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## Block Scheduling School

If you haven’t had to deal with block scheduling, there’s a good chance you will. As of 1996, more than 50 percent of American secondary schools had changed or were considering changing from traditional scheduling to block schedules (Silver, Strong, Merenbloom & Moirao, 1996, p. 7).

As the improvement of test scores becomes more important, school districts are looking at various approaches to accomplish this goal. One such way is to switch to block scheduling. In our paper, we will explore the history, the types, the methods of implementing, and the pros and cons of block scheduling.

### Time Utilization

The problem of how to best structure instructional time in secondary schools has been an ongoing topic of discussion (Canady & Rettig, 1995; Kruse & Kruse, 1995). In a traditionally scheduled school day, abbreviated time allotments often interrupt the teaching and learning process.

There is the belief that the problems within the public school setting are most likely to be problems with the structure of the organization than with the people who are working (teachers) (Goodman, 1995). Changing the school schedule may not add time to the day, but the quality of time can be greatly improved on. The schedule is a valuable yet untapped resource for school improvement (Canady & Rettig, 1993).

In recent years, time-on-task has come under an increasing amount of scrutiny in debate over time utilization. Topics ranging from year-round schools to lengthening the school day to restructuring the school day have surfaced with greater frequency in almost every city and school district across the country.

Amazingly, the amount of time that is spent in school has changed very little over the past 50 years given the increased amount of responsibility being placed on the schools due to requirements of present day society (Canady & Rettig, 1993). Just as amazing is the similarity of the current school day when compared to the school day 50 years ago (Canady & Rettig, 1993). Increased responsibilities placed on schools and the notion of time as one the final, unexplored frontiers in the school reform movement have brought about a call for restructuring the school day to better meet the needs of today’s youth.

Increasingly, schools are being deemed successful or unsuccessful based on the test scores of their pupils. These test scores typically represent some form of the student’s knowledge in math, social studies, science, and language arts. Using these scores in comparison to other schools and predetermined standards (set at the local, state or national level) in combination with the percentage of students who graduate, attendance records and average grade point average, schools are judged as to how well they are meeting the needs of their students.

A variety of reform initiatives have been instituted over the past 20 years because of these test scores. New strategies in education or desired goals that are adopted by schools abound (Donahoe, 1993). These include school-based management, shared decision making, schools-within-school, integrated curriculum, and authentic assessment, to name a few.

All have been touted as restructuring that part of the educational system that will produce the greatest amount of change in student achievement. When these have been implemented, there has been little is any difference made in the manner in which schools functions. “ What has been missing is an adequate consideration of the crucial relationship in schools between structure, time, and culture” (Donahoe, 1993, p. 298). The restructuring of the school day is an idea that has become a reality in secondary schools across the country. What is the traditional schedule as opposed to a restructured schedule?

### The Traditional Schedule

The current schedule is the result of the linear view of time and learning, shaped by the Carnegie Standard, which equates subject mastery to students seat-time (Kruse & Kruse, 1995). Sometimes referred to as the ‘ traditional block’ (Kruse & Kruse, 1995), a traditionally scheduled school, the day is typically divided into seven periods. The seven periods meet an equal amount of time-typically 45 to 55 minutes. Teachers teach six periods and have one period for preparation/planning each day throughout the school year.

Teachers are typically responsible for 120 to 160 students throughout the entire year. Students usually take seven classes, each meeting on a daily basis. Typically, this will mean that each student will see seven different teachers in a formal classroom setting on each day. Between each period, students must move from one class to another in similar fashion to an assembly line - adjusting to a new set of controls, disconnected content, different class rules and expectations and limited opportunities to develop higher level thinking skills and problem solving skills (Buckman, King, & Ryan, 1995).

The school climate under the traditional schedule is characterized as hectic, fast paced, face paced - meaning somewhat impersonal. This leads to what is thought to be a greater sense of frustration on the part of the students and teachers, an increased likelihood of disciplinary incidents (due both to the frequency of class changes), and a greater possibility of students feeling alienated do to the lack of personal relationship development (Mistretta, 1997; O’Neil, 1995; Shortt & Thayer, 1999).

### Block Scheduling

Since the industrial revolution, the traditional school schedule has been modeled after the factory. The day has moved along like a steady assembly line. This, despite research that indicates that the length of the class period and the credit received for minutes of attendance have little correlation with what a student learns during an academic grading period (e. g. Canady & Rettig, 1993; Carroll, 1990; Huff, 1995; Moskowitz, 1995).

Today’s master schedule, controls characteristics of the school day such as use of space, grouping of students and the role of staff members in the learning process (Kruse & Kruse, 1995). The inadequacies of the current structure have been recognized by U. S high school principals since the early 1990’s. In recognizing the need for change, school leaders have been searching for a better use of time. In this search, block scheduling has been found and is being redefined to meet today’s needs (Shortt & Thayer, 1997).

Restructuring the school day is an effort to overcome the traditional schedule’s shortcomings is often referred to as ‘ block scheduling’. Block scheduling essentially implies a restructuring of the school day to allow for fewer periods during the course of a day. Each of these periods will be substantially longer than in the traditional schedule (e. g. Carroll, 1990; Huff, 1995; Shortt & Thayer, 1997; Wilson, 1995). Some schools have chosen a schedule to allow for increased graduation requirements; others have chosen it as a way to change teaching methods so as to increase student learning.

The idea behind this type of scheduling is to address curriculum fragmentation and to allow for the boundaries between curricular areas to become blurred - nonlinear (Fullen, 1999). Complexity theory claims that the link between cause and effect is difficult to trace. All change unfolds in nonlinear ways with paradoxes and contradictions abounding. Creative solutions arise out of interaction of conditions of uncertainty, diversity, and instability. While complexity theory is about learning and adapting under unstable and uncertain conditions, evolutionary theory of relationships raises the questions of how humans evolve over time, especially in relation to interaction and cooperative behavior (Fullen, 1999).

The types of block scheduling being used throughout the country are numerous. To address each of the numerous variations is beyond the scope of this review. The schedules being presented here were selected based on two criterions. One, because of the particular schedule’s wide spread use in high schools currently utilizing a block schedule. Second, because the particular schedule represents a marked departure from past practice which research has shown is necessary for lasting change to take place (e. g. Carroll, 1990; Fullan, 1999; Goodman, 1995). Any of the schedules presented here meet one or both of these criteria.

### The Copernican Plan

Developed by Joseph Carroll (1990), nearly all of the basic systems within a high school would be restructured under the Copernican Plan. The fundamental change is the change in scheduling which will allow teachers to concentrate on the learning of individual students, which is the key to better instruction and improved student performance. The basic assumption with the Copernican Plan is that many practices identified with more effective instruction will be implemented if the schedule for student and teachers is restructured.

There are two alternatives that are proposed by the Copernican Plan. First, students would enroll in only one four hour class each day for 30 days (for a total of six the entire year). In the second alternative the student would enroll in two two-hour classes lasting for 60 days. A school could offer a combination of both. In both of the Copernican models would have the student spend the afternoons in seminars that help students integrate knowledge across traditional discipline lines.

Along with the change in the daily schedule, the Copernican plan encourages changes in other fundamental ways (Carroll, 1990):

* Mastery-based credits versus letter grades - The current grading system does not account for all levels of positive achievement and is a major contributor to non-promotion. A substitute for the traditional A-F system is proposed that will award mastery credits instead of letter grades. “ Evidence indicates that students should master about 25% more information under a mastery system” (p. 363).
* Mastery of course objectives - Teachers certify mastery. Basic objectives of current courses are not changed. Objectives for each course must be clearly identified and divided into roughly 10 equal parts. Credits are then awarded as follows: mastery of less than 100% of the work results in the appropriate number of mastery credits; I-credits for the interest/issues seminars are awarded for attendance, participation and attitude; phys. ed., health, band, chorus are offered opposite seminar time. They would operate on the mastery credit plan. Half-credit courses - Courses that meet for a semester in the traditional schedule can be scheduled in a variety of ways and given a value of 5 mastery credits as opposed to 10. “ There is considerable flexibility in a macro-scheduled school year” (p. 364).
* Differentiated diplomas - Five diplomas are proposed - Academic Honors; Academic; Occupational Honors; Standard; and Completion Diplomas. Each student’s transcript identifies the diploma awarded and diplomas available. ‘ I’ credit and mastery of academic material requirements (mastery credits) is different for each of the diplomas offered.

### The 4X4 Block

Schools currently using a seven period day can easily convert to the 4X4 without necessarily requiring an increase in staff, class size or facilities. Though to maintain class size however, it is typically necessary to increase the staff size by about 10% (Canady & Rettig, 1993). The 4X4 schedule breaks the school year into two semesters.

The school day is comprised of four blocks each lasting 90 minutes. By essentially doubling the duration of each class period, students complete the equivalent of a traditional 180-day course in 90 days. Therefore, under the 4X4 plan, a student would take four classes the first semester (90 days) and a new set of four classes the second semester (90 days) (Wilson, 1995).

For teachers, this schedule has them preparing for three classes each semester as opposed to six, providing instruction for 75 to 90 students as opposed to 120 to 160 students, and 25% of each day to planning and preparation. For students, this approach offers a simpler and more practical approach (Canady & Rettig, 1993; Queen & Gaskey, 1997). By the end of a student’s four-year high school career, there are a total of 32 credits that could be earned under this plan as compared to 28 credits under the traditional plan.

With greater opportunities to take courses, a student who fails a required course will be able to make it up and remain on track for his/her scheduled graduation (Edward, 1995). Students also have only three classes to study and prepare for on a daily basis thus providing for a greater amount of focus. With the extended daily class time, teachers and students have the opportunity to explore the subject material in greater depth thus students develop a greater understanding of the subject matter.

### Alternating Day Schedule

Also referred to as the flexible block schedule and eight-block schedule, the daily class arrangement is similar to that of the 4X4-block schedule (Huff, 1995; Queen & Gaskey, 1997). Classes (typically) meet for 90 minutes, students attend four classes per day, and teachers teach three classes per day with one block of time used as a planning/preparation period. The difference lies in that classes meet on an alternating day basis, generally for the entire year.

While providing for increased daily class time, this schedule allows schools to maintain the course offerings used under the traditional format without completely restructuring them while simultaneously allowing for extended blocks of time on a daily basis for in-depth investigation of subject material.

### The 75-75-30 Plan

Canady and Rettig (1993) put forth a plan where the fall and winter term is made up of 75 days each and a spring term consisting of 30 days. The 75-75-30 plan divides the school year into three blocks of time. During the 75-day terms, the school day is divided up into three 112-minute classes, one 48-minute yearlong class, 24-minute lunch, and 12 minutes for passing times.

During the fall and winter terms, students are enrolled in two academic classes and physical education or an elective. The 30-day spring term offers student the chance to study one or two subjects intensively. Community service projects, accelerated studies and repeating a failed course are just some of the possibilities during the spring term.

### Hybrid Plans

Boarman and Kirkpatrick (1995) implemented a hybrid plan utilizing parts of the 4x4 block (Wilson, 1995) and the traditional schedule. The plan placed students into double mod periods in English, mathematics, science and social studies - taking two one semester and two the next semester. The remainder of the day was under the conventional schedule. In this way, the needs of specific classes can be met without forcing all classes to fit into the same mold (Boarman & Kirkpatrick, 1995).

Kruse and Zuloski (1997) reacting to the controlling elements of the graduation credits and using the Copernican model as a backdrop implemented the flexible block model. The flexible block provides time for interdisciplinary teams of teachers in math, English, social studies, science and special education to share a common set of students and a common daily team-planning period. Each team ‘ owns’ a large block of time during the school day to use as it sees fit in delivering the core subject material. This allowed the team of educators to tailor the large block of time as the needs of the students dictated.

With the common planning time, the teams could discuss student learning issues and curricular issues. Students with the team could be grouped and regrouped as the needs of the students dictated. “ Integrating concepts from across the traditional disciplines would allow teams to embed facts and skills into interdisciplinary units … thereby inserting more relevance and meaning in the curriculum” (Kruse & Zuloski, 1997, p. 19).

In the typical secondary school, teachers are typically assigned a group of students whom they are responsible for during the school year. The following school year, students are assigned a new teacher. Typical of every new school year, there is a varying period of adjustment for student and teacher alike as they get to know one another.

Academically, there is a significant amount of time spent by the teacher in determining what was taught, not taught, and/or not retained from the year before. Looping (Burke, 1997) addresses these issues in the traditional schedule - looping groups a set of students with a team of teachers. This group remains together for multiple years. Teachers are given control of a block of time each day that they may utilize, as their students' needs dictate.

### Implementing the Block Schedule

If your school district is considering switching to one of the forms of block scheduling, careful steps should be taken. J. Allen Queen and Kimberly G. Isenhour (1998), in their book The 4x4 Block Schedule, recommend a seven-step implementation plan. The stages include the faculty, instruction, transitions, community, students, teacher inservice, and pitfalls and promises.

In the first stage, The Faculty, Queen and Isenhour state that the first step in switching from a traditional schedule to a block schedule is motivating the faculty. They suggest starting by “ taking a poll or informal survey during a faculty meeting” (Queen and Isenhour, 1998, p. 31). Additional discussion should also be held to address any preconceived impressions of block scheduling.

The next step of the first stage is to choose a committee of supportive teachers to present the information to the faculty. However, Queen and Isenhour state it is important for the administration to point out the supportive reasons for switching and get behind the idea. The final step in stage one is to get teacher acceptance of the move.

The authors believe that by having a team of teachers push the plan, resistant teachers will be more likely to accept it. “ Many times, allaying fears that teachers have about their feelings of insecurity or about making a fast move can be accomplished by reassuring teachers that the change process will occur in a slow and orderly fashion,” they write. “ Teachers will need the constant reassurance of the administration and the committee that their hesitancy is understood and that their fears will be addressed” (Queen and Isenhour, 1998, p. 36).

The first step of the second stage, Instruction, is curriculum alignment. “ The first three elements in curriculum alignment from our perspective are scope, sequence, and scheduling,” write Queen and Ishenhour (p. 39). Because time is actually lost in block scheduling and class periods are longer, teachers need to change how much material they plan to cover and the methods of instruction they plan to use. Steps two and three - instructional pacing guide and instructional strategies - address this matter.

Since the periods are longer - usually ninety minutes in length - a teacher needs to utilize several different methods of presenting the material. “ A popular misconception among teachers is that block scheduling provides more time to teach,” writes Harvey Silver, Richard Strong, Elliot Merenbloom and Dan Moirao. “ The fact is that the time is the same, and in some instances is even less. The time, however, is more intensive because each block is longer in duration. This frees teachers to use a variety of instructional strategies and types of assessments to engage students in in-depth active learning” (1996, p. 17).

They suggest designing daily lesson plans in four divisions: review, orientation, processing and evaluation. Reviewing covers previously-taught material. Orientation introduces the new material to be covered in that period. Processing is the actual teaching of the material, and evaluation lets the students demonstrate their knowledge.

Some activities that can be used because of the longer period include group work, demonstration, discussion/class participation, guided practice, multimedia, independent work and lab work (Marshak, 1997). “ Teachers have a much larger space, a broader and deeper stage, and it on such a stage that they create their new practice,” writes Marshak. “ And if they don’t, students are much more likely to move beyond boredom into anger and active rather than passive resistance” (p. 3).

The third stage involves transition. Queen and Isenhour state that it is important not to proceed with block scheduling until proper training has been conducted. This, they say, can take up to one to two years. “ During these planning years,” they write, “ various opportunities for training should include mastering at least six major instructional strategies, realigning curriculum for instructional pacing, and establishing a schoolwide discipline program to ensure a safe school.

A different option for transition would be to move at a slower pace and blocking one grade at a time” (1998, p. 51). They also state that maintaining effective communication with the faculty and monitoring are also important steps in the transition process.

The fourth stage is gaining acceptance with the community and parents. Queen and Isenhour suggest making several presentations of the plan to various audiences in order to reach a larger number of people. They also state that is very important to keep the media well informed.

At the same time the fourth stage is taking place, is important to implement the fifth stage, which deals with the students. Just like the parents and community, it is important to present the plan to the students and gain their support. “ When trying to educate students and persuade them to see the benefits in block scheduling, success all comes down to the presentation,” Queen and Isenhour state. “ Focus on making the transition and the new schedule fresh, futuristic, exciting, and personally beneficial” (p. 75).

The sixth stage is to conduct teacher inservices. It is important to hire “ professional trainers (who) are well researched and have skills in presenting this information” (Queen and Ishenhour, 1998, p. 79). The final stage is to prepare and adapt to any problems that may arise in the first year of implementation. Semester exams should be given before Christmas break. Most importantly, keep track of improvements in scores, attendance, and discipline referrals.

Although it may rough at the beginning, all parties involved in implementing the block schedule will become more comfortable with it.

### The Pros of Block Scheduling

Block scheduling has many positive effects on education. Block scheduling has been shown to increase students’ GPAs, increase the number of students on the honor roll, lower the number of students on the D/F list, raise attendance rates, lower dropout rates, lower disciplinary referrals, and increase the number of instructional methods that teachers use.

Surveys have also showed that both teachers and students prefer block scheduling after it has been instituted. Block scheduling has also improved the relationships between students and teachers and improved the overall learning environment for everyone involved.

Block scheduling has had a positive effect on the number of students achieving honor-roll status. A study by Evans (2002) showed that the number of students on the honor roll increased under block scheduling by 9% at three schools. Evans also showed that the three schools increased the percentage of students on the high honor roll from 6% to 9%. Eineder (1997) also found that 9 th graders on the honor roll increased by 92% at Philo High School in Ohio.

Studies in Colorado have found more students in block scheduling on the honor roll as well. A study by Gruber (2001) found an increase of 5% to 10% of students on the honor roll when they were changed to a block schedule. Lare (2002) also found an increase of students on the A honor roll after the block schedule was implemented. A study by Dow (1998) found that 50% of students on the block schedule in Florida made the honor roll, compared to 27 % on a seven-period day schedule.

Block scheduling has also been shown to increase the number of As and decrease the number of Fs for students. Evans’ study showed that students receiving a D or F in three schools decreased by 7%. Eineder's study showed that the number of students with Fs decreased by 15%, while the number of students with As increased by 24% in block scheduling.

The three schools studied by Evans also had a decrease of 8% to 5% for students with multiple failures. Gruber’s study found that the number of students making an A in Math and Science went up 15% under block scheduling. Lare’s study found that the number of students receiving D and F grades decreased slightly after a school moved to block scheduling.

It has also been found that block scheduling can improve student GPAs. A study by Thomas (2001) showed that 54% of the students in block scheduling in Florida earned higher GPAs. Thomas’ study also found that the Wisconsin Association of Foreign Language Teachers experienced higher GPAs and fewer failing grades. In addition, a study by Gruber also showed improvement for student GPAs under block scheduling.

Block scheduling has improved many standardized test scores. Lare reported a significant increase in the mean verbal score on the PSAT for students a year after block scheduling was implemented. Gruber found that block scheduling improved student scores for social studies on the California Achievement Test, and means for 4 of 6 achievement tests were higher along with final course averages in Lewisburg, Pennsylvania. A study by Evans found that in 345 schools, block scheduling improved student scores on math assessments.

Evans also showed that 25% more students completed Advanced Placement courses and that SAT scores increased by 14 points. Veal (2001) found that block students scored significantly higher on a test of mathematics computation. A study by Hess (1999) indicated that students in block scheduling had significant higher post-test scores, while students in traditional scheduling had significant lower post-test scores. He also reported that students in block scheduling had significant gains in English test scores, while students in traditional scheduling showed no significant gains or losses.

Statistics have also proven that block scheduling can improve the discipline of a school, increase attendance rates, and lower dropout rates. Rettig (2003) found that school management problems are reduced because students spend less time in highly congested areas, such as hallways and dressing rooms. Evans believes that fewer class changes per day will result in decreased disciplinary problems under block scheduling.

He also believes that students are more settled in their classrooms in block scheduling, resulting in fewer student behavior problems and fewer detentions. Evans’ study found that certain schools with block scheduling had a decrease in the number of detentions by up to 50%, and that attendance rates for three schools using block scheduling increased from 92. 4% to 94. 1%.

A Chi-Square Test performed by Eineder showed that the number of students involved in fights reduced by 40% under block scheduling. Einder’s Chi-Square Test also showed reductions in the frequency of discipline referrals, tardies, in-school suspensions, and out-of-school suspensions. Eineder found that dropout rates decreased for students in block scheduling from 4. 6% to 4%. Attendance rates were also found to improve in block scheduling from 93. 7% to 94. 7%.

A study by the Center for Innovative School Scheduling (1998) found that when one Florida school switched to block scheduling, their number of school referrals decreased by 50%, and there was evidence that their number of in-school suspensions declined as well. This study also found that block scheduling sometimes reduced the number of discipline referrals to the office by 25% to 35%.

The Center for Innovative School scheduling also reported that in one middle school, aggressive student behavior was reduced substantially after three years on block scheduling. Dow found that a school on block scheduling had a dropout rate of 1. 1%, among the lowest in Florida. Dow also found that discipline referrals to the dean’s office have been cut in half and that daily attendance went from 88% to 95% under a block schedule.

Another positive aspect of block scheduling is that it allows teachers to use a number of teaching strategies and techniques. Rettig feels that teachers make better use of technology and engage students in more active learning strategies in block scheduling. Evans said that the block schedule afforded teachers the opportunity to include various teaching activities in their lessons, allowing students to explore concepts more deeply.

Evans also found that block scheduling allowed for more student collaboration and individualized learning. Evans found that block scheduling led to more problem-based and project-based learning activities. Teacher interviews conducted by Evans showed that teachers used more independent projects and presented the results of these projects in block scheduling.

Veal also found that there was a greater variety in teaching methods in the block schedule. Veal found those teachers in block scheduling used individualized instruction and more group activities more than teachers on a traditional schedule. The study by the by the Center for Innovative School Scheduling found that teachers in block scheduling lecture less and engage students in more active learning activities.

This decrease in lecturing in the block system gives the students more ownership in the learning process. Queen (2000) found that 75% of students reported that teachers varied instructional methods. Queen also found that teachers spent 70% of classroom time engaging students in interactive instruction. Direct observations by Queen indicated that 84% of teachers were able to vary instruction effectively. A study by Dow supports Queen, finding that 98% of the teachers in a school said that block scheduling encouraged more creative and innovative teaching methods.

Jenkins (2002) says that extensive research exists on the merits of using a number of teaching strategies. Jenkins found in a study involving North Carolina, that block scheduling engaged students in active teaching strategies that require more time than a traditional schedule has to offer. Jenkins’ study found that block schedule teachers used coaching and peer tutoring more than teachers on a traditional schedule.

Jenkins also found that there were significant higher appropriations for projects under block scheduling. In Jenkins’ study, it was found that cooperative groups work well in block periods because the longer periods give the groups the time they need to be effective and that group work is a key learning activity in block periods. Eineder found that 91% of the teachers and 77% of the students reported that more cooperative learning took place in block scheduling.

Block scheduling allows schools greater flexibility and a greater variety of curriculum offerings. Lare found evidence that positive changes had occurred in schools because of block scheduling. Schools offered a rich curriculum that gave students numerous choices that might not be available in a school utilizing a traditional schedule. Queen also found that students were able to take a broader array of courses and there were an increased number of students completing Advanced Placement courses.

Evans found that block sc