

The Perils of Block Scheduling

This Latest Folly Is Worse Than the New Math

by John and Stephen Benham

Block scheduling is the latest educational fad to be accepted without any substantial proof that it works. Proponents of block scheduling claim that it reduces class loads and helps students learn, yet there is little evidence to support these claims. We have studied the consequences of block scheduling in several schools and find that it shortchanges students in all subject areas and has completely destroyed some music programs.

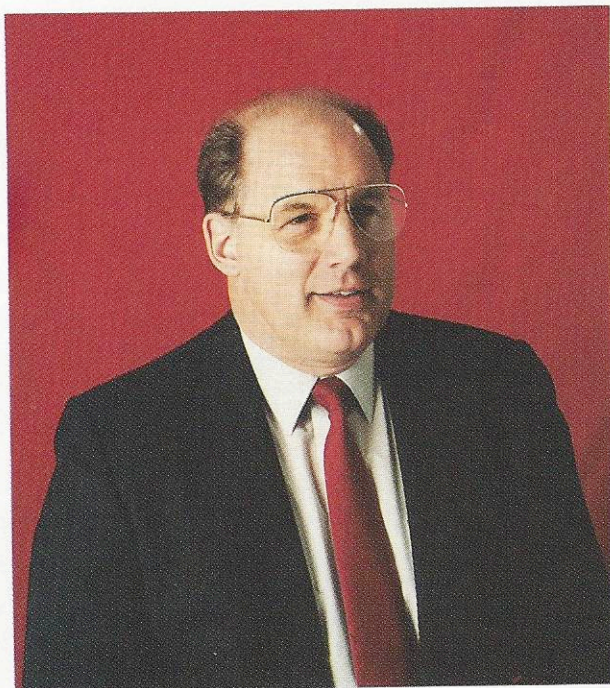
Block scheduling comes in several varieties, some of which seem to work fairly well in elementary and middle schools, but our research focused on the two predominant forms of block scheduling in senior high schools. One is commonly referred to as the 4x4 system, under which students take four courses each semester and receive academic credit for a full year upon completion of the one semester. Courses that were previously one semester long become nine-week classes. A second format is the modified block schedule (the A/B system), which also allows students to enroll in eight courses for the entire year; each course meets every other day on a rotating schedule. Periods 1-4 meet on day A, and periods 5-8 on day B. In the following table the traditional six-period day and block scheduling are compared in days that are the same number of minutes long.

In the traditional school day of six periods each teacher has one preparation period, the result of which is that only $\frac{5}{6}$ of the teachers are available to teach in any period. Under a system with four periods each day, only $\frac{3}{4}$ of the teachers are available to teach because each has a preparation period. When the preparation periods are distributed evenly throughout the day, under the traditional system of six periods there is only $\frac{5}{6}$, or 83%, of the teaching staff available to teach in a given period. While in a block system with four periods only $\frac{3}{4}$, or 75%, of teachers are available to teach, a difference of 8%. This 8% necessitates increasing class sizes by 8% or hiring additional teachers if class sizes are to be kept down. There may also be a problem in finding 8% more classrooms.

Block scheduling affects band or orchestra classes as directors change from teaching five to three periods each day. The director has two fewer classes so students lose two music options. Under the traditional system it is not unusual for a director to teach three bands, a jazz band, and another course, such as music appreciation. Under either form of block scheduling the director will teach fewer courses so students will lose these options unless the school hires additional staff. Parents and music teachers

should consider whether or which courses would be cut and how any cuts will affect the music program. Advocates of block scheduling assert that more electives will be available to students and that this will help the music program. The 4x4 block scheduling plan may allow more electives because students take two more courses each year, but there may be little or no continuity in music ensembles.

A few subjects can be learned as separate entities, but with most courses of study the continuity of moving from one phase to the next is important. Mathematics, some sciences, social studies, language arts, and foreign language courses function more effectively when the courses are taken in succession. A ninth-grade student under the 4x4 schedule could select only four courses from the following: mathematics, science, language arts, social studies, physical education, foreign language, and performing arts. During each semester that students cannot include music in their schedules they will lose ground. Chances for scheduling conflicts go up from 1 out of 6 (17%) to 1 out of 4 (25%). Many students who are scheduled out of band or orchestra never return, and during semesters when stu-



John Benham is president of Music in World Cultures, Inc., and director of ethnomusicology at Crown College in St. Bonifacius, Minnesota. He does crisis intervention work to save public school music programs and has developed the concept of reverse economics, which is responsible for saving over \$28,000,000 in budgetary reductions in arts curricula.

Comparison of Traditional and Block Schedules

	Traditional (6-period day)	Block (4x4 or A/B)
Length of School Day	355 minutes	355 minutes
Student Load	6 classes/day	4 classes/day
Class Length	55 minutes	85 minutes
Sessions per Course	180	90
Average Class Size	30	32.5
Daily Student Class Time	330 minutes	340 minutes
Between-Class Time	25 minutes (5x5)	15 minutes (3x5)
Teacher Load	5 classes/day	3 classes/day
Daily Teacher Class Time	275 minutes	255 minutes
Daily Teacher Prep Time	55 minutes	85 minutes

dents do not play in an ensemble their embouchures and other highly developed muscles will deteriorate unless students practice and take lessons on their own, something only a small percentage are likely to do. Moreover, any ensemble that undergoes radical changes in membership each semester will suffer badly.

The consequences of block scheduling to courses of study other than music are distressing when considered in detail. A student may take algebra I in the first semester and not continue with algebra II in the subsequent semester and perhaps not until the second semester of sophomore year, a year later. Much of the information learned in algebra I may have been forgotten by then. A student who continues math courses without interruption may not be ready to take calculus as an underclassman. It is not difficult to imagine the problems of taking German I in the first semester of the freshman year but deferring German II until the sophomore year.

Similar problems of continuity affect music classes. The 4x4 plan restricts the number of courses students can select each semester. Many students may opt to maintain a smooth progression of core courses and will sacrifice continuity in choosing electives even though the number of electives may remain the same. In theory a student could select music as one of the four courses to be taken in every semester ending each year with two music credits and six other courses. A high school student who enrolled in music each year would then earn one of every four credits in music performance, but few educational systems are likely to permit this, and many prospective colleges may be dismayed by this choice of courses.

The A/B format of block scheduling gives greater continuity between courses, as students enroll in up to eight year-long courses. Band or orchestra would meet every other day during the year for 85-minute sessions. Students will have to cope with the demands of eight classes rather than the traditional

Stephen Benham is currently an orchestra director (grades 4-12) in the Salem-Keizer Public School District (Oregon) and music director of the Salem Youth Symphony.

six. There will be two fewer breaks between classes under the block system, a saving of 10 minutes per day. Whether these breaks between classes are wasted or a refreshing way to stretch and relax is as yet unproven, but this seems insignificant when divided among eight periods and is already reflected in the 85-minute-per-class figure.

Proponents of block scheduling claim that bands and orchestras will benefit by having one warm-up and tuning session followed by a lengthy rehearsal every other day instead of one each day followed by a shorter rehearsal. Even though block scheduling extends the session to 85 minutes and saves some start-up time, these advocates may not realize that block scheduling reduces the yearly total of class time by 2,250 minutes. This is the equivalent of losing 40 of the traditional 55-minute periods or 8 weeks of classes. That any net increase in rehearsal time is illusory is seen in the following table:

	Class Length	Sessions	Minutes in Course
Traditional 6-Per.Day	55 min.	180	9,900
Block (4x4 or A/B)	85 min.	90	7,650

Few directors and teachers are willing to give up the equivalent of eight weeks of class or rehearsal time. Any savings in taking attendance and starting each class are insignificant in comparison to the reduced class time.

Middle or junior high schools have traditionally emphasized breadth rather than depth of study as students explore a wide range of interests. Proponents of block scheduling anticipate that students as they enter high school will suddenly thrive in intense 85-minute class periods, that they will be able to master almost twice as much material per day than students of the past have. However, the experience of many teachers at schools that have adopted block scheduling is that it is necessary to give students a break of five or ten minutes during the longer period because they lose their ability to concentrate well over 85 minutes. These breaks, of course, undercut any of the alleged efficiencies of the longer classes. As schools discover that students cannot cover the material in the concentrated time periods they are spreading the material into more classes. The material traditionally presented in algebra I and II is now spread out in some schools using block scheduling by adding algebra III. Any dilution of this sort quickly cancels any alleged advantages of block scheduling.

Community pressure is sometimes cited as the impetus for block scheduling. Taxpayers want higher test scores and lower taxes, a return to the basics, and improved vocational training. Administrators often feel pressed to satisfy community expectations while keeping costs down. Scores on S.A.T. and A.C.T. tests are sometimes the only

objective measurement of student achievement that seem relevant to some school boards that eliminate arts programs to add time and resources to core subjects. In so doing they ignore the research that consistently shows student participation in the arts results in significantly improved performance on the standardized tests.

Many teachers, frustrated by salary caps and increasing workloads, like the idea of 30 more minutes to prepare for classes (a 54 % increase in preparation time) and the appearance of a reduced workload (7% less instructional time). Block scheduling theoretically reduces the number of class preparations each day from five to three, but the illusion of a lighter course load is false. Teachers have traditionally taught five courses, and usually these are the same five courses throughout the year. Block scheduling gives teachers six courses each year. Under the A/B plan a teacher has six courses running concurrently, three on day A and three others on day B. Teachers have 54% less class time to teach only 35% fewer students, so the amount of time each day per student per course means increased daily responsibility for those students.

The combination of increased teacher course loads (from five to six per year), reduced class time

per course, increased class sizes, and fewer sections of courses theoretically opens the possibility of cutting up to one-sixth of the teaching staff in any subject area. Although this may save some money, it defrauds students.

While purporting to give students more course options and increased depth of study, block scheduling does neither. There is no scientific evidence to support claims that students learn more with block scheduling. The only clear advantages of block scheduling accrue to administrators and teachers; but course options, class sizes, and student and teacher workloads are serious issues, ones that should not be resolved at the expense of student learning time or arts courses.

Before adopting block scheduling, or even evaluating it, parents and teachers should try to find out precisely what problems exist that they hope block scheduling will solve and how it will do this. The overriding issue should be curricular and whether and what students stand to gain or lose. If the basic issue is one of increasing the amount of class time, administrators and parents will find it more profitable to investigate extending the school day instead of turning to block scheduling, which creates more problems than it solves. □

Other Research on Block Scheduling

Various forms of block scheduling have been around for several years, but there are surprisingly few credible studies of the effect block scheduling has on how much students learn*or retain. Anecdotal information abounds, both pro and con, but it is significant that many schools with block scheduling make an exception for advanced or A.P. classes that qualify for college credit because students who take these courses throughout the year instead of in concentrated semesters perform better on the nationally standardized tests.

Three Canadian studies have investigated the effects of block scheduling in science and mathematics. David Bateson studied more than 30,000 tenth-grade students in British Columbia. Of these students 65% were enrolled in science in a traditional schedule throughout the year, while 17% took the course in the first semester and 11% took the course in the second semester. (The remaining 7% either did not take science or were in some other kind of scheduling arrangement.) This study, completed in 1990 and reported in the *Journal of Research in Science Teaching*, determined that students in all-year courses consistently scored significantly better on comprehensive multiple-choice tests of scientific knowledge and attitudes toward science study than either group that took science for a single semester. Students who took science dur-

ing the second semester scored higher than those who took the class in the first semester, raising concerns about how much the block system diminished the amount students retained from a concentrated course of study.

In 1986 D. Raphael and M.W. Wahlstrom conducted two studies on the effect of block scheduling in Ontario schools and published the results in *The Canadian Journal of Education*. The first project gathered information about 5,280 grade 12 and 13 math students from 250 classrooms in 80 schools; 94 of the 250 classrooms used the block, or semester, schedule. Teachers in these classes tended to use a greater variety of instructional material and believed the system improved student achievement and attitudes. The examinations, which included number systems, algebra, equations and inequalities, analytical geometry, trigonometry, functions, probability, and statistics, showed that students from one-semester classes scored significantly lower than those from year-long classes.

Raphael and Wahlstrom also tested grade 12 and 13 science students from 75 secondary schools in the areas of biology, chemistry, and physics. The attitudes of students in one-semester courses were slightly more positive than those in traditional classes but their achievement test scores were lower.