offers additional evidence for the decision to reject the null hypothesis. The simple contrasts are significant and validate the rejection of the hypothesis to answer the research question. Simply stated, there appears to be an effect due to the different district factor groups in the variety of the learning activities and strategies used by teachers in New Jersey public high schools using block schedules.

All three simple contrasts are significant. Teachers and students from district factor group DE scored the highest. They were followed by teachers and students from district factor groups FG and A respectively.

Table 7

Summary for Scheffe's Test - District Factor Groups

<table>
<thead>
<tr>
<th>Population Comparison</th>
<th>Observed Mean Difference</th>
<th>Scheffe's Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>[DFG-A] - [DFG-DE]</td>
<td>-4.69</td>
<td>2.47</td>
</tr>
<tr>
<td>[DFG-A] - [DFG-FG]</td>
<td>-1.69</td>
<td>2.47</td>
</tr>
<tr>
<td>[DFG-DE] - [DFG-FG]</td>
<td>3.00</td>
<td>2.47</td>
</tr>
</tbody>
</table>

There is no participant effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. This hypothesis was rejected based on $F = 3.88$. Computations produce $F = 7.92$, indicating there is a participant effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies. The Scheffe test was then employed to examine the participant effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies.
respect to learning activities and strategies. The Scheffe test was then employed to examine the participant effect on New Jersey public high schools using block scheduling with respect to learning activities and strategies.

The Scheffe test provides a critical value for evaluating the observed difference between means for any pair of participants, students and teachers. The observed mean difference between the participant pairs offers additional evidence for the decision to reject the null hypothesis. It was determined teachers perceptions regarding the frequency and variety of learning activities and strategies were significantly higher than students perceptions of the frequency and variety of the same learning activities and strategies.

Table 8
Summary for Scheffe's Test – Participants

<table>
<thead>
<tr>
<th>Population Comparison</th>
<th>Observed Mean Difference</th>
<th>Scheffe's Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students - Teachers =</td>
<td>-1.45</td>
<td>1.97</td>
</tr>
</tbody>
</table>

District factor groups show no interaction effect between district factor groups and participants in New Jersey public high schools using block scheduling with respect to learning activities and strategies. This hypothesis was rejected based on \( F = 3.04 \). Computation produce \( F = 9.57 \), indicating there is an interaction effect between district factor groups and participants in New Jersey public high schools using block scheduling with respect to learning activities and strategies. The difference between students and teachers perceptions of the frequency and variety of learning activities and strategies is not the same across the district factor groups.

A z test for a population mean was conducted at a 95% confidence level for each survey question and for both groups of participants, students and teachers. The findings
reveal students perceive class discussion and cooperative/collaborative group work as the two significant forms of learning activities and strategies employed in the schools using block scheduling surveyed.

It should be noted that in all high schools surveyed 63% of the students felt by far that class discussion was used on a frequent and consistent basis. Use of class discussion is one learning activity and teaching strategy associated with block scheduling. The result being 95% confident that between 57% and 69% of the students shared such perceptions.

Further, 64% of the students surveyed perceived cooperative/collaborative group work was regularly used in the classroom. Use of cooperative/collaborative group work represents another learning activity and teaching strategy associated with block scheduling. The result being 95% confident that between 58% and 70% of the students shared these perceptions.

Teachers' perceptions of learning activities and strategies frequently used included class discussion and cooperative/collaborative group work as well as a variety of resources beyond the subject area textbook such as films, guest speakers, newspapers and videos.

It should be noted that in all high schools surveyed 60% of the teachers felt by far that class discussion was used on a frequent and consistent basis. The result being 95% confident that between 51% and 69% of the teachers shared such perceptions.

Further, 61% of the teachers surveyed perceived cooperative/collaborative group work was regularly used in the classroom. The result being 95% confident that between 52% and 70% of the teachers shared these perceptions.

Similarly, for using a variety of resources in addition to the subject area textbook 53% of the teachers perceived this activity was employed on a regular basis. The result being 95% confident that 44% to 62% of the teachers shared such perceptions.
CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

This chapter summarizes the study and the findings, as well as presents conclusions and recommendations. The chapter is organized into two sections: conclusions, and recommendations.

Conclusions

*A Nation at Risk* (National Commission on Excellence in Education, 1983) and *Prisoners of Time* (National Education Commission on Time and Learning, 1992) served to increase public attention on student achievement and learning. There followed and continues to be reform efforts at the national and state levels aimed at restructuring public education to improve the effectiveness and efficiency of schooling. The restructuring efforts of high schools across the country were examined by Cawelti (*High School Restructuring*, 1994). Block scheduling was identified as an element for restructuring school organization (see Table 1).

Advocates of block scheduling contend, it is a design that can create a flexible, productive instructional environment to support effective mastery learning by students. Carroll (*The Copernican Plan Evaluated: The Evolution of a Revolution*, 1994) as well as Canady et al., (*Block Scheduling: A Catalyst for Change in High Schools*, 1995) cite research examples highlighting the positive impact block scheduling has had on the following areas: student attendance, student discipline and student performance.
However, the success of block scheduling is linked to the degree teachers alter instruction to best utilize the extended blocks of instructional time (Canady et al., 1995).

Presently, fewer than 10% of public high schools in New Jersey, less than fifty of the more than 500 public high schools in the state, operate with some form of block scheduling. However, in 1995 there were less than five public high schools using any form of block scheduling. It would appear research on this recent innovation in restructuring high schools be examined for its impact on instruction. The purpose of this study was to determine whether the implementation of block scheduling in New Jersey public high schools results in a higher frequency and greater variety of learning activities and strategies by comparing student and teacher perceptions of learning strategies found in block scheduled public high schools in New Jersey.

Student perceptions of the frequency and variety of learning activities and strategies led to the rejection of the first null hypothesis; there will be no significant difference between students perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules. Students from district factor group A perceived a significantly greater frequency and variety of learning activities and strategies used in the classroom than students from district factor group FG as measured by the Masconomet High School Student Questionnaire on Instructional Strategies. In fact the result being 95% confident that the students from the district factor group A school will score .21 to 3.33 points higher than students from the district factor group F school with a best estimate being 1.77 points higher.
Also, students from the district factor group DE school scored significantly higher than students from the district factor group E school as measured by the Masconomet High School Student Questionnaire of Instructional Strategies. The result being 95% confident that the students from the district factor group DE school will score .42 to 3.54 points higher than students from the district factor group FG school with a best estimate being 1.98 points higher.

Teacher perceptions of the frequency and variety of learning activities and strategies led to the rejection of the second null hypothesis; there will be no significant difference between teachers perceptions of block scheduled high schools of different district factor groups in the variety of the following learning strategies used by teachers in New Jersey public high schools using block schedules. Teachers from district factor group DE perceived a significantly greater frequency and variety of learning activities and strategies used in the classroom than teachers from district factor group FG and teachers from district factor group FG similarly perceived a significantly greater frequency and variety of learning activities and strategies than teachers from district factor group A respectively as measured by the Wyoming Teacher Questionnaire of Instructional Strategies. In fact the researcher is 95% confident that the true difference between the teachers from district factor groups DE and A school falls between 5.11 and 9.63 as measured by the Wyoming Teacher Questionnaire of Instructional Strategies with a best estimate of 7.37 points. Similarly, the true difference between teachers of district factor groups FG and A falls between 1.31 and 5.83 points with a best estimate of 3.57 points. Likewise, the true difference between the teachers of district factor groups DE and FG falls between 1.54 and 6.06 points.
Each null hypothesis was rejected.

There is a district factor group effect and participant effect in New Jersey public high schools using block scheduling with respect to learning activities and strategies. There is also an interaction effect between district factor groups and participants in New Jersey public high schools using block scheduling with respect to learning activities and strategies.

Teachers and students from district factor group DE school scored the highest with respect to learning activities and strategies in New Jersey public high schools using block scheduling as measured by the aforementioned questionnaires. They were followed by teachers and students from the district factor group FG school, and then the teachers and students from the district factor group A school. The result being 95% confident that the true difference between the participants, students and teachers, of district factor groups DE and A falls between 3.14 and 6.24 points as measured by the aforementioned questionnaires with a best estimate of 4.69 points. Similarly, the true difference between the participants of district factor groups FG and A falls between .14 and 3.24 points with a best estimate of 1.69 points. Likewise, the true difference between the participants of district factor groups DE and FG falls between 1.45 and 4.55 points with a best estimate of 3 points. It should be noted that these results parallel exactly what was found for teachers in examining research question #2.

The researcher is 95% confident that the teachers scored .43 to 2.47 points higher than the students regarding the frequency and variety of learning activities and strategies used in the classroom as measured by the aforementioned questionnaires. However, the
difference between the students and teachers with respect to learning activities and strategies is not the same across the district factor groups. That is to say, the difference between the students and the teachers with respect to scores on the aforementioned questionnaires regarding learning activities and strategies in the district factor group A school is not the same as it is in district factor group DE and FG schools. In both district factor group DE and FG schools the teachers scored higher in the perception of the frequency and variety of learning activities and strategies than did students. In the district factor group A school, students scored higher in the perception of the frequency and variety of learning activities and strategies. The difference between students and teachers was not significant when comparing district factor group DE and FG.

Students and teachers rated the two most frequently perceived learning activities and strategies found in the classroom in New Jersey public high schools using block scheduling to be class discussion and cooperative/collaborative group work. Additionally, only teachers identified the use of a variety of resources other than the textbook such as guest speakers, videos, films, newspapers and magazines as the third most frequently used learning activity and strategy.

Surprisingly, the district factor group effect was not slanted toward higher socio-economic groups. The district factor group DE school registered the highest questionnaire scores by both students and teachers. Of the three New Jersey public high schools surveyed, this school has used block scheduling longer than the other two schools. As research indicates, the on-going implementation process and more experience with block scheduling may explain this difference.
The results from this study are limited by its narrow scope, three New Jersey public high schools using block scheduling. However, the results would seem to support the view that block scheduling is a catalyst for shifting the instructional focus from a lecture dominated teacher-centered passive learning classroom to an environment that more actively engages students via discussion and cooperative/collaborative group situations.

It should be noted that this shift represents a shift toward a student-centered learning atmosphere. It is reasonable to expect that the increasing availability of multimedia technology assets across New Jersey public school districts will also reinforce this shift to support student presentations as well as the use of electronic equipment and technology regularly in classrooms.

The increased awareness of the Workplace Readiness Standards and the New Jersey Core Curriculum Content Standards represent significant additional external pressure for schools, that is students and teachers, to expand individual facility with performance-based assessments that typify engaged student-centered learning.

Finally, the limited size of this study represents perhaps the most critical area of all. The difficulty encountered in seeking participation by New Jersey public high schools and the liability concerns of these public school districts puts further and continued research at risk. Innovations such as block scheduling and whole school reform aimed at effectively restructuring education can only be served by extensive and wide-scale research.
**Recommendations**

As mentioned, the size of this study severely limits the applicability of the findings. Though, block scheduling has grown from five high schools in 1995 to nearly fifty high schools in 2000, there exists a critical need for additional research to guide and shape the utilization of time in support of learning. The sharing of information as well as the participation of research needs to be encouraged and supported.

One recommendation for further research is the consideration of examining the alignment of specific learning activities and strategies with desired learning outcomes to better support student learning and achievement. Such research might yield useful information for disciplines such as music and world languages, two areas typically resistant to block scheduling.

Scheduling is an area perceived to be unique to each school. Therefore, a study of the decision-making process in deciding upon an altered schedule, whether a full block schedule or some type of modified block schedule, would yield valuable insights for a larger number of rationales for having time support learning rather than define learning.

As the Information Age dawns and increased opportunities for technological learning applications increase the likely need for greater individualization of instruction. Educators need to continue to explore all possibilities for unlocking both the constraints of seat time requirements and continuing the movement from passive learning situations to performance-based mastery.
REFERENCES


Cawelti, G. (1995, December). The missing focus of high school restructuring, School Administrator, 12-16.


Northwest Regional Educational Laboratory, Rural Education Program (1990, January). Literature search on the question: What are the advantages and disadvantages of various options for small secondary schools (high schools and middle schools)?” Portland, Oregon.


Dear Student: I am presently a graduate student at Seton Hall University, and one of the projects for me to complete is to find out if there is a difference between teaching strategies and learning activities used in New Jersey public high schools using block schedules and tradition schedules. To do this I am asking you to complete the survey below. Your responses, along with those of other students in your school will be analyzed to help determine the importance time has in learning. Your responses will be kept anonymous. Please do not write your name on the survey and please return your survey to your teacher. Thank you very much for taking the time to help me complete this project.

A. STUDENT INFORMATION: The following questions will provide information that will help in the analysis of your answers. Please circle the letter of the most accurate response.

1.) In what grade are you currently enrolled? A.- 9th B.- 10th C.- 11th D.-12th
2.) How many years have you been in this school? A.- 1 B.- 2 C.- 3 D.- 4
3.) What gender are you? A.- Female B.- Male
4.) What plans do you currently have for your future following graduation? A.- Work B.- Armed Forces C.- Technical training school D.- Community college E.- Four year college or university

B. SURVEY QUESTIONS: Please choose the most appropriate response to complete each of the following statements: My teachers use the following teaching and learning methods in my classes: A.- Never, B.- Rarely, C.- Some of the time, D.- Frequently, E.- Almost always.

1.) Lecture or presentation to the whole class.
A- NEVER  B-RARELY  C-SOME OF THE TIME  D-FREQUENTLY  E-ALMOST ALWAYS

2.) Student presentations in class.
A- NEVER  B-RARELY  C-SOME OF THE TIME  D-FREQUENTLY  E-ALMOST ALWAYS

3.) Class discussions.
A-NEVER  B-RARELY  C-SOME OF THE TIME  D-FREQUENTLY  E-ALMOST ALWAYS

4.) Use of the computer lab or other types of technology including computers, video, audio, or other electronic equipment to produce projects.
A- NEVER  B-RARELY  C-SOME OF THE TIME  D-FREQUENTLY  E-ALMOST ALWAYS
5.) Working in small groups.
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

6.) Assigning students to work on independent projects.
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

7.) Methods requiring active participation (i.e., role playing, debates, mock trials, etc.)
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

8.) A variety of resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines.
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

9.) Teams with teachers from other subjects to create lessons.
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

10.) Time is given to do homework in class.
A- NEVER  B- RARELY  C- SOME OF THE TIME  D- FREQUENTLY  E- ALMOST ALWAYS

11.) On the average, my teachers use the following number of separate activities or teaching methods each day in each of my classes: (Circle your answer below.)
A.- One    B.- Two    C.- Three    D.- Four    E.- Five or more
APPENDIX B
The Wyoming Teacher Questionnaire of Instructional Strategies

Dear Professional Colleague: I am presently a doctoral student at Seton Hall University. My dissertation topic concerns examining block and traditional schedules to determine if extended periods of instruction impacts the variety and frequency of teaching strategies and learning activities used in the classroom. To help me make this determination, I am asking you to complete the survey below. Your responses, along with those of other teachers will be analyzed to answer this question. Please do not place your name on the survey. Thank you very much for taking time to help me with my research.

Please respond to the questions below using one of five choices: A.- Never, B.- Rarely, C.- Some of the time, D.- Frequently, E.- Almost always, for the following questions:

I use the following teaching and learning methods in my classes:

1.) Lecture or presentation to the whole class.

2.) Student presentations in class.

3.) Class discussions.

4.) Use of the computer lab or other types of technology including computers, video, audio, or other electronic equipment to produce projects.

5.) Working in small groups.

6.) Assigning students to work on independent projects.

7.) Methods requiring active participation (i.e., role playing, debates, mock trials, etc.)
8.) A variety of resources other than the textbook such as guest speakers, videos, films, newspapers, and magazines.


9.) Team with teachers from other subjects to create lessons.


10.) Time is given to do homework in class.


11.) On the average, I use the following number of separate activities or teaching methods each day in each of my classes: (Circle your answer below.)

A.- One, B.- Two, C.- Three, D.- Four, E.- Five or more

OPEN-ENDED QUESTIONS - Please use the back of this sheet to complete your answers.
1.) How do you feel the current schedule model under which you teach affects the variety or quantity of different teaching strategies that you use?

2.) Under your current schedule model, do you believe that you are able to use methods that require active student learning to the degree you would like?

3.) If you had the opportunity to do so, either through systemic changes or specific in-services, would you further develop or add to the current teaching methods that you are using? If so, how?

INDIVIDUAL INFORMATION

1.) Number of years teaching __________.
2.) Number of years at this school __________.
3.) What subject(s) do you teach? ________________________________.
APPENDIX C
April 5, 1999

Dr. Carroll:

I am presently a graduate student at Seton Hall University completing my doctoral dissertation in Educational Administration. As part of my dissertation, I would like to request your written permission to utilize the test instruments in your study entitled, the Masconomet High School Student Questionnaire published in *The Copernican Plan Evaluated: The Evolution of a Revolution*. After considerable research on block scheduling and its impact on learning and teaching strategies in high schools, I believe this instrument would be highly applicable to my study.

My dissertation will focus on block scheduling by comparing learning and teaching strategies used in block and traditionally scheduled public high schools in New Jersey. Dr. Robert H. Bryant conducted a similar study in 1995 in Wyoming. New Jersey offers a county breakdown enhanced by a district factor grouping to allow for greater control of other variables in examining the impact block scheduling has on pedagogy.

Presently, I am the Principal at Lincoln High School in Jersey City, New Jersey. I will be most pleased to share my findings with you at the completion of my study. Thank you for your time and consideration.

Respectfully submitted,

David Clauser
APPENDIX D
DATE: 4/6/99

TO: David Clauser: Principal
   Lincoln High School
   60 Crescent Ave
   Jersey City, NJ 07304

   FAX NO. 201-435-4493

PAGES TRANSMITTED (INCLUDES COVER SHEET)  pages

As per your request in your letter of April 5, 1999, you may use the Masconomet High School student questionnaire published in The Copernican Plan Evaluated: The Evolution of a Revolution as part of your doctoral dissertation at Seton Hall University.

Please feel free to call me if you have any questions where we might be of assistance.

We would appreciate receiving a copy of your dissertation.

Best wishes,

Joseph M. Carroll Ed.D.
Senior Associate

JC: David Clauser Lincoln prior doctoral candidate 4 4 990,900
APPENDIX E
Laramie High School
Laramie, Wyoming

April 5, 1999

Dr. Bryant:

I am presently a graduate student at Seton Hall University completing my doctoral dissertation in Educational Administration. As part of my dissertation, I would like to request your written permission to utilize the test instruments in your study entitled, *A Comparative Study of Teaching Strategies Used in Block and Traditionally Scheduled High Schools in the State of Wyoming*. After considerable research on block scheduling and its impact on learning and teaching strategies in high schools, I believe this instrument would be highly applicable to my study.

My dissertation will focus on block scheduling by comparing learning and teaching strategies used in block and traditionally scheduled public high schools in New Jersey. You conducted a similar study in 1995 in Wyoming. New Jersey offers a county breakdown enhanced by a district factor grouping to allow for greater control of other variables in examining the impact block scheduling has on pedagogy.

Presently, I am the Principal at Lincoln High School in Jersey City, New Jersey. I will be most pleased to share my findings with you at the completion of my study. Thank you for your time and consideration.

Respectfully submitted,

David Clauser
APPENDIX F
May 14, 1999

Mr. David Clauser
129 Cherry Street
Jersey City, NJ 07305

Dear Mr. Clauser:

I received your letter requesting use of the survey test instruments I developed for use in my dissertation. I am delighted that these may be of use to you and grant my permission for you to use them in your research endeavors. I continue to work with block scheduling issues in my work and I would appreciate learning of your findings.

Good luck on your study.

Best wishes,

Robert H. Bryant, Assistant Superintendent for Curriculum and Federal Programs
Dear Principal's Name:

I am presently a graduate student at Seton Hall University completing my doctoral dissertation in Educational Administration. My dissertation focuses on block scheduling and specifically compares block scheduled public high schools in New Jersey with those on a traditional schedule to examine the impact increased time has on teaching techniques and learning strategies, the variety and the frequency each is used. My goal is to compare responses of students and teachers in your high school with those of a neighboring public high school.

Careful examination and analysis of New Jersey public high schools resulted in the selection of your high school as an essential component for this study. Participation by your high school, faculty and students, is critical to the successful completion of this study. Presently, the use of time and its role in education is coming under closer scrutiny by educators nationwide. The participation of your high school's personnel would require a time investment of approximately thirty minutes for students as well as for teachers to complete the enclosed surveys.

I will be contacting you by phone in the next few days to discuss this further and answer any questions or concerns you might have.

Sincerely,

David Clauser
APPENDIX H
October 1999

Dear Student and Parent/Guardian,

Thank you for voluntarily consenting to participate in this research. At the present time, I am engaged in doctoral study at Seton Hall University working towards an Ed. D. degree in educational administration. You are being asked to participate in a doctoral research project. The purpose of the research is to analyze students' perceptions of the variety and frequency of teaching strategies and learning activities in block scheduled and traditionally scheduled public high schools in New Jersey. The results will hopefully offer new insights into whether longer periods of instruction result in a greater variety and greater frequency of teaching strategies and learning activities. You will be asked to complete a survey instrument of eleven questions. It should take no longer than 15 minutes. Your participation is voluntary and the responses are confidential and anonymous. In no way will any results be presented so that you can be identified. After completing the survey, return it to your teacher along with those surveys of the entire class. All the surveys will be forwarded to a liaison in your school and mailed, with all student responses from your high school to me. The aggregate results will be shared with you when the research is completed. If at any time during the completion of the survey you are unable to finish the survey or you feel uncomfortable, please withdraw from the survey. Be assured there will be no negative effect on your grade or class standing if you choose not to participate in, or complete the survey.

This project has been approved and reviewed by the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties and rights. The chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number is: (973) 378-9809.

Please sign and return this form to school. Thank you for your anticipated cooperation and help with my research project.
Dear Parent/Guardian,

Thank you for voluntarily consenting to allow your child to participate in this research. My name is David Clauser and at the present time, I am engaged in doctoral study at Seton Hall University working towards an Ed. D. degree in educational administration. Should have any questions please contact me at (201) 915-6700.

Your child is being asked to participate in a doctoral research project. The purpose of the research is to analyze students perceptions of the variety and frequency of teaching strategies and learning activities in block scheduled and traditionally scheduled public high schools in New Jersey. The results will hopefully offer new insights into whether longer periods of instruction result in a greater variety and greater frequency of teaching strategies and learning activities. Your child will be asked to complete a survey instrument of eleven questions. It should take no longer than 15 minutes. Your child's participation is voluntary and the responses are confidential and anonymous. In no way will any results be presented so that your child can be identified. After completing the survey, the homeroom teacher will collect those surveys of the entire class. All the surveys will be forwarded to a liaison in your school and mailed, with all student responses from your high school to me. The aggregate results will be shared with your child when the research is completed. If at any time during the completion of the survey your child is unable to finish the survey or your child feels uncomfortable, your child may withdraw from the survey. Be assured there will be no negative effect on your child's grade or class standing if your child chooses not to participate in, or complete the survey.

This project has been approved and reviewed by the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties and rights. The chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number is: (973) 761-9000 extension 2974.

Please sign and return this form to school. Thank you for your anticipated cooperation and help with my research project.

Respectfully submitted,

David Clauser

Name of Student:___________________________________________

Address:_________________________________________________

Homeroom:__________________ Date:_________________________

To the Survey Liaison:

I hereby give permission for my son/daughter to participate in the Block Scheduling Study survey to be conducted at the high school Wednesday January, 2000. Confidentiality of information provided will be maintained and participation in the survey is entirely on a volunteer basis. Results of the study will be provided to the staff and students of the high school.

________________________________________ Date:_______________

Signature of Parent/Guardian
STUDENT PERMISSION FORM

Dear Student:

Thank you for voluntarily consenting to participate in this research. My name is David Clauser and at the present time, I am engaged in doctoral study at Seton Hall University working towards an Ed. D. degree in educational administration. Should have any questions please contact me at (201) 915-6700.

You are being asked to participate in a doctoral research project. The purpose of the research is to analyze students perceptions of the variety and frequency of teaching strategies and learning activities in block scheduled and traditionally scheduled public high schools in New Jersey. The results will hopefully offer new insights into whether longer periods of instruction result in a greater variety and greater frequency of teaching strategies and learning activities. You will be asked to complete a survey instrument of eleven questions. It should take no longer than 15 minutes. Your participation is voluntary and the responses are confidential and anonymous. In no way will any results be presented so that you can be identified. After completing the survey, the homeroom teacher will collect those surveys of the entire class. All the surveys will be forwarded to a liaison in your school and mailed, with all student responses from your high school to me. The aggregate results will be shared with you when the research is completed. If at any time during the completion of the survey you are unable to finish the survey or you feel uncomfortable, you may withdraw from the survey. Be assured there will be no negative effect on your grade or class standing if you choose not to participate in, or complete the survey.

This project has been approved and reviewed by the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject's privacy, welfare, civil liberties and rights. The chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number is: (973) 761-9000 extension 2974.

Please sign and return this form to school. Thank you for your anticipated cooperation and help with my research project.

Respectfully submitted,

David Clauser

I have read the above material and any questions have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time.

__________________________________________ Date:________________________

Signature of Student
APPENDIX I
TEACHER CONSENT FORM

Dear Professional Colleague,

Thank you for voluntarily consenting to participate in this research. My name is David Clauser and at the present time, I am engaged in doctoral study at Seton Hall University working towards an Ed. D. degree in educational administration. Should have any questions please contact me at (201) 915-6700.

You are being asked to participate in a doctoral research project. The purpose of the research is to analyze teachers' perceptions of the variety and frequency of teaching strategies and learning activities in block scheduled and traditionally scheduled public high schools in New Jersey. The results will hopefully offer new insights into whether longer periods of instruction result in a greater variety and greater frequency of teaching strategies and learning activities. You will be asked to complete a survey instrument of eleven questions. It should take no longer than 15 minutes. Your participation is voluntary and the responses are confidential and anonymous. The survey liaison will instruct you concerning a drop box to be used for collecting surveys, completed, partially completed or blank surveys. Various demographic information is requested of you. However, this information will in no way be used to identify any individual but to construct aggregate totals of the overall faculty. In no way will any results be presented so that you can be identified. After completing the survey follow the instructions regarding the drop box from your liaison. All of the surveys will then be mailed, with all teacher responses from your high school to me. The aggregate results will be shared with you when the research is completed. If at any time during the completion of the survey you are unable to finish the survey or you feel uncomfortable, please withdraw from the survey.

This project has been approved and reviewed by the Seton Hall University Institutional Review Board (IRB) for Human Subjects Research. The IRB believes that the research procedures adequately safeguard the subject’s privacy, welfare, civil liberties and rights. The chairperson of the IRB may be reached through the Office of Grants and Research Services. The telephone number is: (973) 761-9000 extension 2974.

Please sign and return this form to school. Thank you for your anticipated cooperation and help with my research project.

Respectfully submitted,

David Clauser

I have read the above material and any questions have been answered to my satisfaction. I agree to participate in this activity, realizing that I may withdraw without prejudice at any time.

________________________  _________________________
Signature of Teacher  Date: