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The impact of block scheduling on special education student learning in high school mathematics

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THE IMPACT OF BLOCK SCHEDULING ON SPECIAL EDUCATION STUDENT LEARNING IN HIGH SCHOOL MATHEMATICS

by
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A Thesis

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Abstract

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The Impact of Block Scheduling
On Special Education Student
Learning In High School Mathematics
2004
Dr. Ronald Capasso
Education Administration

This study evaluated block scheduling and its impact on a special education math program at Delsea Regional High School. It was determined that the end of the marking period test scores were slightly higher for those students in a block schedule than for those students in a traditional setting.

It was also determined that most teachers surveyed do not feel that block scheduling is beneficial for certain special needs students because extended time on task sometimes leads to more discipline problems, especially for those students suffering from attention deficit disorder.

Mini-Abstract

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The Impact of Block Scheduling
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This study proved two theories. First, students in block scheduling performed slightly better than those in traditional classrooms on end of unit tests.

Second, teachers felt that block scheduling was not necessarily good for those special needs students known to be discipline problems.

Acknowledgements

I would like to thank Jesus Christ my Lord and Savior. A man who was perfect, and died a humiliating death, so that I could have eternal life with Him in heaven.

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Chapter 1

Introduction

Focus of the Study

As a result of the "No Child Left Behind" federal mandate for education in the United States, school districts are anxiously anticipating the forthcoming measures of accountability. Especially concerned are those directly involved within the individual district's special education departments, since it is here where the "No Child Left Behind" program focuses its attention.

This study evaluated the high school special education math program developed for Delsea Regional High School and answered the question, "can block scheduling make this program more effective?" The focus of this study delved into block scheduling instructional techniques, developed and implemented strategies to improve these techniques, and measured student performance using these techniques. The goal of this study was to expose students to more information, which will improve their math achievement, and, ultimately, increase their ability to achieve an acceptable score on the state's test in math.

During the 2002-2003 school year, 31% of the eleventh grade special education math students passed the math section of the HSPA. This was a 12% increase from the previous year, yet "No Child Left Behind" expects 100% of these students to pass (Falls, personal communication, May 2003). In order to achieve this goal the intern will address areas of major concern, such as designing strategies to help students produce better written responses to the open-ended portion of the math HSPA, modifying the curriculum

to insure that it focuses solely upon those skills necessary for mastering the state test, and, introducing different modes of assessment so those students who traditionally do poorly on tests can demonstrate what they have learned.

The intern will utilize an action research model to evaluate the program's theoretical effectiveness; however, actual effectiveness will ultimately be determined by the state's test results. The whole school will benefit, if student achievement is maximized, but if student achievement does not improve then the financial ramifications, which come from "No Child Left Behind," will seriously affect the school district.

Purpose of the Study

The purpose of this study was to evaluate the effectiveness of the curriculum and instructional methods for Delsea Regional High School's special education math program and its effect upon student performance on the state test. An action research design was used. This study will result in changing curriculum and instructional methods by using a block schedule format, evaluating the program's effectiveness, and preparing a detailed synopsis for the school's administration. At this stage in the research, the implementation of block scheduling will be defined, generally, as providing students with the opportunity to improve their performance on standardized tests.

Definitions

Abbott v. Burke – a case which stated that the funding formula for schools in New Jersey was unconstitutional because it discriminated against economically inferior school districts.

Assessment - the ability to use and implement different strategies and methods to evaluate student performance.

Advanced Proficient– used to describe those students who exceed the state's minimum level of proficiency.

Bedroom Community – a term given to a municipality where the majority of the people live in a community, but work in a neighboring community.

Block Scheduling – an instructional method that increases time on task in a particular subject matter. A block schedule usually combines two forty-five minute periods of a traditional class into one ninety minute class.

Core Content Curriculum Standards (C.C.C.S) - qualitative aspect of a thorough and efficient education brought forth by Abbott v. Burke.

Curriculum - established, district-wide plan dictating the content, material, skills, and knowledge that must be imparted upon students for each particular discipline, and at each level.

Discipline - Chosen content area.

High School Proficiency Assessment (HSPA) - A new state test developed for eleventh-grade students to replace the High School Proficiency Test (HSPT). The design of the HSPA is to give educators information about eleventh grade achievement in the areas required by New Jersey's Core Curriculum Content Standards. The test currently includes language arts literacy and mathematics. Passing this test is necessary for receiving a high school diploma.

Individualized Educational Plan (IEP) – A written plan developed by members of the local school district's child study team, a teacher who has knowledge of the child, and the parent(s) or guardian of the child. It describes current performance in school, specifies educational needs, includes the goals and objectives recommended by the parents and staff, details a special education program, specifies why the child is receiving these special education services, and provides an organized way for a school's staff to conduct this educational program.

Individual with Disabilities Education Act 1990 (IDEA) – Originally enacted in 1975 as Public Law 94-142, IDEA is a federal law which states that disabled children have the right to a free and appropriate public education. IDEA provides federal funds to assist states and school districts making free and appropriate public education available to students with disabilities.

Mainstreaming - Maximizes the disabled student's educational program by placing him/her into a class with non-disabled students. See Least Restrictive Environment.

Manifestation Determination – If a child with a disability is suspended for more than ten days, the child study team must review that child's program to determine whether the behavior of that child is a manifestation of that child's disability.

Instruction - The manner of teaching a certain portion of a curriculum.

Least Restrictive Environment - To the maximum extent appropriate, the attempt is made to place children with disabilities into an educational environment with children who are not disabled. Removal from the regular educational environment, whether at the

classroom or district level should occur only when the nature and severity of the disability is such that the educational process in those regular situations cannot be satisfactorily achieved.

No Child Left Behind Act of 2001 - A movement that places major emphasis upon teacher quality as a factor in improving student achievement. It requires states to develop plans with annual, measurable objectives to insure that all teachers are highly qualified by the end of the 2005-2006 school year.

Open Ended Question - A type of question requiring a written response. The answers validity will be based on successfully utilizing the required guidelines as well as the overall response to the question posed.

Parents Rights in Special Education (PRISE) - A handbook given to the parents of classified children, which clearly defines their child's rights and legal obligations.

Partially Proficient – NJ Department of Education descriptor for students who did not meet the state's minimum level of proficiency.

Proficient - NJ Department of Education descriptor for students who have met the state's minimum level of proficiency.

Section 504 - No otherwise qualified disabled person (student, staff, parent) may be excluded from participation in any program or activity in the school by reason of his or her disability. The Americans with Disabilities Act (ADA) extends the anti-discrimination mandate of Section 504.

Special Education - Specially designed instruction to meet the unique needs of a child with a disability.

Strategies - A variety of techniques ranging from cooperative learning to study guides.

Support Services - Any supplementary service that assists a special needs student achieve success. This includes inclusion, teacher aides, or resource rooms.

Traditional Scheduling - A daily schedule organized around approximately eight periods of instruction during an entire school year.

Truck Farming – A system of farming where the crops are grown in one area and then sent out (trucked) to market for weighing and sale.

Related Services - Transportation and any corrective, developmental, and supportive service, which assists a child with a disability to benefit from special education.

Limitations of the Study

This study will include three math teachers from the special education department at Delsea Regional High School and the special education students in grades nine and ten at the same location. Curriculum, instruction, attitudes, and student achievement will be observed and evaluated.

The limitations in this study are the subjective nature of the collected data, thus biasing the measurable outcomes; uncooperative staff members who are unwilling to alter or improve upon past practices; and the limited time to determine improvement strategies, develop teacher consistency in their implementation, evaluate their effectiveness, and modify strategies as needed. Also, this study evaluated only one school

district from all of southern New Jersey and does not involve information from any other portion of the United States.

Setting of the Study

Delsea Regional High School is located in the southeast corner of Gloucester County. It is bound on the southeast by Atlantic County, on the southwest by Cumberland County, and on the northeast by Monroe Township. It consists of two municipalities Franklin and Elk Township (http://www.franklintownship.com/schools).

In 1960, the Southern Gloucester County Regional High School District was formed when overcrowding at Clayton High School caused three sending districts to leave the Clayton School District. The Southern Gloucester County Regional High School District was created using the seventh to twelfth grade students from Franklin and Elk Township and Newfield Borough. In 1983, due to overcrowding, Newfield decided to send their students to Buena Regional High School, thus creating its present format of Franklin and Elk Township. There have been discussions of consolidating Franklin, Elk and Delsea into one school district in an attempt to alleviate the tax burden of the residents. The following is a brief history of the townships.

The first known inhabitants of this area were the Lenni-Lenape Indians. Among the first American pioneers of this area was John Porch, who by 1780 owned both a saw-mill and grist-mill. On January 27, 1820, a 72,000-acre collection of small villages previously part of Woolwich and Greenwich Townships, were incorporated into a new municipality. At that time Glassboro, Clayton, Newfield, Elk and Franklin were part of this tract. In

1891, Jacob and Leonard Fisler from Switzerland purchased 19.71 square miles of land and called it Elk Township. In 1924, Franklin Township formed an independent municipality consisting of 54.13 square miles. The area's surface was generally level with a light sandy soil susceptible to a high state of cultivation as evidenced by large crops of vegetables and small fruits. At one time, these townships were dense forests of small pines, but due to industry and frugality, it had become a profitable truck-farming community. Although the township has shown rapid growth, this is not due to any growth in industry. The major reason for the population increase is twofold. First, many urbanites have moved out of the surrounding urban areas for more room and cheaper housing. Second, the completion of Route 55 has made the townships more accessible to more urban areas. Truck-farming is still a major livelihood of these two townships; however, urban sprawl has caused more farmers to sell their land to developers, causing the farming industry to eventually erode (*The Franklinville Sentinel*, 1995).

According to the last census, the total population of both municipalities is 18,890. 1,923 or 10.1% of this population are senior citizens (*The New Jersey Municipal Data Book*, 2003). In the past ten years, seven school budgets have passed and three school budgets have failed. Those years it failed were 2002-2003, 2001-2002, and 1996-1997 (K. Mastran, personal communication, June 2003).

The number of minorities from these municipalities makes up 12.6% of the total population. African Americans make up the largest minority group at 8.1% (*The New Jersey Municipal Data Book*, 2003).

These townships are classified predominately as bedroom communities. To understand these townships better, please refer to Appendix A. It is information derived from the 2003 *New Jersey Municipal Data Book*, a resource document that gives selected demographics for all municipalities in the state of New Jersey.

The Delsea School District consists of two buildings. The middle school is for grades seven and eight; the high school is for grades nine through twelve. Delsea Regional is a comprehensive high school located on an attractive 85 acre campus in Franklinville, New Jersey. Student enrollment is 1,894 (1262 in grades nine through twelve and 632 in grades seven and eight) with 105 faculty members. All students are provided with scheduled transportation to and from school, including several after school buses to accommodate those students involved in extra-curricular activities. Delsea offers a variety of courses in addition to the required courses for graduation. Specialized honors and advanced placement subjects are available to prepare students for college level learning experiences. These courses operate through a sequentially based process from honors courses in the lower grades to advanced placement courses in grades eleven and twelve. These programs are available in math, science, English, social studies, and world language, and they allow students the opportunity to acquire college credits (http://www.franklintownship.com/schools).

Technology has been emphasized throughout the district through integration and immersion by adopting the goals, objectives, and proficiencies outlined in the Gloucester County Technology Plan. The high school facility is equipped with state of the art

science and language labs, a media center, classroom computers, and other technological tools, such as laser disks, graphing calculators, alpha smarts, and internet access for every classroom computer. The high school also boasts many specialized areas for specific, more sophisticated, technology utilization. In addition to twelve computer labs, there is also a television/broadcasting studio, a PC repair lab, and a Cisco Networking Academy (http://www.franklintownship.com/schools).

Delsea is involved with the Renaissance concept in which academic achievement is presented through activities of recognition, reward, respect, and reinforcement. It has also been selected as a New Jersey and National Service Learning Leader School.

A strong basic skills curriculum in reading, writing, and math is available for those who benefit from small group instruction and need reinforcement of their formal skills. Comprehensive special education programs are provided to meet the requirements of the special needs population (http://www.franklintownship.com/schools).

Vocational training is offered through Delsea's successful vending, marketing, and business education programs and through participation in the shared-time Gloucester County Vocational/Technical School. State of the art instructional equipment of the educational services provided to the students of the district, which emphasizes computer technology. The entire school has been implemented with cable and fiber-optic technology to retrieve data internally and externally (http://www.franklintownship.com/schools).

Delsea has also recognized its obligation to the community. The gymnasium and

weight room are made available to the public at little or no cost. The school grounds, too, are used by the community for little league baseball and soccer practice.

A comprehensive after school activities program for high school students includes academic, social, and service organizations, interest clubs, and extensive scholastic activities to meet the social, academic, and physical needs of the high school and middle school students. Delsea Regional High School also has its own on-line website (http://www.franklintownship.com/schools).

The New Jersey report card provided immense information about the school district. Please refer to Appendix B for more of such information.

Significance of the Study

Special education programs within the public school systems will be greatly affected by the "No Child Left Behind" mandate, and it is the teachers of those students who will be held accountable if acceptable progress does not occur. So, it is imperative for a school's administration to be proactive in its approach to diagnosing and alleviating any and all potential problems. By developing a curriculum which covers all of the topics addressed in the Core Content Curriculum Standards and by implementing techniques such as block scheduling, schools could not only affect positive change in student performance, but guarantee compliance of "No Child Left Behind" guidelines.

In special education, it is no longer acceptable for students to exhibit annual improvement. They will now be held accountable to the same academic standards as regular education students. By changing past practices, and addressing what can be done

to make the special education curriculum better, this project will allow said population of students to achieve a higher score on the standardized test; to perform better in the classroom; and, most importantly, to reduce the negative stigma which comes from being a classified student.

Organization of the Study

The remainder of this study consists of a review of the literature in Chapter 2. Chapter 3 will discuss the data collection process, Chapter 4 will be an analysis of the data, and Chapter 5 will discuss implications, conclusions, and items of further study.

Chapter 2

Literature Review

Introduction

It is very expensive to educate a child within today's public school system. This statement is doubly true for students requiring special education. So, the question is why are special needs students not performing as well on standardized tests as their regular education counterparts, despite having more financial resources? With this in mind, many school districts are looking to their teachers, students, assessment, curriculum and instruction for possible shortcomings and potential solutions. Searching for the best answers to those questions about what can be done to give these students a better chance for success. Block scheduling is an instructional technique that has received a lot of attention recently. The literature reviewed will elaborate on whether block scheduling would be an asset in a special education math program. In this chapter, the intern will outline the history and theory of block scheduling, and discuss its advantages and disadvantages. The intern will then compare and contrast block scheduling from both the students' and teachers' perspectives, analyze the effects of block scheduling on students with special needs, and, finally, draw conclusions from the research to generate a plan of action.

Since "A Nation at Risk." educators have seemingly tried to reform and restructure education. According to the National Council of Teachers of Mathematics (Woodward, 2002), one of the most important components necessary for eliciting educational reform is a well articulated curriculum with effective instructional techniques. Former United

States Secretary of Education, William J. Bennett, concluded "the more time a student actively engages in learning, the stronger that learning will contribute to their advancement," (Bennett, 2001). In response to the reform mandates set forth by "A Nation at Risk" and other national reports, many schools have adopted a new instructional technique called block scheduling. The National Council of Teachers of Mathematics in 1989 emphasized the necessity for sufficient instructional time for hands-on learning, inquiry-orientated laboratory experiences, performance based assessments of student achievement, and remediation and enrichment programs. In order to reach these objectives the council recommended one hour of mathematics each day at all grade levels as being a reasonable expectation (Durkin, 1997).

Block scheduling is a popular system which originated in the 1960's. Studies in the 1960's showed there was an 80-90% approval rate over the traditional scheduling system. However, a decade later, only 2% of the schools in America were utilizing this approach in terms of scheduling (Bowman, 1998). With the impact of "No Child Left Behind" looming over their heads, school districts are now trying to bring the approach back.

Block scheduling is defined by Gordon Cawelti as follows: "At least part of the daily schedule is organized into larger blocks of time (more than sixty minutes) to allow flexibility for a diversity of instructional activities," (Irmshear, 1996). Schools in North Carolina, Texas, Florida, and Colorado are all experimenting with block scheduling (O'Neal, 1995).

The most important component of block scheduling is the presence of longer class periods. Joseph Carroll, a pioneer and developer of one of the block scheduling models, states that there are two problems with the time allotted in a traditional schedule: teachers

do not teach well and students do not learn well (O'Neal, 1995). According to Hackman there are ten guidelines for implementing a successful block scheduling program:

1. Employ a systems thinking approach.
2. Secure the support of your superiors.
3. Understand the change process.
4. Involve all stakeholders, including parents and students.
5. Consult sources outside school.
6. Brainstorm creative alternatives.
7. Examine budgetary implications.
8. Plan faculty in-service.
9. Include an evaluation component.
10. Share your success (Hackman, 1995).

The following sections will discuss the advantages and disadvantages of block scheduling and how to maximize instruction so all students will have a better chance to learn.

Advantages

Block scheduling offers many advantages. According to education professor Richard F. Bowman, block scheduling teachers work with fewer classes and are responsible for fewer students. They have increased time for planning, participating in school-based decision making, coaching students, and conferring with parents. Moreover, advocates for block scheduling argue that the increased time for daily instructional activities engenders a greater sense of interaction and ownership in the academic lives of students and teachers. Proponents also contend that block scheduling promotes individualized

instruction, increases instructional flexibility, enhances responsiveness to students needs, yields more efficient instruction, ensures uninterrupted instruction, and promotes more efficient use of school and community resources (Bowman, 1998).

Allen Queen supports block scheduling, praising such invaluable advantages as: less time spent on classroom management, extended lesson plans, improved students discipline and focus, additional teacher planning time, less make up work for students when they are absent, and a more effective use of available technology (Queen, 2000). Other advantages include fewer classes for teachers to prepare for, smaller class sizes, the ability to group and regroup students according to what they have mastered, and the ability to allow teachers to make accommodations for students that learn at different rates (O'Neal, 1995). Another study offered further advantages of block scheduling. Weller and McLeskey proved that it facilitates team teaching, allows for student-centered learning activities, benefits less traditional learners, allows students to take more classes, enhances the resource classes for students with disabilities, and complements inclusion (Weller, 2000). One final study by Jenkins concluded that with more time in a class period and less emphasis on lecturing, teachers can engage students in activities that address their various learning styles and allow students to apply content knowledge to real world problem solving, while stressing both cooperation and teamwork (Algozzine, 2002).

Disadvantages

Whenever change occurs, negative outcomes are likely to happen. A major problem of block scheduling is the lack of teacher training on how to maximize student learning over an extended class period. Research shows that teachers must employ a variety of

instructional strategies that address the students' individual needs in order to increase achievement, but, unfortunately, the lecture method remains the most widely used instructional technique in high school today (Queen, 2000). Burrell and McManus found that if a teacher changed the classroom activity every 10 to 15 minutes, students would be less bored and achieve better (Burrell and McManus, 2000). It has also been observed that classes can become study halls due to the unwillingness of teachers to change their teaching style (O'Neal, 1995). Critics of block scheduling point out that the retention of information over time may cause problems, especially for those students with special needs. The biggest challenge is making the initial transition (Irmsher, 1996). The challenges in this initial transition include building support for altering such a time-honored tradition and creating the planning time required to make the change (Irmsher, 1996). Another disadvantage of block scheduling according to Weller is teachers and students must develop effective organization techniques or else extended class time is meaningless. Block scheduling increases the need for teachers to communicate more effectively with each other. Student absences also increase significantly and adjustment is difficult for some special needs students (Weller, 2000). Finally, Lawrence and McPhearson did a study at several North Carolina high schools, comparing high school students in both block and traditional settings. They concluded that those students who were in traditional classrooms performed better on standardized math test scores than those in classrooms utilizing block scheduling (Lawrence; et al, 2000).

Teacher Perspectives

In addition to the research literature on the benefits and pitfalls of block scheduling, research has also been completed of the teacher perspective on this scheduling system. In

1988, David Hottenstein surveyed 24 high schools and discovered positive results from the presence of block scheduling. He found that teacher satisfaction increased from 52% to 87% and 81% of the teachers surveyed reported that block scheduling had positively affected overall student achievement. Also, most teachers believed that block scheduling had helped their students retain key concepts better (Hottenstein, 1998). In 1987 two schools in Florida began a block scheduling program. The teachers from the school stated they liked having more time to give their students individual assistance and they enjoyed having an opportunity to get to know the students personally. Additionally, the teachers enjoyed having more time to develop creative lesson plans. The teachers in Florida stated that a final advantage to block scheduling was it allowed them to structure a full lesson, which could include the introduction of a topic or concept, its discussion, and then bring it to a full and meaningful closure (Buckman; et al, 1995). Another study by Santos concluded that block scheduling forces special education teachers to improve upon their instructional methods, thus creating more appropriate techniques crucial for students with attention deficit disorders who are unable to focus on one subject or remain in one place for very long (Rettig, 1999). Marshak found five key elements for effective teaching in block periods. First, lecture is only one teaching tool among many; it is not imperative and should be used only for appropriate functions. Storytelling, one kind of lecture, can be a very powerful form of teaching. Second, change, variety, and novelty characterize successful teaching and learning in block periods. A teacher should employ a repertoire of productive activities. Third, students learn to organize and direct their own learning to some significant extent with the help and guidance of teachers. Fourth, well-structured cooperative groups work particularly well in block periods because the longer periods

give groups the time they need to be effective. Fifth, and finally, in block period structures, teachers abandon coverage of the curriculum as the key curricular goal and focus their attention on the breadth and depth of student learning (Marshak, 1998). Queen concluded that the most important teaching skills for block scheduling success are as follows:

1. The ability to develop a pacing guide for the course in nine-week periods, including weekly and daily planning.
2. The ability to use several instructional strategies effectively.
3. The skill to design and maintain an environment that allows for greater flexibility and creativity.
4. The desire and skill to be an effective classroom manager.
5. The freedom to share the ownership of teaching and learning with the students (Queen, 2001).

Student Perspectives

Research indicates that students found block scheduling to be beneficial. In a published case study of a California high school, researchers found that students with block scheduling were earning better grades (Queen, 2000). Schroth and Dixon compared math achievement scores from several schools with similar demographics and found slightly higher performance levels in those schools using block scheduling (Queen, 2000). A study of 37 students in North Carolina showed that they were in favor of block scheduling. The reasons for this were better and more interesting lessons, better overall grades, and increased individual attention (Hurley, 1997). Most instances of disapproval revolved around the "uneven schedules", a term that arose to describe classes which

seemed too long, more frequent tests, and teachers trying to cover too much information in a short amount of time (Hurley, 1997). Block scheduling can have a dramatic effective on a regular education student; however, it can have a profound effect on students with special needs (Rainforth, 1996). A study in Mifflin County, Pennsylvania, revealed that the goals and objectives of the students' Individualized Educational Plans were more readily attained using block scheduling (Bugaji, 1998)

This research left the intern to ponder several questions concerning the academic performance of the special education students in comparison to those who remained on traditional schedules; the collective advantages and disadvantages of block scheduling as perceived by the teachers, the students, and the administration; and the relative similarities and differences between all stakeholders

Chapter 3

The Design of the Study

Research Design

The effect of "No Child Left Behind" will severely impact special education. All special education students and teachers will be held accountable if measurable progress does not occur. It is imperative that administration take a proactive approach to deal with this potential problem. Under the careful watch of the "No Child Left Behind" movement, it is no longer acceptable for a special education student to show just annual improvement. A classified student will be measured by the same rigorous standards as are their regular education counterparts.

The end of the marking period unit tests from six different special education math classes will be used for comparison. Three of these classrooms will utilize a block scheduling format, while the other three will be using the traditional math format. The block courses are ninety minutes long each day, and the traditional courses are forty-three minutes long a day. At the end of each marking period, students will take a test mirroring the HSPA. This test will include multiple choice and open-ended questions. Also, a survey will be given to the teachers and administrators to determine their attitudes and opinions on the effectiveness of block scheduling.

Sampling and Sampling Techniques

All special education students enrolled in the freshman and sophomore math classes were involved in this study. Students were placed by their case worker, those who were placed in the block scheduling classes were the experimental group and those placed in

the traditional classes were the controlled group. There was no apparent rationale why some students were placed in blocks while others were placed in the traditional setting, however, the students in the block classes were either close in ability to regular education students or severely limited in ability. Neither group was aware that the study took place.

Data Collection Approach

The New Jersey High School Proficiency Assessment is comprised of four major components: number sense, Geometry, discrete math, and Algebra. At Delsea Regional High School, every freshmen and sophomore enrolled in a special education math class is exposed to each of these parts. The first marking period is geared toward number sense, the second marking period is geared towards geometry, the third marking period is focused on discrete math, and the last marking period stressed algebraic concepts. Using the format of the "Let Me Learn" models, students were required to take an end of unit test; however, they could also show their proficiency by writing a paper, performing a skit, or creating an innovative idea based on the given topic. The intern used the empirical data from these various methods of assessment and came up with a mean score from each class. The mean score from the ninety-minute classes will be compared to the mean score of the forty-three-minute classes to see if student performance has improved. Finally, the survey will measure other non-quantitative factors such as teacher satisfaction, student behavior, and classroom management.

Data Analysis Plan

The resultant data analysis plan represented the extent to which the special education math program at Delsea Regional High School needed to improve to allow those students involved the opportunity to maximize their learning potential. The data from each of the

six classes will be analyzed, and the distribution of letter grades from the first two unit tests will be compared and recorded. A grade distribution table will be created with totals for each grade and their respective percentages. Also, the intern will analyze and document other measures of central tendencies, such as: mean or average score, median or middle value score, mode or most frequent score, and the range of highest score versus lowest score.

Finally, the intern surveyed the teachers and administrators to ascertain their perceptions of block scheduling and incorporated their responses into a base line data on how block scheduling will affect special education students in terms of their behavior in the classroom.

Chapter 4

Presentation of Research Findings

Introduction

The purpose of the study was to determine whether special needs students would perform better in a traditionally scheduled setting or a block scheduled setting. Performance would be measured through student achievement and behavior. This study will answer five questions:

(a) How does the academic performance of the special education students in a block class compare with those students who remained on traditional schedules?

(b) What are the teacher/administrator-perceived advantages and disadvantages of block scheduling?

(c) What are the student-perceived advantages and disadvantages of block scheduling?

(d) What are the similarities and differences between each of these stake-holders?

(e) What can be done to make the program better?

To measure student achievement, test scores from the end of unit assessment tests, held at the end of each marking period, were tabulated. Also, presented in this chapter are the results of the teachers' responses to a survey, developed by the intern, to field questions regarding the perceived advantages and disadvantages of block scheduling. This was the first year for block scheduling, and, as with any new program, student performance and teacher attitudes must be reviewed to insure the program improves on an annual basis.

Student Performance

Special education students scheduled for a block period performed slightly better on end of unit assessments than those students who remained on traditional schedules. The results are presented in table 1 and table 2.

Table 1
Result of the End of Unit Assessment

	Traditional Schedule				Block Scheduling			
Grades	Numbers	Geometry	Total	%	Numbers	Geometry	Total	%
A	3	5	8	9.4	10	6	16	20.5
B	12	13	25	29.4	17	11	28	35.9
C	15	13	28	32.9	6	10	16	20.5
D	7	9	16	18.8	6	6	12	15.3
F	6	2	8	9.4	0	6	6	7.7

Table 2
Measures of Central Tendency

			Number Sense Test		
Class	N	Mean	Median	Mode	Range
Traditional Schedule #1	11	74.5	75.0	84.0	61-88
Traditional Schedule #2	11	70.6	71.0	50,87	50-87
Traditional Schedule #3	21	85.1	84.0	78.0	66-97
Block Schedule #1	16	88.0	90.5	91.0	72-94
Block Schedule #2	11	84.0	86.0	77,100	66-100
Block Schedule #3	12	82.7	84.0	85.0	62-100

Class	N	Geometry Test Mean	Median	Mode	Range
Traditional Schedule #1	11	83.0	84.0	84.0	65-95
Traditional Schedule #2	10	77.8	82.0	74.0	42-93
Traditional Schedule #3	21	82.1	84.0	87.0	64-94
Block Schedule #1	16	82.6	82.5	82,87	63-95
Block Schedule #2	11	78.3	77.0	None	61-99
Block Schedule #3	12	79.0	81.0	65.0	53-98

With block scheduling, 56% of the students tested got an A or B on the test compared to only 39% of those students who remained in traditional scheduling. In addition, 7.7% of those students in block scheduling failed, which is significantly better than the 9.4% of those in the traditional classes who failed. The average or mean score was slightly higher for the block scheduling students. The middle value or median score for each group, however, was essentially the same. The median could be a better indicator of student performance, though, since it dismissed the lowest scores from each group. The most frequent score or mode was fairly consistent, and no significant data presented itself through the examination of the test scores' range.

Teacher Perceptions

For any educational reform program to work, the teachers must be sold on the value of the program. The teachers participating in this study were asked: whether block scheduling could improve student learning, if block scheduling was better than traditional

scheduling for special education students, and if block scheduling was more demanding on special education or regular education students. The results of these comments are presented below in tables 3, 4, and 5.

Table 3
Teacher Perception: Is Block Scheduling a Valuable Change to Student Learning?

Response	Percent	Frequency n = 25
Yes	44%	11
No	56%	14

Table 4
Is Block or Traditional Scheduling on Special Education Students more Demanding?

Response	Percent	Frequency n = 21
Yes Block	57.1%	12
No Traditional	42.9%	9

Table 5
Who is Block Scheduling More Demanding On?

Response	Percent	Frequency n = 14
Special Education	100%	14
Regular Education	0%	0

The results showed that 56% of the teachers who responded to the survey question felt that block scheduling would not provide any significant change in student learning. Also, 57% of those surveyed felt that block scheduling was more demanding than traditional scheduling on special needs students. All of the teachers agreed that block scheduling was far more demanding on special education students than regular education students,

especially those students who suffered from attention deficit disorder (ADD) or hyperactivity (ADHA).

Teachers who taught both block and traditional schedules were asked to respond to their experiences. Fourteen teachers responded to these questions. Tables 6 and 7 will summarize the results of these findings.

Table 6
For Teachers of Block Scheduling: Did teaching style changed since Block Scheduling?

Response	Percent	Frequency n = 12
Yes	66.7%	8
No	33.3%	4

Table 7
Will the above strategies work for both regular education and special education students?

Response	Percent	Frequency n = 12
Yes	75%	9
No	25%	3

When asked if their instruction had changed since they moved to block schedules, 67% of the teachers surveyed said, "yes". When asked, "how they changed," their responses varied from more group work and hands-on manipulative activities to games, movies, and experiments. These teachers were then asked if these strategies would work for both regular education and special education students, 75% of those teachers surveyed said, "yes." When asked, "what type of instruction they liked better", surprisingly, 71.4% of those teachers said they preferred traditional scheduling. All participants were asked to rate their experience of block scheduling using a Likert Scale of one through ten, with

one meaning strongly dislike and ten meaning strongly like. The average score from the fourteen participants was 5.29.

The research also documented several advantages to block scheduling. The participants in this survey were asked to give their opinion on several advantages. Table 8 is a summary of the findings.

Table 8
Advantages of Block Scheduling

Response	Percent	Frequency n = 30
More time on task	70.0%	21
More hands-on techniques	66.7%	20
More group projects	63.3%	19
Better student teacher rapport	43.3%	13
Better student grades	16.7%	5
Less discipline problems	13.3%	4
Better student attendance	13.3%	4
Job is easier	10.0%	3
Better detailed teaching	3.3%	1

The table showed that 70% of the teachers surveyed felt that more time on task was a definite advantage to block scheduling. Almost 67% of those surveyed felt that block scheduling allowed for more hands on lessons, which usually take longer than the forty-five minutes allocated in traditional classroom settings. Finally, 63% of the respondents felt that block scheduling allowed students to learn better by utilizing peer-teacher and group collaboration.

The respondents also cited some disadvantages to block scheduling. Table 9 provides this information.

Table 9
Disadvantages of Block Scheduling

Response	Percent	Frequency n = 30
Lack of attention span/retention	83.3%	25
Attendance issues	70.0%	21
Student fatigue	66.7%	20
Transfer students	66.7%	20
Teacher fatigue	50.0%	15
Discipline problems	43.3%	13
Change in habits and routines	36.7%	11
More demands on teacher	3.3%	1

The biggest disadvantage noted on this survey was the lack of attention span special education students demonstrated during a ninety-minute block. This lack of attention span could also lead to potential behavior and discipline problems, as well as student fatigue. Other concerns the respondents deemed important were attendance problems because missing a day of school is now doubly important, and logistical issues such as what happens when a student transfers into a block schedule from a traditional setting.

Finally, teachers were asked what they felt the students liked or disliked about their experience with block scheduling. Positive experiences included less classes and more time to study, classes were completed in half a year, and the experience of innovative projects and lessons. What students disliked, as perceived by the respondents, were

teachers who lectured the majority of the time, too much busy work, when student-teacher rapport was not optimal, and when other students were disruptive and impeded upon the learning experience.

Chapter 5

Conclusions, Implications and Further Study

Introduction

This chapter discussed the conclusions of the study, showed how the study tested the intern's leadership ability, and delved into areas which needed to be addressed further.

The main purpose of the study was to determine whether block scheduling would significantly impact student achievement. Other factors which needed to be considered were student and teacher perceived attitudes toward block scheduling and whether student behavior would change as a result of block scheduling.

The subjects involved in the study were freshman and sophomore special education math students at one high school in southern New Jersey, and its secondary high school teaching staff certified in either regular or special education. The students were measured by their academic performance and classroom behaviors whereas, teachers contributed to the study by filling out and submitting a survey on their attitudes and perceptions of block scheduling.

Conclusions

The students who followed a block schedule tended to perform slightly better than their traditional counterparts on the end of the unit assessments. However, most teachers and administrators reported that block scheduling had no effect on student performance. Teachers unanimously agreed that block scheduling placed more demands on special education students and that student discipline became a problem, especially for those students who were classified with an emotional disturbance.

The intern reviewed both block scheduling and traditionally scheduled classrooms for the special education math students at Delsea Regional High School and made several recommendations as to what methods were most effective:

1. Student performance on two separate end of unit assessments were slightly higher in the block classrooms than in the traditional classes.

2. Most teachers involved in the survey felt that block scheduling would not provide a valuable change to student learning.

3. Most teachers surveyed felt that because of the increased length of time, block scheduling was more demanding on special education students than was traditional classroom scheduling. These teachers unanimously agreed that special education students were more likely to struggle in a block schedule setting.

4. Strategies that seemed to work best for those teachers who taught blocks included group lessons, peer teaching, using manipulatives, games, and experiments.

5. In a block classroom, lessons where the teacher changed the routine every ten to fifteen minutes seemed to keep students focused during the entire lesson.

6. Since going to a block schedule, 66% of those teachers surveyed have changed the manner in which they teach. 75% of the teachers surveyed believed that their instructional methods could also benefit special education students.

7. According to those teachers surveyed, the biggest advantage to block scheduling was that it provided more time on task, whereas the biggest disadvantage was the detrimental effects experienced by a classified student's shortened attention span.

8. The lack of attention or retention, along with students not focusing during class, and less opportunities for student mobility could lead to increased discipline problems in a

block class.

9. Most teachers surveyed would rather teach a traditional class than a block class.

10. Students liked the teachers who allowed them to use the extended time by learning in non-traditional ways. Students did not like block classes where the teacher lectured or demonstrated most of the time.

11. Block scheduling is not good for students who suffer from ADD, ADHA or are naturally hyperactive. Ninety-minutes in one room was too long.

Implications

This study provided the intern with several opportunities to show leadership. First, the intern promoted the success of all students by implementing a vision of learning that was shared and supported by the school community. In doing so, the intern understood how to apply data collection and analysis strategies, implemented strategic plans, and articulated effective communication skills. The intern was also committed to the school's vision of a higher standard of learning.

Second, the intern promoted the success of all students by advocating professional growth. In so doing the intern had to acquire an understanding of motivational theories, value the importance of professional development in teachers, insure that activities are in place so the school is organized for success, and engage in activities in which decisions are made based on research.

Third, and finally, the intern promoted the success of all students by responding to diverse community interests and needs. In doing so the intern appreciated the understanding of emerging educational trends, was committed to keeping the public informed, and insured that there was an opportunity to provide the staff to develop

collaborative skills.

In regards to organizational change, the intern contended that it was too early to determine whether any positive change had materialized. As with any program or method of educational reform, change was necessary and plans had to be regularly monitored, evaluated and revised. The intern had to use his managerial skills to be a leader in this reform movement and control any potential barriers which may have hindered its growth.

Further Study

Based on the research, the intern came up with six questions that warrant further study:

1. Will teacher training on effective methods for using the extended time help students perform and act better?
2. How will block scheduling ultimately affect the student's performance on a standardized test?
3. Will the students in block scheduling still out perform their traditional counterparts on the third end of unit assessment and on the final exam?
4. Will all legal avenues of the Singer Law be followed and by distributing a survey to get the opinions of those students in the block classes?
5. How will the school handle those students who are absent? What kind of program should be created to allow those students who are absent an opportunity to make up work?
6. How can block scheduling and inclusion be incorporated together and would extending the school year into the summer also benefit these students?

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Appendix A
Selected Demographic of Franklin and Elk Township

Selected Demographic of Franklin and Elk Township

	Franklin	Elk
Population		
1960	7451	N/A
1970	8990	2707
1980	12396	3187
1990	14482	3806
2000	15466	3514
Persons per square mile	276.1	179.0
Whites	13954	2884
Blacks	1030	501
Hispanics	543	103
Other	482	129
Senior Citizens	1480	433
Median Age	36.4 years	38.2 years
High School Grads	81.8%	78.6%
4 Year College Grads	14.9%	13.8%
Median Household Income	$55,169	$51,047
Persons in Poverty	778	297
Labor Force	8322	2134
Unemployment	5.9%	4.9%
Employed by Occupation:		
Managers/Professionals	1949	479
Service Occupations	1105	273
Sales	1884	367
Farming	41	11
Construction	1291	223
Transportation	1105	211
Self-employed	481	130
Housing Totals	5225	1263
Owned	4634	1136
Rent	591	127
Median Value of Home	$127,900	$111,700
Median Rent	$710	$715

Source: 2003 Municipal Data Book

Appendix B
Comparisons of Delsea Regional High School to Other Schools in the State

Comparisons of Delsea Regional High School to Other Schools in the State

Topics	Delsea	State
Student Faculty Ratio	12:1	11.5:1
Faculty Attendance Rate	93.3%	95.6%
Degrees:		
BA	67%	
MA	33%	
School day	7hr 10min	6hr 49min
Instructional time	5hr 54min	5hr 49 min
Student Computer Ratio	2.7:1	4.0:1
GEPA		
Language proficient	73%	
Math proficient	58%	
HSPA		
Language proficient	81%	
Math proficient	69%	
SAT		
Math	512	514
Verbal	505	495
53% of population took sat		
Students involved in sports	33%	
Advanced placement	10.6%	15.7%
Graduates:		
4 Years College	37%	
2 Year College	42%	
Other post Secondary	6%	
Military	5%	
Employment	9%	
Other	1%	
Administrative Salaries	$74,300	$86,506
Teachers Salaries	$53,708	$53,434
Classified Students	20%	
Student Administration Ratio	198.0	180.8
Internet Connectivity	100%	89.6%
Cost per Pupil Instruction	$9199	$10,091

Revenue:		
Local	57%	33%
State	31%	61%
Federal	2%	2%
Other	10%	4%
Student Attendance	92.4%	92.9%
Average Class Size	23.0	20.5
Student Mobility Rate	4.4%	12.0%
Dropout Rate	2.4%	2.7%
Student Suspension	8.5%	14.2%
English as First Language	99%	

Source: 2003 Report Card of New Jersey Schools

Appendix C
Cover Letter

January 26, 2004

Dear Fellow Educator,

My name is Bill Porch and I am a graduate student working under Dr. Robert Kern at Rowan University. I am conducting research for a master's thesis on the advantages and disadvantages on block scheduling at the high school level and how these characteristics impact on special needs students. Your input is very important to me. Please be aware that participation is voluntary, you do not need to respond to all of the questions and that all responses will be kept anonymous and confidential. Please feel free to complete this survey at your earliest convenience and get it back to me as soon as possible. If you have any questions do not hesitate to contact me at 694-0100 ext. 367 or contact Dr. Robert Kern at 856-256-4727.

Thank You in Advance

Bill Porch

Appendix D
Block Scheduling Survey

Block Scheduling Survey

1. Do you think block scheduling is a valuable change to student learning?
   yes no

2. Does block scheduling place more demand on special education students programs than the traditional scheduling? If so how?
   yes no

3. Does block scheduling pose a greater demand on special education or regular education students? In one sentence why?

4. Did your instruction change since the implementation of block scheduling? If so how?

5. What kind of strategies do you employ to help the interest attention and motivation of students during block scheduling?

6. Are these strategies successful for both regular education and special education students?
   yes no
7. Check all that apply.
   Advantages of block scheduling:
   _____1. More time on task
   _____2. The use of more hands on teaching strategies
   _____3. The use of cooperative learning strategies
   _____4. Better rapport between teacher and students
   _____5. Less discipline problems
   _____6. Better student grades
   _____7. Better student attendance
   _____8. Job is easier
   _____9. Other, explain

8. Check all that apply.

   Disadvantages of block scheduling.

   _____1. Students attendance now vital.
   _____2. Students who come in halfway during the year.
   _____3. Fatigue by teacher.
   _____4. Fatigue by student.
   _____5. Student behavior.
   _____6. Student attention and retention for 90 minutes.
   _____7. Changes in lesson plans, routine, etc.
   _____8. Other, explain

9. How would you rate your experience with block scheduling?

```
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
1     2     3     4     5     6     7     8     9     10
Horrible          Average                     Great
```

10. What do you like better (pick one)

    _____ block scheduling
    _____ traditional scheduling

11. What one thing do you feel the students like most about block scheduling? What do they like least about block scheduling?

12. Any other additional comments will be helpful to my research. Thank you again for your time and help in this matter. Bill Porch

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