Perceptions of teachers and students of an innovative two-hour instructional time block schedule and its effect on student achievement

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ABSTRACT

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PERCEPTIONS OF TEACHERS AND STUDENTS OF AN INNOVATIVE TWO-HOUR INSTRUCTIONAL TIME BLOCK SCHEDULE AND ITS EFFECTS ON STUDENT ACHIEVEMENT

Advisor: Dr. Sidney Rabsatt

Dissertation dated May, 1990

The problem of this study was to: (1) investigate teacher and student perceptions of an innovative school improvement strategy (two-hour instructional time block schedule), recently implemented in an Atlanta public comprehensive high school; (2) determine the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (3) determine the difference between student achievement in reading and mathematics in 1988 under the one-hour block schedule and student achievement in those two skills in 1989 under the two-hour block schedule.

Method and Procedure

Evaluative data were collected from 533 high school
students and 72 high school teachers, using a 38-item instrument concerning an innovative two-hour instructional time block schedule and a 40-item instrument concerning school climate and time on task. Data were analyzed comparing high school students' 1988 and 1989 reading and mathematics achievement test scores.

Results

Analysis of the evaluative data showed the following:

1. Teachers' and students' analyzed responses indicated that they preferred the innovative two-hour instructional time block schedule over the previous one-hour instructional time block schedule.

2. Teachers' and students' analyzed responses indicated that the two-hour instructional time block schedule had a positive effect on the school learning climate and time on task.

3. Analyzed student data of their 1988 reading achievement test scores indicated no significant difference when compared to their 1989 reading achievement test scores.

4. Analyzed student data of their 1988 mathematics achievement test scores indicated a significant difference when compared to their 1989 mathematics achievement test scores. There was an increase from 18 to 34 percent.
Acknowledgements

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Ms. Cheryl Dutch typed the many revisions of the study.

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CHAPTER I

INTRODUCTION

The current nationwide effort to improve our schools and student achievement rivals those of any period in American history. The 1980s will be remembered as the decade which produced an outpouring of concern for the quality of American education. In a characteristically American way, the initiative to improve education was seized by political leaders (i.e., the U. S. Secretary of Education William Bennett, Georgia's Governor Joe Frank Harris, and others), volunteer business groups, local officials, higher education leaders, professional educators, citizens and parents. Recent task force studies and reports have raised public awareness of the value of a good education. Educators must take advantage of heightened national, state, and local interest to implement school improvement where most needed.

Paulu (1988), an analyst and writer from the United States Department of Education, reported on 16 American school districts, representing a cross section of the nation which participated in a unique school improvement partnership involving the United States Department of Education. Each of
the school districts was asked to create innovative programs designed to reflect the district’s singular needs. The suggestions for improving schools ranged from designing plans to assess student achievement to involving parents more actively in their children’s education.

Paulu further reported that all 16 districts possess good leaders, capable of taking the risks that are needed for school improvement. The superintendents in each district have played a distinctive role in reform by:

- Building trust with their staffs and communities;
- Creating an atmosphere required for reform to flourish;
- Developing a vision for their district’s future; and
- Communicating this vision clearly to those responsible for carrying out the new programs.

Many educators in these 16 districts encountered roadblocks along the highway to reform. Some districts found imaginative ways to overcome the obstacles; others did not. Nevertheless, their efforts provide hope and inspiration for everyone striving for educational excellence.

The problem of this study was to: (1) investigate teacher and student perceptions of an innovative school improvement strategy (two-hour instructional time block schedule), recently
implemented in an Atlanta public comprehensive high school; (2) determine the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (3) determine the difference between student achievement in reading and mathematics in 1988 under the one-hour block schedule and student achievement in those two skills in 1989 under the two-hour block schedule.

**Background of the Problem**

Atlanta's School Board and school officials have joined together in the effort to reverse the perceived decline in the quality of schools and student achievement. Faced with an increasing outpour of citizen's concerns, the Atlanta School Board collaborated among themselves, citizens, and school officials and one major outcome was the hiring of a new school superintendent.

In July 1988, Dr. J. Jerome Harris became Atlanta's eleventh school superintendent and within three weeks presented to the public his 1988-89 school improvement plan designed to encourage developmental autonomy. Harris (1988) stated that developmental autonomy means that schools are given the freedom to become more self-directed with less supervision.
from the area offices and central levels, based on the performance of each school's student body on annually administered achievement tests. After examining local school operations and student test scores over the previous three years, Harris determined that the 113 Atlanta schools should be divided into three categories of supervision: local focus, area focus, and central focus.

The Local Focus School

In 26 elementary, middle, and high schools, most of the students consistently scored at or above the national norm in reading and mathematics, as measured by standardized tests — Iowa Tests of Basic Skills (ITBS) and Tests of Achievement and Proficiency (TAP). These schools are categorized as local focus schools. They are functioning on their own, with little area office supervision. As long as their students perform at or above current levels, these schools will remain in this category.

The Area Focus School

Seventy elementary, middle, and high schools are receiving more concentrated attention from their area offices. These are area focus schools. The percentage of students consistently scoring at or above the national norm in reading and mathematics in these schools is at least ten percentage points below those in the local focus category, as measured by
standardized tests ITBS and TAP. With increased assistance from the area offices, achievement in these mid-level performing schools is expected to climb within the school year.

The Central Focus School

In an effort to maximize the effectiveness of the delivery of educational services to students having the greatest needs, the superintendent identified and categorized 17 schools as central focus: 10 elementary, 3 middle, and 4 high schools. For a central focus school, the likelihood is greater that the superintendent will directly intervene and make appropriate resources available to enhance the total school program. According to Harris (1988), central focus refers to schools in which the percentage of students scoring at or above the national norm in reading and mathematics has been lower than comparable percentages in the other 96 Atlanta Public Schools and has been lower for the past three years, as measured by the ITBS and TAP.

During the week of preplanning, each central focus school is expected to identify three or more persons to serve on a Local School Improvement Team. One of the initial responsibilities of the local team is to assist in reviewing the systemwide objective plan and the school improvement plan to ensure that all significant deficits have been identified and addressed. A copy of
the school improvement plan is submitted to the Central Focus School Improvement Team (identified in the following paragraph) within the first two weeks of the beginning of the school year.

Central Focus School Improvement Team

The Central Focus School Improvement Team was organized by the superintendent to offer additional human resources to Central Focus Schools. The team is composed of eight selected personnel with varied fields of expertise and experience. The team is divided into middle/high school and elementary. These teams work in designated schools daily to: (1) assist principals and teachers by providing assistance in identifying strategies to meet immediate and long-range needs of students; (2) diagnose strengths and weaknesses of the total school program; (3) devise plans of action to remediate noted deficiencies; and (4) observe teachers and students in the classroom and provide feedback to principals and teachers.

The Central Focus School Improvement Team scheduled the first of three school audits at the beginning of the 1988-89 school year. The first school audit involved all eight team members assigned to examine various aspects of the school program, such as the school facility (inside and outside of building), lesson design, planning and evaluation, on task
behavior of students, climate, and classroom management. The second school audit was more focused on areas of the instructional program identified as needing improvement by the middle of the school year (January 1989). The four team members with certification on the elementary level audited the ten elementary schools and the four team members with certification on the middle/high school levels audited the three middle and four high schools. The final school audit was scheduled in May 1989, with the elementary and middle/high school teams auditing school levels of specified certification. Each team level disseminated a written closeout report to central focus schools suggesting possible future steps in the continuation of school and academic improvement.

After each school audit and frequent unannounced visits, written and verbal feedback were given to the principal. Based on the observational report, it was intended for the principal to verify and revisit classrooms to determine if a more intensified observation was needed. Each Central Focus School Improvement Team member monitored an average of 6 to 10 classrooms daily, using a standard monitoring checklist (Appendix A) as well as the recording of anecdotal notes on the school and classroom observations.

It was important for the principal, Local School Improvement Team, and the Central Focus School Improvement
Team to identify as soon as possible areas of strengths or weaknesses within the school program and plan and implement strategies that promoted student achievement. All schools were encouraged to be innovative and to use various strategies to match needs and learning styles of students—particularly, strategies which had the potential of improving student performance in the areas of reading and mathematics.

Summary of Services Provided by the Central Focus School Improvement Team, 1988-89

Services to Teachers:

• Assisted in identifying an appropriate instructional level for students
• Grouped students for instruction
• Conducted demonstrations of inspired classroom teaching
• Provided assistance in writing curriculum learning objectives
• Assisted in matching instructional strategies to students' learning styles
• Assisted in the development of lesson plans
• Helped to locate appropriate learning materials and assisted in the proper utilization of available instructional material
• Assisted in the proper use of test results to improve classroom instruction

• Conducted workshops for professional development on topics such as direct instruction (e.g., in reading and mathematics), students' learning styles, effective bulletin boards, etc.

Services to the School Administrative Staff:

• Conducted classroom observations of teachers' performance

• Substituted for teachers and principals when necessary

• Reviewed and assisted in restructuring nonproductive instructional organization when needed

• Assisted in developing efficient administrative and leadership teams

• Promoted the development of a positive school climate and facilitated a favorable public perception of the school's operation

• Served as an advocate, when needed, in securing facilities services necessary for a positive learning environment (e.g., repairs, building, and grounds services)

• Assisted schools in modifying classroom schedules to maximize use of available staff
• Identified inappropriate sites within schools for standardized testing

• Facilitated the sharing of effective instructional strategies both within and across target schools

Statement of the Problem

All seventeen central focus schools were mandated by the superintendent to develop a school improvement plan beginning the 1988-89 school year. Each school plan was to include strategies which focused on raising the level of student test scores in reading and mathematics. The percentage of students scoring at or above the national norm on the reading and mathematics achievement tests in these school had been lower than comparable percentages of other Atlanta Public Schools.

One of the central focus high schools, which was the focus of this study, included in its school improvement plan a strategy involving an innovative two-hour instructional time block schedule (115 minutes for instruction and 5 minutes for changing classes) in lieu of the previous one-hour instructional time block schedule (55 minutes for instruction and 5 minutes for changing classes). By doubling the previous one-hour class periods, students gained an additional 15 minutes of instructional time and only changed classes three times a day.
taking three subjects on alternate days, instead of changing classes six times a day, taking six subjects daily.

The following two charts represent a daily bell schedule and a typical weekly course schedule of a two-hour instructional time block design. (See charts A and B)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30-8:45</td>
<td>Homeroom Period</td>
</tr>
<tr>
<td>8:50-10:40</td>
<td>1st Period Class [110 minutes]</td>
</tr>
<tr>
<td>10:45-11:30</td>
<td>2nd Period Class [45 minutes prior to (A) lunch]</td>
</tr>
<tr>
<td>11:30-12:00</td>
<td>(A) Lunch [30 minutes]</td>
</tr>
<tr>
<td>12:00-1:05</td>
<td>2nd Period Class [65 minutes after (A) lunch]</td>
</tr>
<tr>
<td>10:45-12:05</td>
<td>2nd Period Class [80 minutes prior to (B) lunch]</td>
</tr>
<tr>
<td>12:05-12:35</td>
<td>(B) Lunch [30 minutes]</td>
</tr>
<tr>
<td>12:35-1:05</td>
<td>2nd Period Class [30 minutes after (B) lunch]</td>
</tr>
<tr>
<td>1:10-3:00</td>
<td>3rd Period Class [110 minutes]</td>
</tr>
</tbody>
</table>
### Chart B

**A Typical Weekly Course Schedule**

<table>
<thead>
<tr>
<th>Day</th>
<th>Subject 1</th>
<th>Subject 2</th>
<th>Subject 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>English</td>
<td>Algebra</td>
<td>Spanish</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Social Studies</td>
<td>Physical Education</td>
<td>Art</td>
</tr>
<tr>
<td>Wednesday</td>
<td>English</td>
<td>Algebra</td>
<td>Spanish</td>
</tr>
<tr>
<td>Thursday</td>
<td>Social Studies</td>
<td>Physical Education</td>
<td>Art</td>
</tr>
<tr>
<td>Friday</td>
<td>English</td>
<td>Algebra</td>
<td>Spanish</td>
</tr>
</tbody>
</table>

Courses which meet two days within a week will meet three days the following week and vice versa.

The purpose of this study was to determine if the innovative schedule design, implemented to improve student achievement in reading and mathematics, was effective.

**Significance of the Study**

To overcome the shortcomings of the educational system, school personnel must recognize the need for and be committed to changes and improvements. The findings of this study will provide information to high school administrators who are seeking new strategies for improving education. This study will begin to answer some questions that educators have concerning:
(1) teacher and student perceptions of one-hour and two-hour instructional time block schedules; (2) teachers' and students' views on school climate and time on task in the context of the two-hour block schedule in a comprehensive high school, and (3) the effectiveness of this innovative schedule design on student achievement in reading and mathematics. Moreover, this study will provide information to researchers who will further investigate strategies implemented with the intent of improving student achievement and school programs through the utilization of innovative schedule designs.

Limitation

Since this study is descriptive in nature and was conducted in only one Atlanta Public School, the application of the results to other populations can only be extended to a comprehensive high school that has a two-hour instructional time block schedule.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

The concentration of this review of related literature focuses on four areas: (1) high school scheduling, (2) school learning climate, (3) time on task, and (4) student achievement in reading and mathematics. The review of school scheduling examines various scheduling techniques implemented in the past and those currently in use. The review of the school learning climate examines the relationship of time on task and student achievement, specifically in the areas of reading and mathematics.

School Scheduling

Ubben and Hughes (1987) defined scheduling as the plan to bring together people, materials, and curriculum at a designated time and place for the purpose of instruction. Its basic purpose is to coordinate the requirements laid down by previously reached decisions regarding curriculum, instruction, grouping, and staffing.

Efforts to develop flexible approaches to secondary school organization have been with us for years. Tilwick (1975)
reported on a school scheduling technique that gained popularity across the country during the 1970s. This technique provided a procedure for student self-scheduling. Advocates of student self-scheduling claimed that students could select the teachers they wished and the hour during which they wished to take a particular course. Tilwick concluded that advocates who aspired to improve services to students and minimize schedule changes after school started could expect at best a "stop-gap" measure to reduce schedule changes.

Ubben (1976) wrote that high school schedules with Carnegie Units and one-hour periods are still prevalent! They are administratively convenient and relatively simple but make extremely difficult a school program dedicated to individualization of instruction. He further stated that a high school that proposes to individualize its instructional program could do so only by greatly increasing its organizational flexibility. Alternatives must be readily available to students and staff in curriculum, instructional modes, selection of staff, determination of the learning group, the utilization of time, and building usage. Flexibility also demands that these alternates be recast frequently. A comprehensive high school in West Virginia which decided to tackle the flexibility-with-accountability problem by turning much of the decision making relative to curriculum and instruction for students over to the instructional staff, thus
bringing it one step closer to the point of implementation. In order to do so and still maintain accountability, teams of teachers and groups of students were put together for large blocks of time (approximately three hours each day) in something called a fluid block. The fluid block schedule is used for purposes of curriculum and instructional advisement as well as for direct instruction. They were constructed around the language arts and social studies programs because these course areas were assigned to all children. Ubben summarized that the fluid block allowed a tremendous amount of flexibility with one-half of the school program, while still allowing for the three-hour vocational block as well as a standard elective program for a blend of the old and the new. This arrangement achieves the desired student control of 100 percent scheduling while still maintaining a high degree of flexibility by passing on from principal to teachers a major decision-making responsibility, that of scheduling students.

DeLucia (1977) wrote about a flexible modular scheduling (FMS) program that typically contained from 12 to 28 units of time, called "modules" instead of "periods." This type of program had a certain amount of unscheduled time that was deliberately planned as an integral part of a student's schedule. He further stated that the key to the value of this unscheduled time was not the activity chosen by the student but the control and responsibility held by the student. The flexible modular schedule
(FMS) was implemented in a regional high school which served two townships in Connecticut and was popular with students and staff for three years. Nevertheless, the communities were critical of the program and in 1974 the regional board of education decided to have the school return to a more traditional schedule.

Criticisms of the flexible modular schedule (FMS) were:

a. the serious concern for the lack of accountability of both students and staff during the open or free time;

b. the concern that the FMS model in operation at the time was not able to differentiate between the mature student who could use free time wisely and the less mature student who could not;

c. the obvious inability of the facility to absorb the unscheduled students as the enrollment began to increase; and

d. the increased vandalism and problems with building control that were the results of attempts to control student spill-over into the communities.

With these criticisms in mind, the administrative staff began to examine other programs in hopes of finding one that would meet the criteria established by the regional board.

Ohde (1977) examined various characteristics of Iowa public high schools reporting success or failure in the use of
flexible modular scheduling (FMS), based on questionnaire responses. FMS schools were defined as having a daily schedule of more than 14 modulars and using either variable class times, large group, small group, or independent student patterns of instruction. Principals completed a questionnaire addressing nine characteristics of flexible modular scheduling (FMS) and soliciting school information.

The following tendencies were found more often in successful FMS schools:

a. Higher percentages of graduates going on to postsecondary program
b. Design or modification of facilities for FMS
c. Emphasis on inservice staff training
d. Community involvement before FMS adoption
e. Modification of teaching methodology
f. Decreased classroom discipline problems and a smaller increase in discipline problems outside the classroom
g. Slightly higher student achievement
h. Slightly more spending for supplemental resource materials.

The major adjustment successful schools made was a reduction of unstructured student time. Both groups generally agreed on the
main advantages and disadvantages of flexible modular scheduling, citing students' misuse of unstructured time as the chief disadvantage.

Andersen (1982) discussed "intensive schedule" as an alternative to the concurrent method of arranging high school students' classes. He defined intensive scheduling as the placing of students into one class for three or four hours a day for four or five weeks.

Goldberg (1983) proposed a design for the Montgomery County Public School System (Maryland) with the aim of documenting and analyzing changes that occur when 14 of the 22 high schools in the system switched from a six to a seven-period schedule. The seven-period time table was adopted in order to (1) allow students taking full academic loads the opportunity of taking special electives and advanced level courses; (2) reduce students' scheduling conflicts; (3) provide more time for teachers to engage in activities with individual students, while being involved in departmental and team planning; and (4) enable schools with smaller staffs to offer courses comparable to schools with larger staffs. The goals of the study included monitoring and analyzing the amount and kinds of additional courses taken by students, effects of the proposed changes in the length of class period on the teachers and students, and the added cost of staffing and transportation to the school system.
Bishop (1987) evaluated the effectiveness of the seven-period day schedule implemented in a high school. He stated that there were subjective qualities involved in the study such as newness of the seven-period day or change itself. These qualities cannot be measured quantitatively and may have affected the results of the study. Aside from these considerations, no evidence was revealed by the research that would indicate the seven-period day was less effective than the six-period day. The results of the study indicated that students would take additional courses if given the opportunity with no apparent negative effects. The cost of the seven-period day was less on a per course basis than for the six-period day.

Carroll (1987) described The Copernican Plan as a way to organize high schools on the basis of research and experience concerning more effective and efficient instruction. Research indicates that large-block scheduling has proven to be very successful. In the plan, each student enrolls in one class at a time for about four hours each day for a period of 30 days. An alternative is to enroll in two classes of about two hours each day for a trimester. Curriculum instruction and credits are based on mastery of course objectives. A block of 60 to 70 minutes each day provides teachers and students additional time for extra help, study, and planning. In the afternoon students participate in seminars of approximately 70 minutes for credits that are
awarded on the basis of successful participation rather than on mastery or examinations. Carroll further stated that five kinds of diplomas are offered, each with different credit requirements. The Copernican Plan allows teachers to concentrate on the individual student rather than on whole classes. Additional requirements for each student are reliable attendance, reasonable conduct, and an individualized educational plan.

Ubben and Hughes (1987) wrote that effective schools research has much to say about the use of time in school. The concept of academic learning time (ALT) describes scheduled time as its umbrella component from which the "actual" instructional time and "engaged" time are achieved. It is, therefore, imperative that schedule time be maximized so that ultimately high amounts of instructional and engaged time can also be obtained.

Ubben and Hughes further stated that several important concepts in scheduling should be reviewed before actually beginning the construction of a schedule. These include the flexibility, simplicity, and complexity of the schedule, the decision level at which schedule changes are made, efficiency in the use of time, and the timeliness of the schedule. Other concepts to consider are previously made decisions concerning the design of curriculum and instruction, staffing and grouping patterns, and space availability and utilization.
School Climate

The school climate as conceptualized in this research means the environment that the school creates for learning. Climate includes factors which influence how people relate to each other and how they get their work done. It also includes physical facilities, such as building and work surroundings. The climate of the school in which students succeed provides a structured learning environment with a strong emphasis on achievement. Decision making is clear and consistent. In general, the atmosphere of the quality school reflects cooperation, trust, positiveness, and orderliness.

Brookover and Lezotte (1979) examined school social systems and achievement and concluded that the school climate may significantly affect learning. Their findings revealed:

What the successful schools held in common were teachers and principals who believed that their students could achieve at high levels and who accepted the responsibility for seeing that their students' potential for high achievement become a reality. (p. 134)

Hass (1983) described 20 ways in which secondary schools can enhance their learning climates, using time and effort in a more businesslike, productive way to increase orderliness and predictability; improving recognition of the value of time;
emphasizing excellence; and creating a sense of purpose, openness, and optimism regarding learning and living. Whereas, Lezotte (1980) defined school learning climate as the norms, beliefs, and behavior practices that enhance or impede student learning.

While there is no clear-cut definition for school learning climate, Brewer et al. (1984) stressed the importance of certain policies, practices, and procedures which are a necessity in developing a good climate within a given school. He suggested four major areas in which a school should concentrate: (a) teachers fostering positive feelings among the students regarding their ability to learn; (b) all teachers taking responsibility for all students at all times, regardless of location or grade certification; (c) students and teachers recognizing that there are certain standards of behavior which must be maintained; and (d) designated personnel repairing any damaged or broken equipment as quickly as possible.

In order to have a beneficial educational system, it is important that effective schools possess a good school learning climate. Edmonds (1981), Bloom (1976), and many other researchers provided strong evidence that the academic failures common in low-income and/or minority schools need not occur. Edmonds (1981), in summarizing seven years of effective school research, listed five characteristics essential for a positive school
learning climate in effective schools which succeed in teaching the urban poor: (a) strong administrative leadership, (b) student achievement and commitment, (c) elements of a safe and orderly environment, (d) high student expectations and frequent monitoring, and (e) evaluation of the instructional programs.

Maloy and Seldin (1983) summarized a comparison of how teachers, students, and parents perceived the climate of the secondary schools in Greenfield, Massachusetts, as measured by responses to eight selected value statements about the purposes of the school. The data suggested that Greenfield students were more confident than their parents or teachers about the ability of the school to prepare them for later life. By contrast, parents and teachers identified considerable differences between what they wished to emphasize and what they believed was being emphasized. These results suggested that the differences in teacher, parent, and student perceptions about the purposes of the school have important implications for the question of school effectiveness in Greenfield.

Kruger's (1984) study of school climate in 22 secondary schools in the Puget Sound area of Washington State defined an increased awareness of the leadership role of the building principal and outlined the need for this person to bring strength and vitality to the position. It also determined a correlation between the perception of the leader's role and the perception of
the productivity and satisfaction existing within a school, as measured by its climate profile.

Wayson and Lasley (1984) described five factors reported in a study conducted by Phi Delta Kappa (PDK) Commission on Discipline. The PDK study found it necessary to create an environment that encourages teachers and students to feel good about themselves and to develop and maintain a culture conducive to learning.

1. Creating student belonginess and responsibility
2. Pursuing superordinate school goals
3. Creating symbols of identity and excellence
4. Fostering leadership to sustain positive school values
5. Creating clear formal and informal rules

Gottfredson and Hollifield (1988) stated that school climate, like the climate of any other organization, determines whether the school can achieve excellence or will flounder ineffectively. A school with high levels of disorder, low morale, and poor cooperation between teachers and administrators cannot be a good place to learn or teach. Such a school is bound to have a poor public image.

Keefe (1989) reported, in a task force finding, that literature about effective schooling tells us that effective teaching practices require the support of building and district leaders; that successful instructional leadership at the building level
demands the creation of a physical, intellectual, and psychological environment in which optimal teaching and learning can occur; and that the nature of this school environment influences the ways students develop and learn. Dudney (1986) recommended that (a) principals should make a concerted effort to improve communication with teachers; (b) principals should make an effort to share decision making powers with teachers; (c) each principal should develop an arsenal of tools and techniques to assess school climate; and (d) inservice programs should be developed which link theory to practice.

**Time on Task**

The phrase time on task describes times during the school day when teachers and students are busy in successful teaching and learning activities. Time that can be used for academic learning is reduced by noninstructional activities such as making announcements, collecting lunch money, taking attendance, taking part in recess, study hall, and nonacademic activities. Spending more time on teaching and learning raises the likelihood that students will learn.

Stallings (1980) cited time on task as one of the most useful variables to emerge from the research on teaching during the 1970s. Many educators are now convinced that if students'
time on task is increased, an increase in student achievement will follow. She further stated that while keeping students on task may seem like a simplistic notion, it is a rather complex undertaking, particularly in the classroom. Teachers need to be told more than just to allocate additional time to academic activities and to keep students on task. They need to know how to use time effectively in a variety of activities, how to vary time with different achievement groups, and how to support students to keep them on task.

Walberg (1988) highlighted research done on time and learning. He stated that throughout the 20th century, the amount of time invested by American students in formal education has been increasing. Nevertheless, American students are far behind high-achieving Asian students in both total study time and exposure to rigorous subject matter. Listed below are several interesting findings of the Walberg study:

- U. S. students have plenty of slack time — 28 hours per week by one measure — for additional formal schooling, outside study, hobbies, athletics, play and other constructive activity.

- Considerable evidence contradicts the common opinion that hard rigorous work causes psychological harm, heart disease, and suicide, especially when that hard
work is intrinsically motivated and within reasonable limits.

- "Productive time" is the time spent on suitable lessons adapted to the learner — in contrast to "engaged" or "allocated" time, which may be futile if the content or method of instruction is inappropriate for individual students.

- If students at risk are not given appropriate instruction and sufficient time, the result is the "Matthew effect": those students who are behind at the beginning of schooling or slow to start often learn at a slower rate; those who begin well gain at a faster rate (the academically rich get richer, while the academically poor fall further behind).

- Direct teaching and memorization can be more time-efficient than discursive lessons and diffuse study, especially if educational purposes are clear and explicit.

- Total immersion can produce impressive results, but lessons and study interspersed with other activities are more time-efficient for long-term learning than "cramming," "massed lesson," and "crash" courses.

- Although factual and conceptual mastery, breadth and depth, basic skills and higher-order thinking, and
amount and quality of instruction can be distinguished from each other, students need "both-and" rather than "either-or."

Goodlad (1984) suggested that individual school staffs need to become self-conscious about the efficient use of students' time in school, and individual teachers need to become more aware of how class time is utilized. Schoolwide surveys would help. He further suggested that teachers might observe and record each others' use of time. Goodlad is convinced that all schools could pick up at least two hours each week of additional class time by aligning practice with policy in regards to beginning and ending times for the school day, recess, and lunch breaks. He is equally convinced that all or almost all teachers could add 10 percent more time to instruction and learning each week without creating undue pressures in the classroom through shortening "opening exercises" and "clean-up" activities. Both sets of gains would be derived by doing more quickly and efficiently these and other things now done casually or inefficiently. Engaging in total school and classroom improvement in time use could be an enjoyable collaborative challenge for principals, teachers, and students alike.

Love (1988) stated that productive time can be increased by adapting instruction to individual differences and by teaching
small-group and individually managed study skills so that students themselves can concentrate more fully on what they require. Thus, increases in allocated and engaged time, as suggested by education reform reports and time theorists, are generally effective; but, expansion of productive time is both effective and efficient since it increases accomplishments while conserving scarce human time.

Karweit (1988) wrote that the significance of time-on-task for educational improvement has thus far been largely unrealized. But the failure of the research studies to provide a basis for meaningful change in school functioning is not the result of a bad idea, but of misapplication. In particular, the research results were mistakenly interpreted to imply that one effective strategy for school improvement was for schools to allocate more time.

Karweit further stated that arguments against this interpretation note schools have quite distinct patterns of time use, and that while some schools would benefit from increasing the days in the school year, others would not use this time any more efficiently than they use existing time. The problem was not necessarily the need for more time, but the need to use existing time more effectively.
Student Achievement

Reading

Frager and Hahn (1988) stated that if the 1960s and 1970s were the years that reading educators discovered that comprehension was really being tested, not taught, and that the "Great Debate" between phonics and whole-word instruction didn't matter much anyway, then what have we learned in the 1980s? According to the authors, many things, contributed to quantum increase in the amount and sophistication of reading research. Frager and Hahn highlighted contemporary reading research as well as some implied instructional practices in four areas, including direct teacher explanation, reading-writing connection, top-level text structure, and main idea identification.

Brown and Briggs (1987) asserted that reading and writing relationships must be reinforced in classroom methodology, and offered seven guidelines for connecting reading and writing in children's literacy development.

Shanahan (1988), noting that recommendations for integrating reading and writing often fail to provide adequate specific suggestions, proposed seven instructional principles based upon research on the reading-writing relationship and suggested specific techniques for each principle.
Tierney (1985) discussed two facets of reading-writing relationships: (1) the processes underlying reading and writing, (2) the communicative contexts influencing reading and writing, including the influence of reading upon writing and writing upon reading.

Wilson (1988) showed how teaching mathematics help in teaching reading sequence skills. He supported the notion that students who can write a mathematical sentence, reconstruct the series of events in a verbal problem, can transfer those skills to develop the reading skill of time-order sequence.

Brookes (1988) supported the argument that reading and writing ought to be taught together "so closely that students can't tell where one leaves off and the other begins" and seeks to persuade the reluctant teacher by (1) giving reasons for interweaving composition and literature seamlessly, and (2) outlining one procedure for doing so.

McCabe (1985) identified noninstructional conditions leading to semiliterate high school graduates, including the inaccessibility of books, lack of time to read, lack of readers as role models, and barriers within the curriculum and school structure. McCabe argues that educational reforms emphasizing only instruction are unlikely to change these conditions.

Hahn (1988) reviewed the research supporting two views of reading instruction: (1) that learning occurs through social
interaction with an expert; and (2) that students should be put in control of their own learning.

Mosenthal (1988) discussed research methodology in general, and suggested ways of identifying what is and is not known in the field of reading. He pointed out that reading research has not yet investigated how adults and children read nonschool materials in nonschool settings.

Beentjes and Van Der Voort (1988) reported that television's relation to reading achievement is complex; the magnitude and direction of the relation are influenced by a number of conditions. They further stated that heavy viewers, socially advantaged children, and intelligent children tend to be most vulnerable to television's inhibition effect. In addition, the relation is sensitive to the type of television content watched.

Scales (1987) stated that although cognitive style affects test results, students of various cognitive styles are expected to perform equally well on standardized tests. Informal tests seem to be better for both impulsive and reflective style students. Perhaps a combination of standardized and informal testing is appropriate for making educational decisions about students.

Mathematics

Fennema and Carpenter (1981) reported the sex-related differences that were found in the second mathematics
assessment of the National Assessment of Educational Progress. They further reported that, while the mathematics assessment results documented the problem of sex-related differences in mathematics more precisely than has been done before, however, offered little to help in identifying the causes of these differences which could lead to effective intervention procedures.

Brown et al. (1988) suggested that secondary school students seem to have reasonably good procedural knowledge in areas of mathematics as rational numbers, probability, measurement, and data organization and interpretation. They further suggested that students are lacking the conceptual knowledge to successfully do the assessment items on applications, problem solving, and reasoning.

Davison and Pearce (1988) presented writing activities appropriate in the mathematics classroom in the five categories of direct use of language, linguistic translation, summarizing, applied use of language, and creative use of language.

Bain (1988) discussed the advantages of group work in mathematics classes, and raised questions about appropriate assessment of such group work.

Chiappelli (1987) suggested strategies for improving mathematics education by including the use of such cognitive strategies as advanced organizers, active internal processing,
mnemonics, concrete demonstrations, imagery, and metacognition.

Summary

The review of the literature suggested that effective schools do not "just happen." Further review suggested that principals should examine how other schools have changed and be creative in making changes which fit their specific school community, staff, and students. Principals should be flexible, willing to make mistakes; not everything they or their teachers try will work. Improvements very rarely come without errors, correct them and move on. Principals should be proactive and insist on movement.

Many efforts have come to the forefront in the ongoing development of effective schools. Principals, teachers, and school systems have proposed and implemented numerous strategies, some of which include several models and techniques of schedule designs that have been implemented, discarded, or modified over the years. Further review revealed that scheduling is a major determinant of the school program. The development of the school schedule is considered by many to be one of the most important responsibilities of the principal; his ability to conceptualize, organize, and carry out detailed planning is most visible. A properly developed and implemented schedule will
strongly support the instructional and curricular programs in the school. On the other hand, if poorly developed and/or implemented, the schedule will be a roadblock to a balanced curriculum and instructional flexibility. The basic intent of the school schedule is to bring together people, materials, and curriculum at a designated time and place for the purpose of instruction.

Research supports the fact that schools can be effective in producing high student achievement. Effective classrooms and achievement on standardized tests are linked to the amount of time a student actively works on academic content (time on task) and to strong administrative leadership. Further, principals and teachers must work to structure an organization that will create a positive school learning climate.
CHAPTER III

METHODS AND PROCEDURES

The problem of this study was to: (1) investigate teacher and student perceptions of an innovative two-hour instructional time block schedule; (2) determine the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (3) determine the difference between student achievement in reading and mathematics in 1988 under the one-hour block schedule and student achievement in those two skills in 1989 under the two-hour block schedule. In order to conduct this study, data were collected and the following comparisons were made: (a) high school teacher perceptions of a one and a two-hour instructional time block schedule, (b) high school student perceptions of a one and a two-hour instructional time block schedule, (c) high school student and high school teacher perceptions of school learning climate, (d) high school student and high school teacher perceptions of time on task, (e) high school students' 1988 and 1989 reading scores, and (f) high school students' 1988 and 1989 mathematics scores.
Design of the Study

The basic design of this study was descriptive in nature and focused on the following: (1) teacher and student perceptions of an innovative two-hour instructional time block schedule, (2) determined the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (3) determined the difference between student achievement in reading and mathematics in 1988 under the one-hour block schedule and student achievement in those two skills in 1989 under the two-hour block schedule.

The Setting

The study took place in one Atlanta public comprehensive high school. The school's physical structure consists of a recently renovated main building with four floor levels and a separate building which houses the vocational educational program. The study was conducted from September 1988 to April 1989 and it involved the researcher visiting the school site an average of two visits per week, between the hours of 8:00 a.m. to 3:30 p.m.

Population and Sample

The population for this study consisted of teachers and students in one of the central focus high schools in the Atlanta
Public Schools. The population consisted of 79 teachers and of that total, 72 teachers participated in the survey. Seven teachers were not present on the date the survey was administered. The total student population consisted of 1,096; however, 138 eighth graders were excluded from the survey, because they were not enrolled in the high school when the previous one-hour instructional time block schedule was being used. Therefore, the eighth graders were not able to make a comparison between the two schedule designs (one-hour and two-hour instructional time block schedules). Of the 958 ninth through twelfth grade students, 533 participated in the survey — 149 ninth, 134 tenth, 123 eleventh, and 127 twelfth grade students. Four hundred and twenty-five students did not participate for one of the following reasons: (1) failed to return the parental permission slip, (2) did not complete the scantron sheets, or (3) absent from school on the date the survey was administered.

**Instruments**

The researcher utilized two instruments to collect data for the study: (1) the School Climate and Time on Task Characteristics of the Illinois Quality Schools Index (1984). (2) the Teacher and Student Time Block Schedule Questionnaire.
The reading and mathematics achievement of students in grades 9 through 11 are assessed annually using the Reading and Mathematics subtests of the Tests of Achievement and Proficiency (TAP, 1986).

The School Climate and Time on Task Characteristics of the Illinois Quality Schools Index (IQSI)

The Illinois State Board of Education offers the Illinois Quality Schools Index for school districts as an appropriate beginning in a continuous process for developing and maintaining quality schooling. The IQSI is designed to provoke discussion and action within a school building or school district about various characteristics shown to be common among effective schools. The IQSI process allows flexibility in adapting the process to the local school district and increasing the school and community acceptance of the results. A school may focus on a single characteristic of effective schools, use all eight characteristics of the index, or supplement the instrument with additional indicators. In its most narrow application, the IQSI process was field tested involving a single instrument (characteristic) completed by one grade level, e.g., eighth grade students and teachers. Broad use of the process was field tested involving a complete district staff and students using all eight instruments (characteristics). The researcher used two of the characteristics (school climate and time on task) and made only
minimal modification by substituting certain words with same meaning for the purpose of clarity for students in grades 9 through 12. The School Climate Characteristic of the IQSI is composed of 23 items (1 through 23) and the Time on Task Characteristic is composed of 17 items (24 through 40) (Appendix B).

The development and validation of the Illinois Quality Schools Index (IQSI) was supported by funds provided by Chapter 2, Education Consolidation and Improvement Act (Block Grant) to the Illinois State Board of Education.

The Teacher and Student Time Block Schedule Questionnaire

The Teacher and Student Time Block Questionnaire was developed by the researcher. The questionnaire was designed to obtain teacher and student perceptions of an innovative two-hour instructional time block schedule and a one-hour instructional time block schedule. A face validity form was designed and distributed to qualified persons who were asked to examine and evaluate the validity of the 38 item questionnaire.

The students who participated in the study were asked to respond to items 1 to 20 on the questionnaire and the following represents the items developed to obtain student perceptions of the two-hour and one-hour instructional time block schedules: (1) items 1, 2, 4, 6, 9, 10, 12, 14, 18, and 20 (two-hour), (2) items 5,
7, 8, 11, 13, 15, 16, 17, and 19 (one-hour), and (3) item 3 (one or two-hour) was not scored. The teachers who participated in the study were asked to respond to items 21 to 38 on the questionnaire and the following represents the items developed to obtain teacher perceptions of the two-hour and one-hour instructional time block schedules: (1) items 21, 29, 30, 36, 38 (two-hour), (2) items 22, 23, 24, 25, 26, 34, 35, 37 (one-hour), and (3) items 27, 28, 31, 32, 33, (one or two-hour) were not scored (Appendix C).

The items of both instruments were scored using the following scale:

A Strongly Agree = +2    D Disagree = -1
B Agree = +1              E Strongly disagree = -2
C Undecided = 0

Research Design

This descriptive study was designed to: (1) investigate teachers and student perceptions of an innovative two-hour instructional time block schedule; (2) determine the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (3) determine the difference between student achievement in reading and mathematics in 1988 under the one-hour block
schedule and student achievement in those two skills in 1989 under the two-hour block schedule. Descriptive statistics were used to present the research data on the IQSI and the Teacher and Student Time Block Schedule Questionnaire Instruments received from teachers and students in grades nine through twelve.

**Procedures and Data Collection**

The following procedures were utilized in collecting the data for the study. The researcher met with the high school principal where the two-hour instructional time block schedule had been implemented at the beginning of the 1988-89 school year and was granted permission to survey teachers and students. Seventy-two of the 79 teaching staff were present at a staff meeting where information and instructions were given concerning the survey and instruments. Teachers were encouraged to participate and asked to complete the following two instruments: (1) Teacher and Student Time Block Schedule Questionnaire and (2) the School Climate and Time on Task Characteristics of the IQSI. All teachers with homeroom classes were given instructions by the principal on the procedures for administering the two instruments to students in grades 9 through 12. Parental permission letters were given to teachers for distribution to student participants (Appendix D). The
collected scantron sheets and questionnaires were given to the Department of Research and Evaluation of the Atlanta Public Schools for processing.

An additional procedure used for collecting data involved the researcher observing the 79 teaching staff in their classrooms with students an average of six to eight times during the 1988-89 school year. Each unannounced school visit focused primarily on classroom observations; however, other aspects of the school's program were also observed such as: school facility (inside and outside), nonteaching staff members, and students in noninstructional settings. The principal received both written and verbal feedback at the end of each school visit. When teachers requested feedback, they too received verbal feedback at a time that was appropriate and did not interfere with classroom instruction. Generally feedback sessions with teachers resulted in a change in attitude toward the observer and in many instances the sessions led to the establishment of a positive ongoing working relationship.

**Statistical Procedures**

The data collected for this descriptive research was analyzed by the use of the nonindependent t test. Ary (1985) stated that the nonindependent t test is used to match the subjects on some qualities that are important to the purpose of
the study or to compare the means obtained by the same group under two different conditions. This statistical method is appropriate because of the researcher's interest in measuring the difference between the following paired scores: (1) the teachers' perceptions of a two-hour instructional time block schedule and a one-hour instructional time block schedule; and (2) the students' perceptions of a two-hour instructional time block schedule and a one-hour instructional time block schedule.

The researcher utilized the independent t test to analyze hypotheses three, four, five, and six. This statistical method was appropriate because the interest was to measure the difference between two independent means: (3) the teacher and student perceptions of the school learning climate; (4) the teacher and student perceptions of time on task; (5) the high school students' 1988 and 1989 reading achievement test scores; and (6) the high school students' 1988 and 1989 mathematics achievement test scores. The difference between the means was tested at the 0.05 level of significance.

**Hypotheses**

1. There is no significant difference between a select group of high school teachers' perceptions of a one-hour instructional time block schedule and a two-hour instructional time block
schedule, as measured by the Teacher and Student Time Block Schedule Questionnaire.

2. There is no significant difference between a select group of high school student perceptions of a one-hour instructional time block schedule and a two-hour instructional time block schedule, as measured by the Teacher and Student Time Block Schedule Questionnaire.

3. There is no significant difference between a select group of teacher and student perceptions of school learning climate, as measured by the School Climate Characteristic of the IQSI.

4. There is no significant difference between a select group of teacher and student perceptions of time on task, as measured by the Time on Task Characteristic of the IQSI.

5. There is no significant difference between a select group of high school students' 1988 reading achievement test scores who followed a one-hour instructional time block schedule and students' 1989 reading achievement test scores who follow a two-hour instructional time block schedule, as measured by the TAP.

6. There is no significant difference between a select group of high school students' 1988 mathematics achievement test scores who followed a one-hour instructional time block
schedule and students' 1989 mathematics achievement test scores who follow a two-hour instructional time block schedule, as measured by the TAP.

**Definition of Terms**

**Two-Hour Block Schedule**

A schedule designed for high school students in an Atlanta Public High School. The doubling of the traditional (55 minutes) schedule allows for students to remain in a single class for two periods of instruction (110 minutes). Students who follow this schedule only change classes three times a day, taking three subjects on alternate days, instead of changing classes six times a day, taking six subjects daily.

**One-Hour Block Schedule**

A schedule that traditionally has been the standard time for courses in Georgia's high schools and is designed for students to change classes every hour for six periods each day. However, there are some exceptions which allow some flexibility in scheduling vocational education and other special courses where a longer block of time is required.
School Learning Climate

The school learning climate as conceptualized in this research means any phase of the school social system that is related to the level of student learning. It is characterized by the degrees to which schools are effective in providing the expected learning outcomes of all students.

Time on Task

Time on task as conceptualized in this research means times during the school day when teachers and students are engaged in teaching and learning activities.

Student Achievement in Reading and Mathematics

The reading and mathematics achievements of students in grades 9 through 11 are assessed annually using the Reading and Mathematics subtests of the Tests of Achievement and Proficiency (TAP). The reading test is designed to measure students' competence in reading for information both in secondary-school subjects and in meeting common, everyday social requirements. The primary purpose of the mathematics test is to assess students' competence in the use of mathematical knowledge and skills in dealing with quantitative aspects of everyday living.
Summary

In this chapter the research method compared: (a) high school teacher and student perceptions of the traditional one-hour and a recently implemented two-hour instructional time block schedule; (b) determined the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; and (c) determined the difference between student achievement in reading and mathematics in 1988 under the one-hour schedule and student achievement in those two skills in 1989 under the two-hour block schedule. The population for this study consisted of teachers and students (grades 9 through 12) in one of the central focus high schools in the Atlanta Public Schools. Two instruments were utilized to collect data for the study: (1) the School Climate and Time on Task Characteristics of the IQSI; (2) the Teacher and Student Time Block Schedule Questionnaire. Reading and mathematics achievement of students in grades 9 through 11 are assessed annually using the Reading and Mathematics subtests of the TAP.

The research was guided by six hypotheses. The descriptive research approach was used to analyze the data by the use of the nonindependent t test and the independent t test.
CHAPTER IV

ANALYSIS AND FINDINGS OF DATA

This research study considered six hypotheses in the investigation of teacher and student perceptions, of an innovative two-hour instructional time block schedule and determined the difference between teachers' and students' views on school climate and time on task in the context of the two-hour block schedule; determine the difference between student achievement in reading and mathematics in 1988 under the one-hour block schedule; and student achievement in reading and mathematics in 1989 under the two-hour block schedule.

Results of the Teacher and Student Instruments

The data on the perceptions of high school teachers and students on the one-hour and two-hour instructional time block schedule are presented in Tables 1 and 2; data on the perceptions of high school students and teachers on school learning climate are presented in Table 3; data on the perception of high school students and teachers on time on task are presented in Table 4; and data concerning high school students'
1988 and 1989 reading and mathematics achievement test scores are presented in Tables 5 and 6.

**Hypothesis One**

There is no significant difference between a select group of high school teachers' perceptions of a one-hour instructional time block schedule and a two-hour instructional time block schedule, as measured by the Teacher and Student Time Block Schedule Questionnaire. Items 21, 29, 30, 36, and 38 requested the teachers responses on the two-hour block schedule; items 22, 23, 24, 25, 26, 34, 35, and 37 requested the teachers responses on the one-hour block schedule; and items 27, 28, 31, 32, and 33 were considered to be neutral items and were not scored. The 13 items scored had relevance to hypothesis one.

The mean of the two-hour instructional time block schedule was 1.0500 with a standard deviation of 0.897, while the mean of the one-hour instructional time block schedule was 0.7046 with a standard deviation of 0.782. An analysis of the responses is summarized: (See Table 1)
Table 1
Distribution of respondents' (teachers) ratings of the two-hour and one-hour instructional time block schedule

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-hour block</td>
<td>72</td>
<td>1.0500</td>
<td>0.897</td>
<td>0.805</td>
</tr>
<tr>
<td>1-hour block</td>
<td>72</td>
<td>-0.7046</td>
<td>0.782</td>
<td>0.612</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0
 Obtained Difference = 0.3454
 t-ratio = 10.37
 Prob: = 0.000
 t-table value = 1.99
 df = 71

Since the obtained t test value of 10.37 is greater than the t-table value of 1.99, the obtained difference was significant at the 0.05 level; therefore, the null hypothesis was rejected.

These data indicated that teachers preferred the newly implemented two-hour instructional time block schedule over the previously used one-hour instructional time block schedule, as measured by the Teacher and Student Time Block Schedule Questionnaire. Teachers gave an average grade of B to the two-hour instructional time block schedule and C to the one-hour block schedule in response to item 18 on the questionnaire. Generally, teachers felt that the two-hour instructional time
block schedule was an effective strategy for minimizing student movement, which resulted in less graffiti, less litter, and less pressure. Nevertheless, there was general agreement that the two-hour block required: (1) more planning time for lesson preparation, (2) indepth lesson reviews of previous lessons (lesson endings are crucial in classes that meet every other day), and (3) inservice training to assist teachers in planning for the two-hour block schedule.

Hypothesis Two

There is no significant difference between a select group of high school students' perceptions of a two-hour instructional time block schedule and a one-hour instructional time block schedule, as measured by the Student Time Block Schedule Questionnaire. Items 1, 2, 4, 6, 9, 10, 12, 14, 18, and 20 requested the students responses on the two-hour block schedule; items 5, 7, 8, 11, 13, 15, 16, 17, and 19 requested the students responses on the one-hour block schedule; and item 3 was considered to be a neutral item and was not scored. The 19 items scored had relevance to hypothesis two.
The mean of the two-hour instructional time block schedule was 0.4555 with a standard deviation of 0.782, while the mean of the one-hour instructional time block schedule was 0.1373 with a standard deviation of 0.765. An analysis of the responses is summarized: (See Table 2)

Table 2
Distribution of respondents' (students) ratings of the two-hour and one-hour instructional time block schedule

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-hour block</td>
<td>524</td>
<td>0.4555</td>
<td>0.782</td>
<td>0.612</td>
</tr>
<tr>
<td>1-hour block</td>
<td>524</td>
<td>0.1373</td>
<td>0.765</td>
<td>0.585</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0  
 Obtained Difference = 0.3182  
 t-ratio = 5.59  
 Prob: = 0.000  
 t-table value = 1.960  
 df = 523

Since the obtained t test value of 5.59 was greater than the t-table value of 1.960, the obtained difference was significant at the 0.05 level; therefore, the null hypothesis was rejected.

Analyzed data indicated that students preferred the newly implemented two-hour instructional time block schedule over
the previously used one-hour instructional time block schedule, as measured by the Teacher Student Time Block Schedule Questionnaire. When student responses to one-hour and two-hour instructional time block schedule indicators were compared, students demonstrated a significantly higher preference for the two-hour instructional time block schedule as shown by their means scores: (1) two-hour (0.4555) and (2) one-hour (0.1373), which were measured on a 2-point scale.

Generally, under the two-hour instructional time block schedule, students felt less pressured and noted that there were more class discussions, less misunderstanding of homework assignment, and that their teachers were trying instructional strategies and approaches they had not tried under the one-hour instructional time block schedule. They also found it more difficult to cut classes, felt that school was safer and noted less litter and graffiti throughout the school.

On the other hand, some students indicated that school spirit and pride were lower; they got bored in class for two hours and preferred changing classes six times per day, which allowed more time to interact with peers. However, none felt that they had missed anything from seeing their teachers every other day as opposed to daily.
Hypothesis Three

There is no significant difference between a select group of teacher and student perceptions of the school learning climate, as measured by the School Climate Instrument of the IQSI. Items 1 through 23 requested the students and teachers responses on school climate. The items had relevance to hypothesis three.

The mean of student perceptions of the school learning climate was 0.7763 with a standard deviation of 0.596, while the mean of teacher perceptions of school learning climate was 1.2783 with a standard deviation of 0.502. An analysis of the responses is summarized: (See Table 3)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>533</td>
<td>0.7763</td>
<td>0.596</td>
<td>0.355</td>
</tr>
<tr>
<td>Teacher</td>
<td>68</td>
<td>1.2783</td>
<td>0.552</td>
<td>0.305</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0
Obtained Difference = 0.502
t-ratio = 6.99
Prob: = 0.000
t-table value = 1.960
df = 599
Since the obtained t test value of 6.99 was greater than the t-table value of 1.960, the obtained difference was significant at the 0.05 level; therefore, the null hypothesis was rejected.

**Hypothesis Four**

There is no significant difference between a select group of teacher and student perceptions of time on task, as measured by the Time on Task Instrument of the IQSI. Items 24 through 40 requested students and teachers responses on time on task. The items had relevance to hypothesis four.

The mean of student perceptions of time on task was 0.7822 with a standard deviation of 0.600, while the mean of teacher perceptions of time on task was 1.2527 with a standard deviation of 0.485. An analysis of the responses is summarized: (See Table 4)
Table 4
Distribution of respondents' (students and teachers) ratings of time on task

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student</td>
<td>533</td>
<td>0.7822</td>
<td>0.600</td>
<td>0.360</td>
</tr>
<tr>
<td>Teacher</td>
<td>68</td>
<td>1.2527</td>
<td>0.485</td>
<td>0.235</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0
Obtained Difference = 0.4705
\( t \)-ratio = 7.32
Prob. = 0.000
\( t \)-table value = 1.960
df = 599

Since the obtained \( t \) test value of 7.32 was greater than the \( t \)-table value of 1.960, the obtained difference was significant at the 0.05 level; therefore, the null hypothesis was rejected.

Hypothesis Five

There is no significant difference between a select group of high school students' 1988 reading achievement test scores who followed a one-hour instructional time block schedule and students' 1989 reading achievement test scores who follow a two-hour instructional time block schedule, as measured by the TAP. The reading and mathematics achievement of
students in grades 9 through 11 are assessed annually using the Reading and Mathematics subtests of the TAP.

The mean of the students' 1988 reading achievement test score (one-hour block) was 39.1063 with a standard deviation of 19.599, while the mean of the students' 1989 reading achievement test score (two-hour block) was 38.1909 with a standard deviation of 19.050. An analysis of the test scores is summarized: (See Table 5)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988 Reading</td>
<td>461</td>
<td>39.1063</td>
<td>19.599</td>
<td>384.1208</td>
</tr>
<tr>
<td>1989 Reading</td>
<td>461</td>
<td>38.1909</td>
<td>19.050</td>
<td>362.9025</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0
Obtained Difference = 0.9154
\( t \)-ratio = 1.32
Prob: = 0.219
\( t \)-table value = 1.960
df = 460
Since the obtained t test value of 1.32 was less than the t-table value of 1.960, the obtained difference was insignificant at the 0.05 level; therefore, the null hypothesis was accepted.

Analyzed data revealed that the percent of students scoring at or above the national norm increased from 18 to 24 percent from 1988 to 1989. However, there was no significant improvement in the mean national curve equivalent (NCE) for TAP. Therefore, reading achievement test scores made no significant gain under the two-hour instructional time block schedule. In the researcher's opinion there are at least two probable explanations for no significant improvement in the reading achievement test scores. The first deals with the fact that the two-hour instructional time block schedule had been in effect only seven months prior to the administering of the TAP. It is believed that in order for the two-hour instructional time block schedule to have a positive effect on reading achievement test scores, the newly designed schedule must have been in place for at least a full academic year to allow for a reasonable adjustment period. The second reason for no significant improvement can be attributed to the fact that high school teachers, in general, have not been trained to effectively incorporate the teaching of reading skills within the various disciplines. Teachers would benefit from inservice training on the teaching of reading skills in course content areas of various
disciplines and the opportunity to observe proficient teachers in teaching reading skills within various disciplines. Teachers should be paired with other teachers of the same or similar disciplines within the local school and other school settings.

**Hypothesis Six**

There is no significant difference between a select group of high school students 1988 mathematics achievement test scores who followed a one-hour instructional time block schedule and students' 1989 mathematics achievement test score who follow a two-hour instructional time block schedule, as measured by the TAP. The reading and mathematics achievement of students in grades 9 through 11 are assessed annually using the Reading and Mathematics subtests of the TAP.

The mean of the students' 1988 mathematics achievement test score (one-hour block) was 34.6421 with a standard deviation of 17.406, while the mean of the students' 1989 mathematics test score (two-hour block) was 41.7310 with a standard deviation of 19.040. An analysis of the test scores is summarized: (See Table 6)
Table 6
Distribution of respondents' (students) 1988 and 1989 mathematics achievement test scores

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988 mathematics</td>
<td>461</td>
<td>34.642</td>
<td>17.406</td>
<td>302.96884</td>
</tr>
<tr>
<td>1989 mathematics</td>
<td>461</td>
<td>41.731</td>
<td>19.040</td>
<td>362.5216</td>
</tr>
</tbody>
</table>

Hypothesized Difference = 0
Obtained Difference = 7.0889
\( t \)-ratio = 8.21
Prob: = 0.000
\( t \)-table value = 1.960
df = 460

Since the obtained \( t \)-test value of 8.21 was greater than the \( t \)-table value of 1.960, the obtained difference was significant at the 0.05 level; therefore, the null hypothesis was rejected.

Analyzed data revealed that the percentage of students scoring at or above the national norm in mathematics increased from 18 to 34 percent, and there was an increase in mean NCE from 34.6 to 41.7 from 1988 to 1989. This improvement occurred under the two-hour instructional time block schedule. In the researcher's opinion the most likely explanation for the significantly improved achievement mathematics test scores is the fact that the required mathematics curriculum is designed to
focus specifically on developing basic mathematics skills, and mathematics courses are taught by certified mathematics teachers. Therefore, the additional time on task as a result of the two-hour instructional time block schedule was sufficient and had a significant positive impact on the students' achievement in mathematics.

**Summary**

In chapter four the results from the two data sources were highlighted with six hypotheses. The nonindependent t test was used to analyze hypotheses one and two. This statistical method measured the differences between the paired scores: (1) the teachers' perceptions of the one-hour and two-hour instructional time block schedules; and (2) the students' perceptions of the one-hour and two-hour instructional time block schedules. The obtained t test values were greater than the t-table values for hypotheses one and two and the obtained differences were significant at the 0.05 level; therefore, the null hypotheses were rejected.

The independent t test was used to analyze hypotheses three, four, five, and six. This statistical method measured the differences between two independent means: (3) the teachers' and students' perceptions of the school learning climate; (4) the
teacher and student perceptions of time on task; (5) the high school students' 1988 and 1989 reading achievement test scores; (6) the high school students' 1988 and 1989 mathematics achievement test scores. The obtained t test values were greater than the t-table values for hypotheses three, four, and six and the obtained differences were significant at the 0.05 level; therefore, the null hypotheses were rejected. Hypothesis five obtained t test value was less than the t-table value and the obtained difference was insignificant at the 0.05 level; therefore, the null hypothesis was accepted.
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Based on the findings of this study, the researcher concluded that the two-hour instructional time block schedule represents a viable strategy for improving student achievement and enhances the overall school program. Analyzed data results indicated that teachers' perceptions were highly more positive for the two-hour instructional time block schedule when compared to the one-hour block schedule design. The students also demonstrated a more positive response to the two-hour schedule design when compared to the one-hour schedule, yet, their positive responses were slightly below those of the teachers.

There were significant differences between teacher and student perceptions of school learning climate and time on task. Teachers gave highly positive responses on the effectiveness the new schedule design (two-hour block) made on the school learning climate and time on task when compared to the responses given by the students. However, the researcher considered significant, the 8 school climate and 6 time on task
items to which the students responded positively. When principals and staff are aware of and value the feelings students have about the school program and use this information as a guide to plan programs and activities, they can expect positive gains toward academic improvement.

At the high school where this study was conducted, the percentage of students scoring at or above the national norm in reading increased from 18 to 24 percent from 1988 to 1989. However, there was no significant improvement in the mean national curve equivalent (NCE) for TAP. Therefore, reading achievement test scores made no change in NCE under the two-hour instructional time block schedule. The researcher believes that the innovative schedule design needs additional time in order to effect a significant positive change in the reading achievement test scores. Furthermore, some teachers were identified as needing to improve their instructional effectiveness in the teaching of basic reading skills in the course content of various disciplines.

The percentage of students scoring at or above the national norm in mathematics increased from 18 to 34 percent and there was an increase in mean NCE from 34.6 to 41.7 from 1988 to 1989. This highly significant improvement occurred under the two-hour instructional time block schedule. Based on these
findings, the researcher believes that the extended class periods (two-hour blocks), the state's certification requirement for mathematics teachers, and the emphasis on the teaching of basic skills within the mathematics curriculum had a direct effect on the improvement in mathematics achievement test scores.

**Recommendations**

The newly implemented two-hour instructional time block schedule requires some modifications to established practices to which the staff and students have grown accustomed, especially, teachers and students. In order to have a smooth transition period and increase the likelihood of raising the level of effectiveness, the researcher recommends the following:

1. Improve the monitoring practices presently used to observe teachers and students in the classroom. The principal and designated school-based instructional leaders (i.e., assistant principal/s and department chairpersons) should consider the importance of teacher observations and feedback and plan a consistent monitoring schedule for monitoring teachers and students in the two-hour class periods. The purpose of the classroom observations should be focused on: (1) identifying and reinforcing effective
teaching practices and (2) identifying areas where
development can improve instructional effectiveness.

2. Develop a local school monitoring checklist instrument
to be used when observing teachers and students
engaged in a two-hour instructional class period. The
proposed instrument should include, among several
listed, expected teaching tasks and teacher
effectiveness in managing the learning climate. It
should address: (1) physical setting — the physical
setting should allow students to observe the focus of
instruction, to work without disruption, to obtain
materials, and to move about easily. It should allow the
teacher to monitor the students and to move among
them; (2) use of time — the use of instructional time
should be optimized by techniques such as providing
clear directions, using efficient methods for
transitions, distributing materials relating to objectives
and providing sufficient instructional activities.

In an effort to develop and maintain an effective
learning climate, the frequent evaluation of instruction
is essential. By providing appropriate feedback to
teachers concerning observed teaching practices and
making use of student assessment data available, teachers can improve their instructional effectiveness.

3. Plan and implement inservice training workshops for teachers needing improvement in specified areas of instructional effectiveness. Plan with the director of staff development, inservice training workshops for teachers identified as needing improvement in the planning of instructional content development for a two-hour instructional class period and the teaching of basic reading skills in course content areas of the various disciplines. In planning for the inservice training relevant to the two-hour instructional class period, emphasis should be placed on the importance of developing content through appropriate teacher-focused and student-focused activities. Teachers needing improvement in the teaching of basic reading skills in course content areas of the various disciplines should participate in inservice training as well as pairing programs with teachers who teach similar or same course content and are considered proficient in the teaching of basic reading skills and course content in their disciplines. The purpose of the teacher pairing programs will serve as another means of assisting teachers in improving their instructional
effectiveness. The teacher pairing arrangement can be limited to the local school or extended to other high schools.

4. Develop and expand existing extracurricular activities with the purpose of attracting a greater number of student participants. This would provide additional opportunity for social interaction for students, which would have been significantly reduced by the two-hour instructional time block schedule. The researcher believes that extracurricular activities that are offered in an orderly environment and attempt to enhance students' spirit for achieving excellence may also create a positive school climate conducive to higher achievement. At this particular stage of development, peer interaction represents a significant phase in the social growth of high school students. It would be unfortunate if the improvements in academic performance produced by the two-hour instructional time block schedule were to be offset by the deprivation of adequate socialization skills.

5. Using a two-hour instructional time block schedule necessitates an even greater need for teachers to begin lessons with reviews of the previous lesson. Teachers
observed as being effective in the school were those who began lessons with reviews of previous lessons. These teachers presented only one idea or concept at a time, focusing only on that point and checking for student understanding before proceeding. Reviews were conducted at the end of the lesson and at weekly intervals. This is especially crucial when a given course convenes every other day using a two-hour schedule design. It was observed that more effective teachers used review and repetition more frequently than did less effective teachers.

The researcher supports the innovative schedule design as being effective in minimizing student movement and increasing the opportunity for additional instructional time. Cleaner halls, corridors, restrooms, and stairwells correlate with the reduction of student movement. Although the improvements related to student achievements (i.e., mathematics test scores) did occur during the school year in which the two-hour schedule design was implemented, one should exercise caution in attributing these results to the two-hour block schedule, for there was no way to control other possible effects of the central focus design. However, it appears that the 1988-89 two-
hour block schedule did have an overall positive effect. Therefore, the researcher recommends that the innovative two-hour time block schedule be continued.
BIBLIOGRAPHY


Lezotte, L. W., et al. (1980). *School Learning Climate and Student Achievement*. Tallahassee, FL: SSTA Center, Teacher Educational Projects, Florida State University.


of Iowa. (Doctoral dissertation, Walden University). 


APPENDICES
MONITORING CHECKLIST

School __________________________ Teacher __________________________
Grade ______ Subject __________________________ Date ________________

LESSON DESIGN

Yes No

1. The teacher states or writes the behavioral objective for the lesson using words in the students' listening and reading vocabularies.
2. The teacher motivates. For example, the teacher helps students make a connection between what they already know and the new concept to be learned. The teacher states why the skill is being taught and relates the skill to real life.
3. The teacher provides verbal and visual explanation and/or elicits opinions and reactions from students. (Presentation of Content)
4. The teacher models/demonstrates the skill to be learned.
5. The teacher provides and monitors practice of sequential learning activities and gives specific, positive, and corrective feedback to students.
   This informal check is used to see if students understand the content, directions, or task of the lesson. The teacher elicits behavior which demonstrates learning of the material. (Checking for Understanding/Guided Practice)
6. The teacher provides and corrects independent practice on the skill presented.
7. Students summarize the lesson.
8. The teacher assigns homework.

PLANNING AND EVALUATION

Yes No

1. The teacher has a dated planbook with weekly plans.
2. The planbook contains curriculum learning objectives for all curriculum areas.
3. Each plan includes an objective, motivation, teacher-directed activities, and an independent practice activity which states what students will do.
4. Homework assignments are included.
5. The teacher's record book reflects cumulative student progress in all curriculum areas, in attendance, and in minimum school standards from all daily work, quizzes, homework, unit tests, and periodic reviews.
6. The supervisor writes comments in the planbook. Comments are dated and reflect the supervisor's weekly rating of the plans as well as impressions of changes in the teacher's planning behavior.
CLASSROOM MANAGEMENT

1. All students have notebooks, covered textbooks, and writing utensils.

2. Student and teacher behaviors indicate that routines have been established for transitions, student movement, distribution of materials, participation in class discussions, etc.

ON TASK BEHAVIOR OF STUDENTS

1. The teacher deters disruptive behavior and socializing during class.

2. Students have assigned activities at all times.

3. Students are engaged in assigned activities.

CLIMATE

1. Classroom bulletin boards are current and emphasize curriculum objectives as well as the academic performance of students.

2. The teacher uses verbal or nonverbal encouragement to promote the positive academic or social behavior of a specific student or the whole class.

3. The teacher states standards for academic performance and behavior. (High Expectation)

4. Interactions between and among teachers and students reflect respect and concern for each other.
MODIFICATION OF THE ILLINOIS QUALITY SCHOOL INDEX (IQSI), SCHOOL CLIMATE AND TIME ON TASK

QUESTIONNAIRE

This questionnaire will help us who seek to improve the school to understand how you feel about the school and things that happen in the school.

Read each question carefully then blacken the circle on the scan sheet that most closely represents how you feel about each statement to follow:

A=strongly agree B=agree C=undecided D=disagree E=strongly disagree

The principal, teachers, and other staff at this school:

1. Work from a plan that they and the students understand and follow each day.

2. Show strong leadership qualities.

3. Clearly understand what this school needs and they do things the students, parents, and community expect them to do.

4. Do good planning to make sure students learn each in a positive environment.

5. Plan different ways of teaching which help students to clearly understand the lesson.

6. Help students see the relationship between what has already been learned and the lesson to follow.

7. Teach students about the value of education.

8. Provide opportunities for students to work together in small groups.
9. Help students understand the importance of learning in all subject areas.

10. Encourage student-to-student discussion in the classroom.

11. Insist on orderliness and cleanliness throughout the school.

12. Discipline the students' behavior rather than the student.

**The principal, teachers, and other staff at this school:**

13. Listen to students' opinions and needs.

14. Believe in students' ability to learn.

15. Ask questions which encourage students to think deeply and be creative.

16. Encourage students to ask and answer such questions as "How can I apply what I learn to everyday life?"

17. Set a positive example for students to follow.

18. Maintain high morale.

19. Provide an environment that causes students to like to come to school.

20. Don't allow school property to get out of hand by ignoring graffiti, dirty floors, vandalism, and things that need to be repaired.

21. Often praise students and each other for jobs well done.

22. Show respect for others no matter what they do.

23. Enjoy their work at this school.

24. Feel that spending more time on the lesson will help students to learn more.

25. Carefully plan activities that help students learn.
26. Schedule most of the school day for learning activities.
27. Encourage students to use time wisely and well.

**The principal, teachers, and other staff at this school:**

28. Don't allow many things to get in the way of the classroom learning time.
29. Don't allow too many interruptions during class periods.
30. Don't allow disruptive behavior in the classrooms and hallways.
31. Handle behavior problems in the classroom in a way that learning time is not wasted.
32. Use as little time as possible to do things that are not related to the lesson.
33. Start and end class periods on time.
34. Plan lessons for learning activities.
35. Use a variety of teaching styles and techniques to help make the lesson interesting.
36. Encourage questions and answers in classroom discussions.
37. Grade tests during class time only to find out if students learned from the assignment.
38. Use field trips, assembly programs, and audio-visual materials only when they fit into the lesson planned for students.
39. Make sure students are really working on the assigned lessons.
40. Do things that make students want to come to school each day.

Student and Student Time Block Schedule Questionnaire

This questionnaire will help us who seek to improve the school to understand how you feel about the 2-hour block and 1-hour block scheduling of classes.

Read each question carefully, then blacken the circle on the scan sheet that most closely represents how you feel about each statement as follows:

A = Strongly Agree  B = Agree  C = Undecided  D = Disagree  E = Strongly Disagree

1. I like changing classes only 3 times per day.

2. I have less trouble understanding homework assignments this year than last year.

3. I have time under the 2-hour block scheduling to get a head start on homework.

4. I feel less pressured under 2-hour block classes than 1-hour block classes.

5. I prefer changing classes 6 times a day.

6. It is more difficult to cut class this year than it was last year.

7. When I don't see my teacher every day, I feel that I've missed something.

8. I prefer all of my classes each day.

9. I have noticed that my school is freer of graffiti this year.
10. My teachers are trying some things this year that they didn't have time to do last year.

11. I get bored sitting in class for two hours.

12. Last year, just when class was beginning to be interesting, it was always time to go.

13. My principal and teachers do not allow me to offer my opinion about my school as frequently this year as last.

14. I felt safer at this school last year than this year.

15. School spirit and pride seem lower this year than last year.

16. This school is more noisy this year than last year?

17. Teachers appear less happy this year than last year.

18. Students participate in more class discussions this year than last year.

19. On a grading scale from A to E (with A being the best grade), what grade would you give the 1-hour block scheduling?

20. What grade would you give the 2-hour block scheduling?

21. I feel less pressured in the classroom this year than last year.

22. I prefer teaching all of my classes daily.

23. Last year, I had more opportunities between classes to get myself together.

24. Students are less manageable in my class this year than last year.
25. There are more disruptions of my classes this year than last year.

26. Two-hour block course only benefit those teachers who teach laboratory or studio courses.

27. Two-hour block courses require more planning than 1-hour block courses.

28. Lesson introductions and endings are crucial in classes that meet every other day.

29. I have noticed that the school is freer of graffiti this year.

30. I feel that the 2-hour block experiment was a good idea from the beginning.

31. The 2-hour block scheduling had to grow on me.

32. An inservice to assist teachers in planning for 2-hour block scheduling would have enhanced the experiment.

33. There is no difference in the amount of time required to plan for 1-hour block courses vs. 2-hour block courses.

34. Two-hour block scheduling allows teachers more time to attend to personal business during planning time.

35. Two-hour block scheduling does not allow time to interact with parents.

36. I like to 2-hour block scheduling.

37. On a grading scale from A to E (with A being the best grade), what grade would you give the 1-hour block scheduling?

38. What grade would you give the 2-hour block scheduling?
Dear Parents:

Your child has been selected to participate in a research project which will examine students' perceptions of the impact of a two-hour instructional time block schedule on school climate and time on task. This study is being conducted as a doctoral dissertation at Atlanta University. The findings from this study may be instrumental in helping administrators to address issues and concerns in similar high schools.

I am requesting permission for your child to participate in this study. This project is cost free, and your child may withdraw from the study at any time he/she may decide to discontinue participation.

Please feel free to call me at 758-6696 between 5:30 p.m. and 11:00 p.m., if you have questions about this project. Your cooperation in signing and returning the form below is greatly appreciated.

Sincerely,

David Walker
Coordinator

Parental Permissiongive my child, permission to participate in the research project described in the letter.

Parent's Signature  School  Date