

**Independent Study to Evaluate High School
Scheduling and the Relationship to Student Achievement**

**Blount County Board of Education
Maryville, Tennessee**

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ABSTRACT

The Blount County School District, located in East Tennessee approximately ten(10) miles south of Knoxville, Tennessee, has a student population, kindergarten through twelfth grade, of eleven thousand, six hundred ten (11,610). Blount County is predominantly rural as it is located at the foothills of the Smoky Mountains. Blount County is the thirteenth largest county in the state of Tennessee. Two comprehensive high schools, William Blount and Heritage High School, serve approximately three thousand, two hundred twenty-five (3,225) students grade nine (9) through twelve (12). On the average, fifty-six point four percent (56.4%) of the Blount County student population qualify for free or reduced lunch. Providing the best education possible to maximize the academic potential of every child in a safe and personalized environment is the main goal. The Blount County schools will graduate students who are college and career ready and prepared to meet the challenges of the Twenty-First (21st) Century workplace.

The purpose of this study was to ask school decision makers in Blount County what is the best way to plan and utilize the academic curriculum to achieve maximum student learning? The Blount County Board of Education is requesting an independent study to determine if a statistically significant relationship to achievement is associated with the type of schedule used to provide instruction at the high school level. In addition, this study will consider the differences in the number of teaching positions needed for a block schedule versus other scheduling options. Furthermore, the study was designed to seek insights from a multiplicity of stakeholders using surveys, test results, national research, and state trends (the Tennessee Diploma Project) to support the outcome with the ultimate goal of maximizing the academic potential of every child in the Blount County School System.

The survey data compared the Traditional schedule, the 4 X 4 Block schedule, the Alternating A/B Block schedule, and the Combination schedule in order to provide evidence of the preferred schedule by teachers, students, parents, and community leaders. National research and trends relative to scheduling and academic performance is used to determine if a statistically significant difference in achievement is relative to the schedule used for delivering instruction. The American College Test (ACT) was used as measurement of growth for high school students in the Blount County Schools currently using the 4 X 4 Block Schedule. The attendance was reviewed for evidence of significant difference from singleton schedule to present as regards to the 4 X 4 Block currently being used to deliver instruction.

The study was very helpful to the citizens of Blount County who desire to improve the quality of education in the Blount County School District.

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DEFINITION OF TERMS

Several important terms are defined below for the purpose of this study:

A/B Block: The A/B Block schedule is “an alternate-day schedule.” Students alternate classes every other day for the entire school year resulting in (8.0) credits per year. Class schedule can vary in time from forty-five (45) to ninety (90) minutes.

AP course (Advanced Placement Course): Advanced placement course(s) offered to students desiring to earn college or dual credit while in high school.

American College Test (ACT): The ACT test is designed to assess high school students’ general educational development and their ability to complete college-level work. The ACT is basically an achievement test, measuring what a student has learned in school.

Attendance: A daily tabulation of the number of students present and absent at an individual school.

Block Schedule: A Block schedule is defined as any school scheduling practice that organize(s) at least part of the school day into larger blocks of time (more than 60 minutes).

Combination: The Combination schedule is defined as a combination of Singleton, 50 minute classes, with some 90 minute Block classes.

4 X 4 Block: The 4 X 4 Block schedule is defined as four ninety (90) minute class periods per semester resulting in 4.0 credits per semester or 8.0 credits for the entire school year.

Modified Block: In the Modified Block schedule some classes met the traditional 50-minute, while other classes meet the 90-minute. The block can be modified in other ways, as well.

No Child Left- Behind Act (NCLB): is the latest federal legislation that enacts

the theories of standards-based education reform, which is based on the belief that setting high standards and establishing measurable goals can improve individual outcomes in education. The Act requires states to develop assessments in basic skills to be given to all students in certain grades, if those states are to receive federal funding for schools. The Act does not assert a national achievement standard; standards are set by each individual state.

Singleton: A Singleton is defined as a fifty (50) minute class for the entire school year resulting in 1.0 credit per class.

II

Student Achievement: Student achievement is any positive result(s) occurring to the student because of the school process.

The SAT Reasoning Test (SAT): The SAT Reasoning Test (formerly Scholastic Aptitude Test and Scholastic Assessment Test) is a standardized test for college admissions in the United States. The SAT is owned, published, and developed by the College Board, a non-profit organization in the United States. The test assesses a student's readiness for college.

The Tennessee Diploma Project: The Tennessee Diploma Project is a statewide school reform initiative to ensure all Tennessee students graduate with the knowledge and skills to succeed in college or a viable job. To achieve this goal, Tennessee updated its standards, revamped its assessment process, and adopted new graduation requirements. These changes take effect this school year 2009-2010. The graduation credits are increased from twenty (20) to twenty-two (22). The Gateway Exams will be replaced with End-of-Course Exams. The ACT's College and Readiness Test (EXPLORE) will be given to all 8th graders and the PLAN College Readiness Test will be given to all 10th graders. Increased math and science requirements with higher level courses required for graduation will also be added to graduation requirements.

Traditional: A Traditional schedule is defined as six (6) or seven (7) fifty (50) minute Singleton classes for the entire school year resulting in 6.0 or 7.0 credits.

Introduction

The current economy and the increased standards on public education are taking its toll on most public schools. Many school districts are looking to make major changes in order to cut cost while increasing student achievement. The higher standards and lack of funding is forcing school districts to consider alternative solutions for delivering instruction. There is a need for all school districts to look at restructuring their school day with a focus on improving academics while utilizing every educational dollar. The Tennessee Diploma Project and the No Child Left Behind initiative have placed a pensive lens on educational topics like restructuring of the school instructional day from the Traditional schedule to some form of Block scheduling. Research varies, but Dexter, Tai, and Sadler (2006) cite Wild (1998) as pointing out that approximately fifty percent (50%) of America's public schools use some form of block scheduling.

Recently, researchers have provided a growing amount of research on 4 X 4 Block scheduling. While several forms of schedules exist, the Blount County high schools currently use almost exclusively the 4 X 4 Block scheduling. William Blount High School does use some variation in its scheduling, but mostly adheres to the 4 X 4 Block schedule. To determine whether a statistically significant difference exists between the varying types of schedules and academic achievement, research was conducted. State

board members, state department of education employees, and national scheduling specialists were interviewed. Also, ACT test scores were evaluated, attendance assessed, and research reviewed from credible authors on scheduling options. An array of stakeholders (teachers, students, parents and community leaders) were surveyed to ascertain their scheduling preference. To increase the reliability and validity of the survey a multiplicity of stakeholders reviewed the survey questions. Survey questions were modified according to recommendations from the various groups. The surveys were completed on-line electronically. Also, paper copies of the survey were available at the Board of Education, each high school, and the Chamber of Commerce. The data was analyzed by looking at the mean of the ACT test scores, evaluation of research, survey results, and interviews from prominent authors on block scheduling.

The assumptions of this study were that all participants responded freely and willingly. All responses were based upon current knowledge that participants have about scheduling at the time the survey was administered. The study was limited to participants interested in the schedule used in the Blount County high schools. The delimitations of this study were that no effort was made to include other community members at large in this study.

Review of Literature

Scheduling is currently being used to reform education in Tennessee and across the country. America's public schools are no longer controlled by a calendar or a clock. "Prisoners_of Time", a Report of the National Commission on Time and Learning (1994) compares the school day to a "prisoner of time" (p. 5). The study states, "Our time-bound mentality has fooled us all into believing that schools can educate all of the people all of the time in a school year of 180 six-hour days" (p. 5). According to the National Center for Education statistics, schools typically offer a six-period day, with about 5.6 hours of classroom instruction per day. This "time clock" is controlling the curriculum, the material presented, and the time frame for students to comprehend the information. This realization caused experts in education to rethink how time is used to deliver instruction.

John Goodlad (1984), writing in *A Place Called School*, said: "Some (schools) seem almost unaware that time is virtually the most precious

learning resource they have at their disposal” (p. 30). How can scheduling become a factor, instead of a boundary for learning? Blount County School System, in an effort to use time more efficiently and adhere to the national trends, switched from Traditional scheduling to Block scheduling in 1997. Currently, William Blount High School and Heritage High School use 4 X 4 Block scheduling to deliver instruction to nearly three thousand (3,000) high school students. Block scheduling consists of four (4) ninety-minute blocks of instructional time per day, instead of the traditional six (6) fifty-minute classes per school day. The possibilities for modifying block schedules are numerous. Some modifications include the Alternating (A/B) Block, the Combination Block, and the Modified Block.

School districts across Tennessee, and the nation, are exploring various types of Block scheduling. In a phone conversation with Dr. Connie Smith, Assistant Commissioner of School Accountability, Teaching, and Learning for the Tennessee Department of Education, confirmed: *“Some school districts are looking at a seven (7) period day, while others are modifying the 4 X 4 block with some Singleton classes due to the new graduation requirements mandated by the “Tennessee Diploma Project”* (Dr. Connie Smith, personal communication, February 2010). Dr. Smith feels flexibility is an immensely crucial factor to remember when reforming class schedules. State requirements for graduation are increasing. Advanced core classes in science and math are being added to the core curriculum increasing the graduation requirements from twenty (20) to twenty-two (22). These additional courses will add further financial burden to a school system’s budget, which is already struggling to make ends meet.

The state and federal government is also encouraging educational systems to promote a school climate that maximizes student-teacher interaction, the minutes students learn, the depth of instruction for attainment and mastery of the course content for each student in order to provide a more rigorous curriculum resulting in a higher level of learning for all students. To accomplish these standards the Block schedule appeared to be the magic wand. The longer 90- minute classes allow teachers to use a variety of instructional methods. Less instructional time is lost due to fewer “start-ups” and “endings” during the normal school day. Lindsay’s (1995) states, “Block scheduling is said to do many positive things such as reduce

truancy, make school less stressful, increase planning time for teachers, improve teacher-student relationships, and provide time for off-site work experiences” (p. 10).

Advocates of block scheduling believe larger blocks of time allow for a more flexible and productive classroom environment. Robert Canady, professor emeritus from the University of Virginia, did extensive research on college readiness of students entering college from high schools using block scheduling. In a phone conversation with Dr. Robert Lynn Canady concerning the advantages of block scheduling, he stated that the relationship between time and learning was extremely important (Dr. Robert Lynn Canady, personal communication, February 2010). Longer blocks of time for teacher-student interaction greatly increased both the quantity and quality of student learning. Canady also stated the use of Block scheduling allows teachers to use a variety of instructional strategies which will fit the student’s learning styles better than the Traditional six period schedules. Karen Irmsher’s (1996), article on Block scheduling in the ERIC Digest, points out: “This allows students to enroll in a greater number and variety of elective courses and offers more opportunities for acceleration. Students who fail a course, have an earlier opportunity to retake it, enabling them to regain the graduation pace of their peers” (p. 3). Block scheduling is enormously helpful for students moving to a different school system in the middle of the year. It has also proven to benefit students recovering courses failed earlier in the school year. By using instructional time more efficiently, extra opportunities exist for completion of the core subjects as well. The majority of Blount County students surveyed in March 2010 agree with Irmsher, Canady, and Carroll. They prefer Block scheduling over Traditional scheduling for the same reasons. They like completing the course in one semester, fewer classes per day, the opportunity to graduate early, more time for interaction with teachers, and the opportunity for labs and other hands-on activities.

Robert Schoenstein (1995), writing in *The New School on the Block*, suggests: “Students in block schedules often have better attendance, fewer late arrivals, higher grades, and a reduced failure rate” (18-21). Research also supports a reduction in discipline referrals. Canady

and Rettig’s (1993), *Unlocking the Lockstep High School Schedule*, point out:

“Because classes change less frequently in block schedule, there are fewer opportunities for student misbehavior” (p. 312). In a Traditional schedule class changes occur more often giving students an opportunity to misbehave. This results in more suspensions from school and less seat time for learning.

Another advocate of Block scheduling, the author of the *Copernican Plan: Restructuring the American High School*, Joseph Carroll (1983) writes in 1994: “A reduction in the number of courses taught per day provides much more manageable workloads for both teachers and students” (p. 106). This allows students additional time to focus on each course, which provides more in-depth learning. Teachers are not overwhelmed with five or six different course preparations. Therefore, teachers can interact with students and provide more individualized instruction. Teachers on Block scheduling enjoy more planning time, which results in better prepared lessons. Teachers spend less time taking roll and doing other administrative duties.

Proponents of Block scheduling point to a 10-year in-depth analysis conducted by one of the largest urban school systems in Southwest Georgia, Muscogee County School District (Reames 2009). The purpose of the study was to measure failure or success of Block scheduling in the high school Advanced Placement (AP) classes, Scholastic Aptitude Test (SAT) scores, and Georgia High School Graduation Test (GSGT) for that particular school system. The system enjoyed some success with Block scheduling in terms of an increase in graduation rates and a minimal increase in SAT scores. Other positives were important gains made in science and social studies (8-11).

...during the 10 years of block scheduling students were able to take more courses and earn additional credits. Positive student outcomes related to this include increased number of electives offered and fewer courses repeated in summer. The 4 x 4 Block used by this school system allowed students who failed courses to repeat the courses during the school year and still complete high school in 4 years (p. 11).

In regards to Block scheduling and scheduling in general, does scheduling matter? The answer is, “Yes it does.” Too many variables exist to say the class schedule is the major factor for improving student achievement; however, scheduling does impact how a student learns and retains the information being presented. A study conducted by the Washington School Research Center, titled “Schedule Matters: The Relationship between High

School Schedules and Student Academic Achievement” concludes that the seven-period, Modified block, or the

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Alternating (A/B) Block did perform better than the Traditional six-period or 4 X 4 Block schedule in math, reading, and writing on the Washington State test. Furthermore, students in a Modified Block schedule performed higher than any of the varied scheduling (Baker, Joireman, Clay, Abbott 2006).

Dr. Jeff Lindsay, a chemical engineer and a parent, did extensive research on block scheduling as it relates to retention of information and the ability to stay focused to learn for a longer block of time. Lindsay’s children used the 4 X 4 block schedule in the Appleton, Wisconsin School District. Lindsay’s research confirms several problems with block scheduling. For example, there is a correlation between attention span and the ability to retain material learned in a ninety minute class. In addition, he found there was less time spent on subject content and instruction. A 50-minute class requires consistent repetition for the duration of the school year, while a 90-minute class lasts one semester. In other words, his analysis points out that there is ten percent (10%) less time on task in the 90-minute Block versus the 50- minute traditional schedule.

There is a fundamental problem of adolescent attention span. Making a class twice as long usually does not enable twice as much material to be covered. The problems are especially severe with Learning Disabled kids. This “transformation” seems to be the greatest thing about block scheduling in the minds of some proponents, but in practice it means a watering down of course content (Lindsay, 2008). (p. 4).

Lindsay also asserts, “The spacing effect—the tendency, given an amount of...time, for spaced [or distributed] presentations of a unit of information to yield much better learning than massed presentations—is one of the most remarkable phenomena to emerge from laboratory research on learning” (p. 5). Research bears out that students learn best when a skill is taught and reinforced in several increments. The skill becomes embedded in the learner’s brain and repetition reinforces that skill. In addition, he points out, “A single 100-minute class will tend to be significantly less effective than two 50-minute classes” (p. 6).

Lindsay contacted book companies for their recommendation of the time

needed to teach and retain the information in their textbooks. He cites a letter from the President of Saxon Math Publishers, Dr. Frank Y. H. Wang, "We believe that children learn most effectively when they are exposed to concepts in small, easily understandable pieces called increments and when new concepts and skills are reviewed continuously" (p.7). Wang's concerns were substantiated by an article written in the Educational Leadership April 1991 issue by Frank Emptier, "With total time equated, two or more opportunities to study the same material are much more effective than a single opportunity" (p. 7). Lindsay continues to cite Wang as writing that Emptier says: "To summarize, more frequent use of property spaced reviews and

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tests in the classroom can dramatically improve classroom learning and retention" (p. 7). Emptier also asserts: "The frequency of exposure to a concept is more critical to a child's learning than total study time; with total study time being equal, shorter, more frequent study sessions are more effective" (p. 7).

Lindsay also cites research conducted by Millikin University Professor, Dr. Jodi Benton Kuepper that discusses the problems for content-area teachers using block scheduling. Benton-Kuepper details in an article for the *Journal of Research and Development in Education* (1999) the activities of three English teachers who used block scheduling. Basically, the teachers agreed that students had less time to read books, write research papers, and agreed that eliminating content is a common practice. Lindsay cites Benton-Kuepper as writing that one teacher found that the curriculum had to be reduced, "Carol found that she had to reduce the number of books that her students read in her AP course, due primarily to lack of outside reading time" (p. 8).

This seems to support the idea that curriculum has been altered in order to accommodate the lack of time to complete the objectives required to master a course. Other authors agree with Lindsay. For example, he cites research conducted by C. J. Freeman in 1996 on block scheduling. According to Lindsay, Freeman's study found the following:

The biggest criticism of block was from teachers frustrated that they now cover less material, for the curriculum must be reconfigured to fit into half the number of days provided for a course...Overall, the majority of studies indicate that some reduction or elimination of

content has occurred with a block schedule. Teachers find that there is not enough time to cover in the traditional schedule (Lindsay, 2008). (p. 8).

In looking at specific academic classes, Lindsay's research points to a Canadian study by Dennis Raphael, Merlin W. Wahlstrom, and L.D. McLean (1986) that appears in the *Canadian Journal of Education*. Lindsay cites the work "Debunking the Semestering Myth," (1986) and states that the researchers "found that traditional full-year courses resulted in better achievement in biology and chemistry classes, with no statistically significant difference for physics" (p. 38). However, "attitudinal scores for science courses did show some gains due to block scheduling" (more students enjoyed the courses or thought they were worthwhile (p. 38).

Lindsay goes on to cite a study conducted by Dr. David J. Bateson from the University of British Columbia (1990). Dr. Bateson studied 30,000 10th grade students in a demographic area similar to Wisconsin. The study investigated the effects of full-credit semester and all-year timetables on science attitudes and science achievement of grade-10 students in British

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Columbia. "The results of this study show that at the grade 10 in British Columbia, students who take science under a full credit semester system do not perform as well on the multi-choice tests of curricular-based science knowledge as do students who have taken the same course on an all year basis." The study also showed, "Second semester students also outperformed first semester students class on the same science test" (p. 10-11).

Does Block scheduling better prepare students for college science? In an article by Anne Bromley for *UVA Online*, a newsletter for the University of Virginia's faculty and staff, Bromley cites Robert Tai, assistant professor of science education at the University of Virginia's Curry School of Education as stating that students perform worse in college science classes graduating from high schools using Block scheduling. Bromley cites Tai, "Even when students had teachers who used instruction methods specifically geared toward Block scheduling, the students who had a traditional schedule had better grades in college" (2006) (p. 1). Tai asserted, "The survey sample comprises the higher-performing students who went to four-year colleges and controls for students' backgrounds. And if these top high school students are doing worse," Tai continued, "we could extrapolate that it must

be even harder for struggling students” (p. 2). Researchers Kristen M. Dexter and Philip M. Sadler agree with Tai’s premise that when it comes to high school science achievement and college preparation, Block scheduling did not appear to provide an advantage in terms of college preparation in science (2006).

In regards to math, Lindsay points to research conducted by Drs. Dennis Raphael, Merlin W. Wahlstrom, and L. D. McLean (1986) that looked at the math courses in Ontario schools using block scheduling. Lindsay cites Raphael, Wahlstrom, and McLean ‘s purpose for the study was to examine, “advantages claimed for semester organization of secondary schools were examined using data from a probability sample of 250 mathematics classrooms in 80 Ontario schools. Achievement and attitude data were collected from 5280 students in the course of the Second International Mathematics Study, and it was determined that 94 of the classes were taught in half the school year, i.e., by semester” (p. 11). The study found that teachers in semester schools were more likely to use a variety of instructional materials; however, better student attitudes and achievement were not supported. In addition, performance in semester classes of Grades 12 and 13 was lower.

Lindsay points to another study examining the effects of Block scheduling on math courses when he cites Dr. Michael Wronkovich’s work from the Coventry North Campus in Akron, Ohio (1997) “The study involved experimental and control group data from three (3) years experience with block scheduling. Co-varying math ability, gender and grade point average, we wanted to determine if there was a significant difference between students who

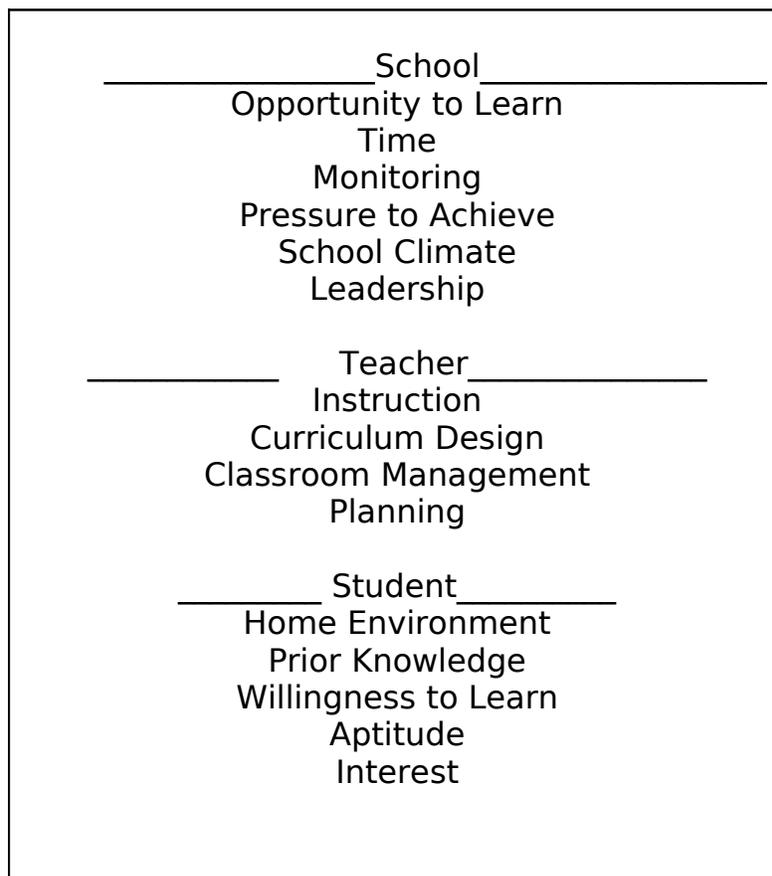
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studied math under a block schedule versus a traditional schedule” (p. 15). According to Wronkovich, “What we found was that students who studied Algebra I, Geometry and Algebra 2 under block scheduling performed significantly below those studying the same subjects under traditional scheduling on an early college math achievement test” (p. 15).

In July 2002, Bruce Merz, a math teacher at British Columbia completed a thesis for his Masters Degree through Gonzaga University in Spokane, Washington, “The Effect of Block Scheduling on Academic Performance.” His study was conducted from 1994-2001 and contained a total sample size of over 100,000 each year. Lindsay cites Merz’s study, “It is quite clear that

in all subjects, provincial exam results are higher in linear schools than in semester schools” (p. 18). In other words, all traditional 50-minute year long classes performed better on the provincial exam than the 90-minute semester classes.

Is there a statistically significant difference in achievement using block scheduling? It depends on the study and the researcher. Currently, there is not enough research that affirms “one-way” or “the other” that a major statistical difference exists to prove or disprove benefits of Block scheduling. One can quote researchers all day long, but the bottom line is effective teachers make the real difference in student achievement. The following flow chart outlines the factors that greatly influence achievement according to Marzano (2003).



According to Marzano’s chart, the

opportunity to learn is the most influential factor in student achievement for a school system to attain. The extent to which the content of the curriculum is taught and assessed plays a major role in student achievement at the school level.

The second most important factor according to Marzano is time. Therefore, teachers should teach bell to bell with a variety of instructional activities to

engage all student learners. Every learning minute counts with careful attention paid to what is taught in relationship to what is assessed. It is very important for teachers to follow the curriculum. Every learning minute is important. Effective teachers do the following:

The teacher’s ability to instruct, design, and plan are major factors in student achievement. The instructional strategies used to convey

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| Excellent teachers... |
| They have high expectation for student learning. |
| They closely monitored student learning progress. |
| They reteach using alternative strategies when children didn’t learn. |
| They provided clear and focused instruction. |
| They were highly efficient in their classroom routines. |
| They set and enforced high standards for classroom behavior. |
| They maintained excellent personal interactions with their students. |

information should vary. The curriculum design should be in depth and cover the entire curriculum with periodic assessment to measure attainment. Classroom management allows the teacher to control the teaching environment. Without classroom management maximum learning is lost to chaos and confusion. Ultimately, the classroom teacher is the most important factor in student achievement. Robert Lynn Canady said it best, “Everything depends on what the teacher does in the classroom” (cited in Reams p. 11). A good teacher will have higher performing students no matter what schedule is used to deliver the instruction.

Block scheduling, like many aspects of teaching, is an instrument used for delivering instruction. If a teacher knows how to effectively use Block scheduling to deliver instruction, it can be extremely beneficial. However, for those teachers that do not receive the proper training, or do not have the teaching skills needed for longer blocks of instruction, students’ academic performance will suffer. It is hard to assess (if Block scheduling is not effective) or (if the teacher is not effectively using Block scheduling). Either scenario will greatly affect the learning outcomes for students and will negatively impact Block scheduling.

The survey was composed of twenty-five (25) questions. The questions were answered by collecting, analyzing, and compiling survey data answered by twelve hundred nine respondents (1209). The respondents consisted of three groups: Students, teachers, parents and community leaders. The surveys were completed on-line in computer labs at both Blount County high schools. The parents and community leaders picked up paper copies of the survey at the Chamber of Commerce or Central Office. They also could log on to computers at home.

For the purpose of presentation, the majority of responses to the survey questions were in a yes, no, or undecided category. Some questions asked the respondents to expound in their own words their perception of the best solution. Other questions were choice answers based on their opinion.

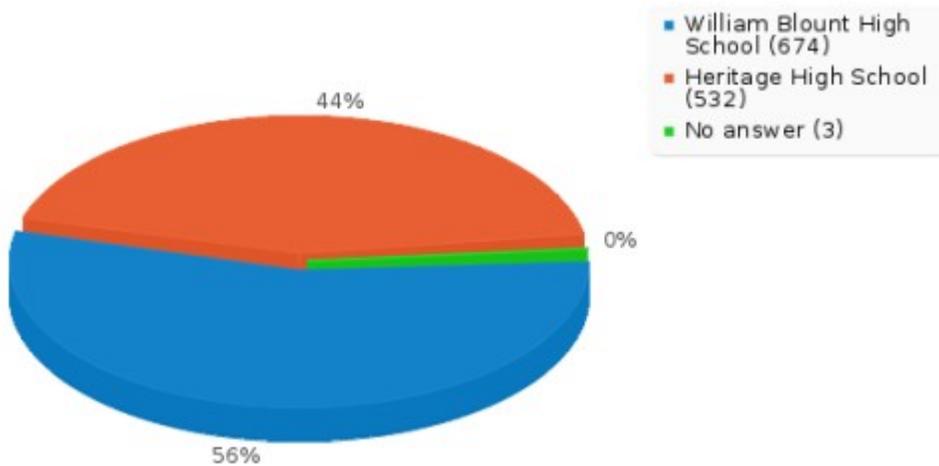
The pie charts and graphs used to evaluate the information are based on one hundred percent (100%). No information was collected on race, ethnicity, age, or gender. The purpose of the survey was to gather data on the respondent's preference for a high school class schedule.

Question Number 1: A total of fifty-five and seventy-five hundredths percent (55.75%) of the respondents were associated with William Blount High School. A total of forty-four percent (44.0%) were associated with Heritage High School. Twenty-five hundredths (0.25%) surveyed were not affiliated with the school system.

Table I

Number of records in this query: 1209
Total records in survey: 1209
Percentage of total: 100.00%

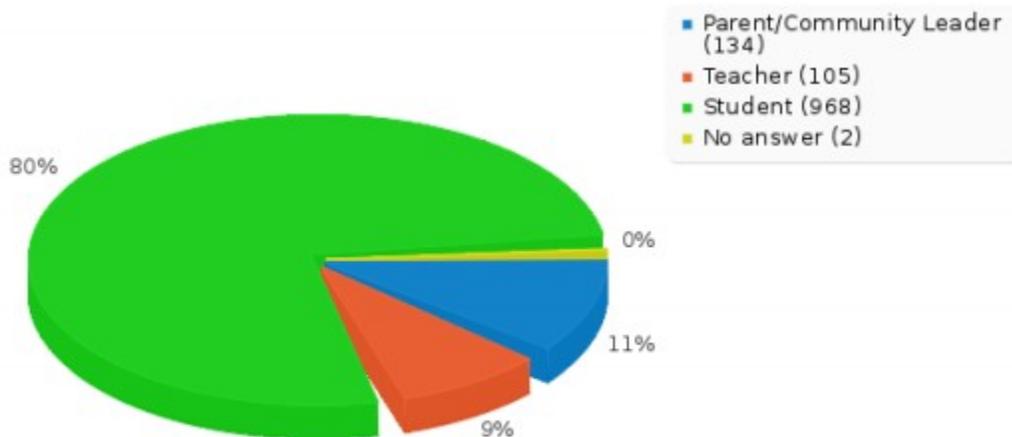
| School Affiliation | | |
|--------------------------------|-------|------------|
| Answer | Count | Percentage |
| William Blount High School (1) | 674 | 55.75% |
| Heritage High School (2) | 532 | 44.00% |
| No answer | 3 | 0.25% |
| Non completed | 0 | 0.00% |



Question Number 2: One hundred thirty-four respondents (134) surveyed were parents and community leaders. This translates to eleven and eight hundredths percent (11.08%) on the pie graph. One hundred five (105) surveyed were teachers. This translates to eight and sixty-eight hundredths percent (8.68%) on the pie graph. Students were the largest group of respondents totaling nine hundred sixty-eight (968). This translates to eighty and seven hundredths percent (80.07%).

Table II

| Answer | Count | Percentage |
|-----------------------------|-------|------------|
| Parent/Community Leader (1) | 134 | 11.08% |
| Teacher (2) | 105 | 8.68% |
| Student (3) | 968 | 80.07% |
| No answer | 2 | 0.17% |
| Non completed | 0 | 0.00% |

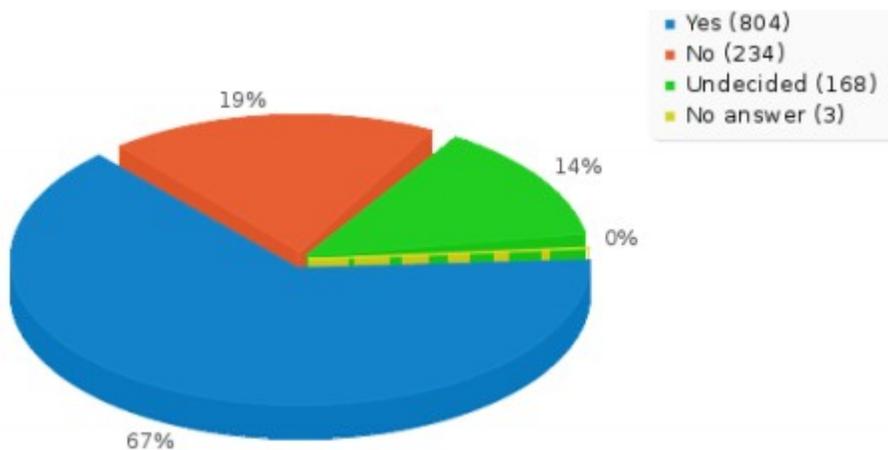


Question Number 3: Do you feel teachers use the additional time in a 4 X 4 Block schedule to vary instructional methods in order to meet the different learning styles of each student?

A total of eight hundred four (804) surveyed felt teachers did use the additional time to help them vary their teaching methods resulting in sixty-six and five tenths percent (66.5%). Two hundred thirty-four surveyed felt the instructional methods used by teachers did not vary their instruction to meet the individual needs of the students. This translates to nineteen and thirty-five hundredths percent (19.35%). One hundred sixty-eight were undecided resulting in thirteen and nine tenths percent (13.9%). Three (3) did not answer the question resulting in twenty-five hundredths percent (0.25%).

Table III

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 804 | 66.50% |
| No (2) | 234 | 19.35% |
| Undecided (3) | 168 | 13.90% |
| No answer | 3 | 0.25% |
| Non completed | 0 | 0.00% |

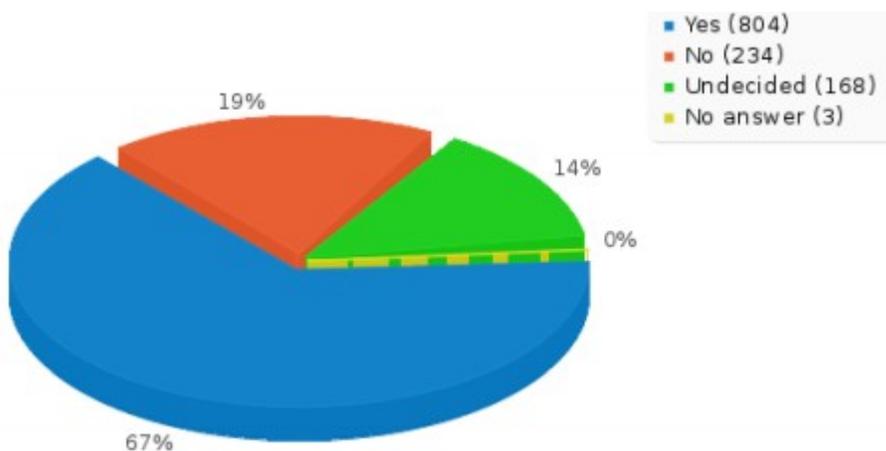


Question Number 4: Do you feel the present schedule meets the educational needs of our students?

A total of eight hundred eight-nine (889) surveyed felt the present schedule meets the educational needs of the students resulting in seventy-three and fifty-three hundredths percent (73.53%). Two hundred twelve (212) surveyed felt the present schedule did not meet the educational needs of the students. This translates to seventeen and fifty-four percent (17.54%). One hundred four (104) respondents were undecided resulting in eight and six tenths percent (8.6%). Four (4) did not answer the question resulting in thirty-three hundredths percent (0.33%).

Table IV

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 889 | 73.53% |
| No (2) | 212 | 17.54% |
| Undecided (3) | 104 | 8.60% |
| No answer | 4 | 0.33% |
| Non completed | 0 | 0.00% |

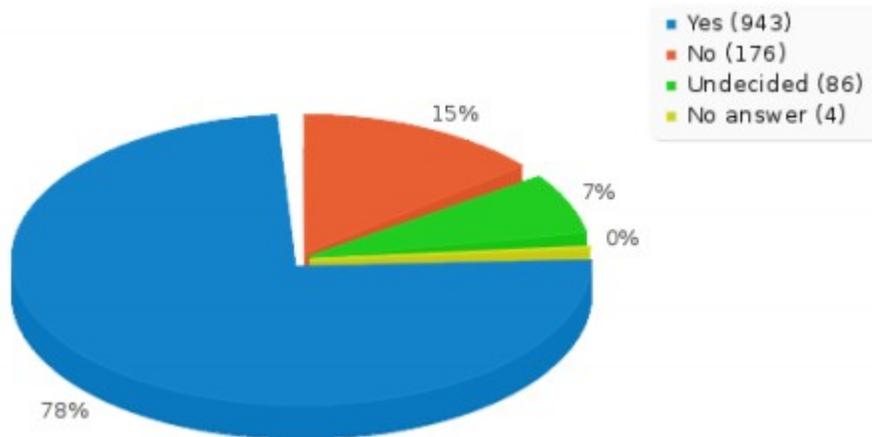


Question Number 5: Do you feel the 4 X 4 schedule allow students enough time to effectively cover the content for the entire course?

A total of nine hundred forty-three (943) felt the 4 X 4 schedule allowed enough time to effectively cover the content for the entire course resulting in seventy eight percent (78%). One hundred seventy-six (176) respondents felt the 4 X 4 block schedule did not allow enough time to effectively cover the entire course content. This translates to fourteen and fifty-six hundredths percent (14.56%). Eighty-six (86) respondents were undecided resulting in seven and eleven hundredths percent (7.11%). Four (4) did not answer the question resulting in thirty-three percent (.33%).

Table V

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 943 | 78.00% |
| No (2) | 176 | 14.56% |
| Undecided (3) | 86 | 7.11% |
| No answer | 4 | 0.33% |
| Non completed | 0 | 0.00% |

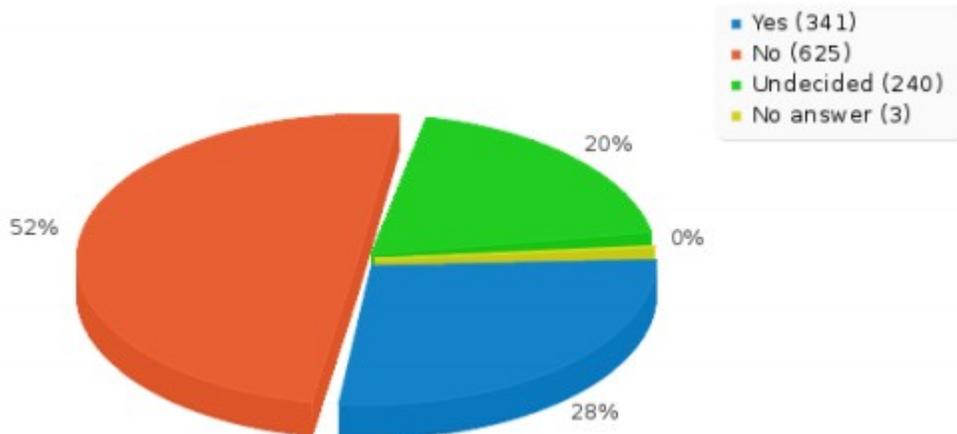


Question Number 6: Do you feel the A/B schedule allows enough time to effectively cover the content of the entire course?

A total of three hundred forty-one (341) respondents felt the A/B schedule allowed enough time to effectively cover the content of the entire course resulting in twenty-eight and twenty-one hundredths percent (28.21%). Six hundred twenty-five (625) respondents felt the A/B schedule did not allow enough time to effectively cover the content of the entire course. This translates to fifty-one and seven tenths percent (51.7%). Two hundred forty (240) respondents were undecided resulting in nineteen and eighty-five hundredths percent (19.85%). Three (3) did not answer the question resulting in twenty-five hundredths percent (0.25%).

Table VI

| | Count | Percentage |
|---------------|--------------|-------------------|
| Yes (1) | 341 | 28.21% |
| No (2) | 625 | 51.70% |
| Undecided (3) | 240 | 19.85% |
| No answer | 3 | 0.25% |
| Non completed | 0 | 0.00% |

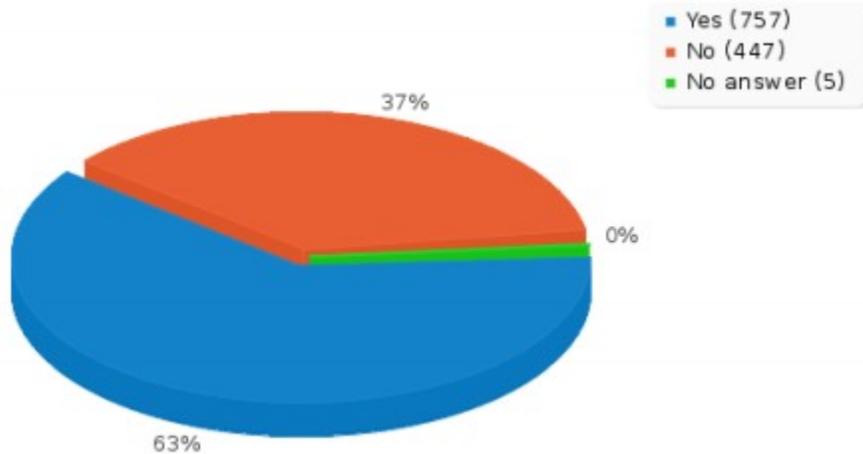


Question Number 7: Do you feel flexibility in scheduling is needed due to the new graduation requirements of the Tennessee Diploma Project? These include additional math, science courses, and a program of study which includes twenty-two (22) credits to graduate?

A total of seven hundred fifty-seven (757) respondents felt flexibility in scheduling is needed due to the new graduation requirements mandated by the Tennessee Diploma Project resulting in sixty-two and sixty-one hundredth percent (62.61%). Four hundred forty-seven (447) respondents did not feel flexibility in scheduling was needed to meet the new graduation requirements mandated by the Tennessee Diploma Project. This translates to thirty-six and ninety-seven hundredths percent (36.97%). Five (5) did not answer the question resulting in forty-one hundredth percent (0.41%).

Table VII

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 757 | 62.61% |
| No (2) | 447 | 36.97% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |

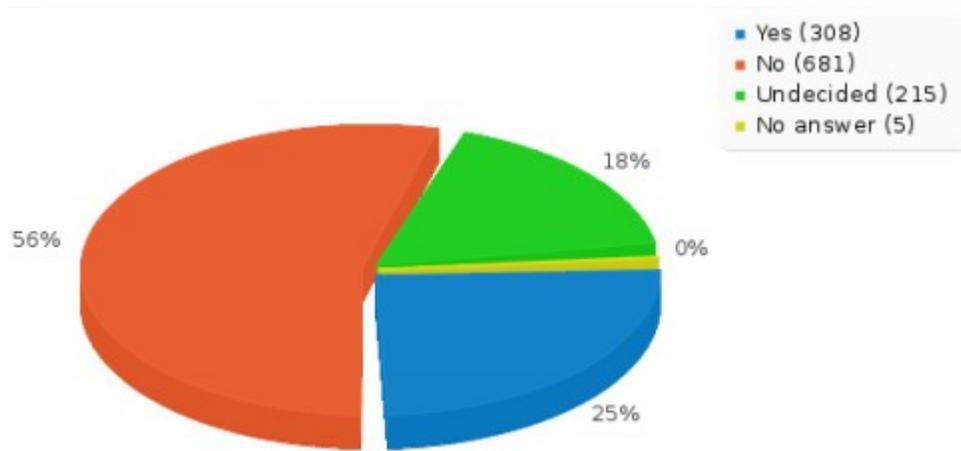


Question Number 8: Do you feel a Combination Block (90 minute classes) with Singleton (50 minute classes) would better meet the educational needs of all students?

A total of three hundred eight (308) respondents felt a Combination Block with Singleton classes would better meet the educational needs of all students resulting in twenty-five and forty-eight hundredths percent (25.48%). Six hundred eighty-one (681) respondents did not feel a Combination Block with Singleton classes would better meet the educational needs of all students. This translates to Fifty-six and thirty-three percent (56.33%). Two hundred fifteen (215) respondents were undecided resulting in seventeen and seven-eight hundredths percent (17.78%). Five (5) did not answer the question resulting in forty-one hundredth percent (0.21%).

Table VIII

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 308 | 25.48% |
| No (2) | 681 | 56.33% |
| Undecided (3) | 215 | 17.78% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |

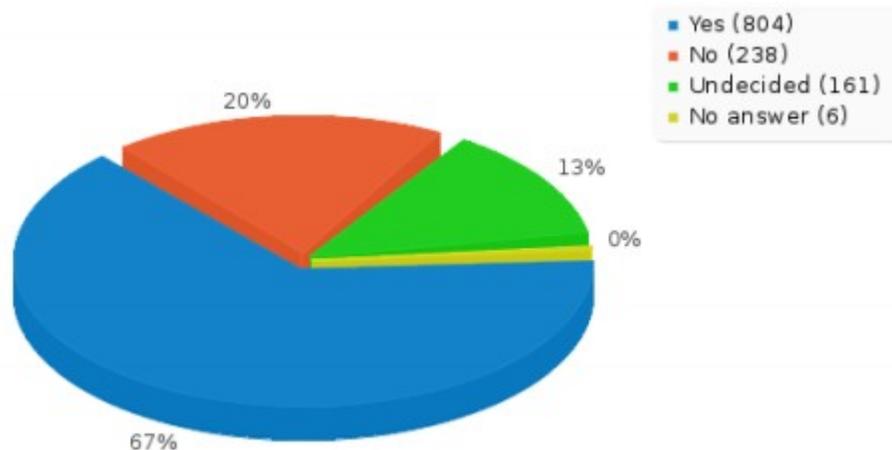


Question Number 9: Do you feel 4 X 4 Block scheduling improves student achievement?

A total of eight hundred four (804) respondents felt the 4 X 4 Block schedule does improve student achievement resulting in sixty-six and five tenths percent (66.5%). Two hundred thirty-eight (238) respondents did not feel 4 X 4 Block scheduling improved student achievement. This translates to nineteen and sixty-nine hundredths percent (19.69%). One hundred sixty-one (161) respondents were undecided resulting in thirteen and thirty-two hundredths percent (13.32%). Six (6) respondents did not answer the question resulting in five tenths percent (0.5%).

Table IX

| | Count | Percentage |
|---------------|--------------|-------------------|
| Yes (1) | 804 | 66.50% |
| No (2) | 238 | 19.69% |
| Undecided (3) | 161 | 13.32% |
| No answer | 6 | 0.50% |
| Non completed | 0 | 0.00% |

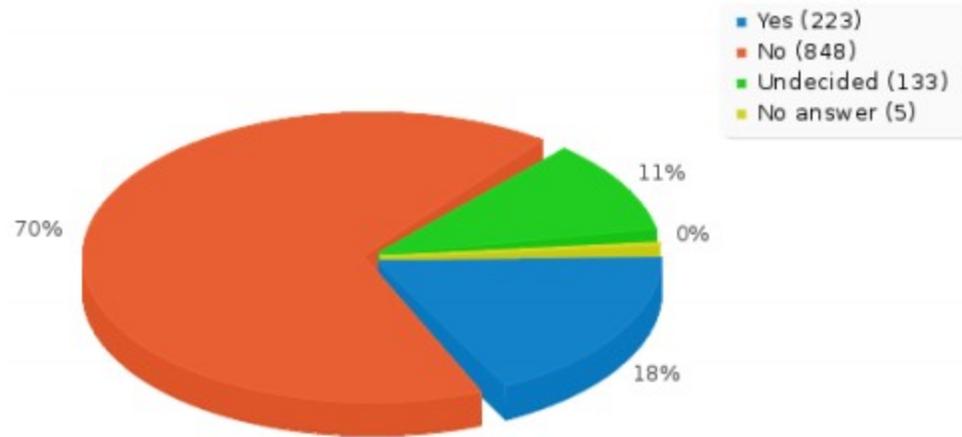


Question Number 10: Do you feel a traditional 6 or 7 period day schedule improves student achievement?

A total of two hundred twenty-three (223) respondents felt a traditional 6 or 7 period day schedule improves student achievement resulting in eighteen and forty-four hundredths percent (18.44%). Eight hundred and forty-eight (848) respondents did not feel a traditional 6 or 7 period day schedule improves student achievement. This translates to seventy and fourteen hundredths percent (70.14%). One hundred thirty-three respondents were undecided resulting in eleven percent (11%). Five (5) respondents did not answer the question resulting in forty-one hundredths percent (0.41%).

Table X

| | Count | Percentage |
|---------------|--------------|-------------------|
| Yes (1) | 223 | 18.44% |
| No (2) | 848 | 70.14% |
| Undecided (3) | 133 | 11.00% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |



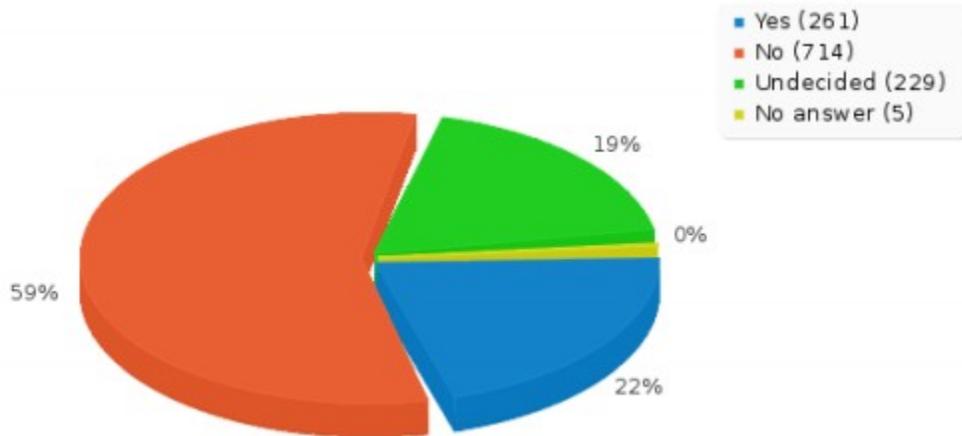
20

Question Number 11: Do you feel an A/B Block schedule is best suited to improve student achievement?

A total of two hundred sixty-one (261) respondents felt an A/B Block schedule is best suited to improving student achievement resulting in twenty-one and fifty-nine hundredths percent (21.59%). Seven hundred fourteen (714) respondents did not feel an A/B Block schedule was best suited to improving student achievement. This translates to fifty-nine and six hundredths percent (59.06%). Two hundred twenty-nine (229) were undecided resulting in eighteen and ninety-four percent (18.94%). Five (5) respondents did not answer the question resulting in forty-one hundredths percent (0.41%).

Table XI

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 261 | 21.59% |
| No (2) | 714 | 59.06% |
| Undecided (3) | 229 | 18.94% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |



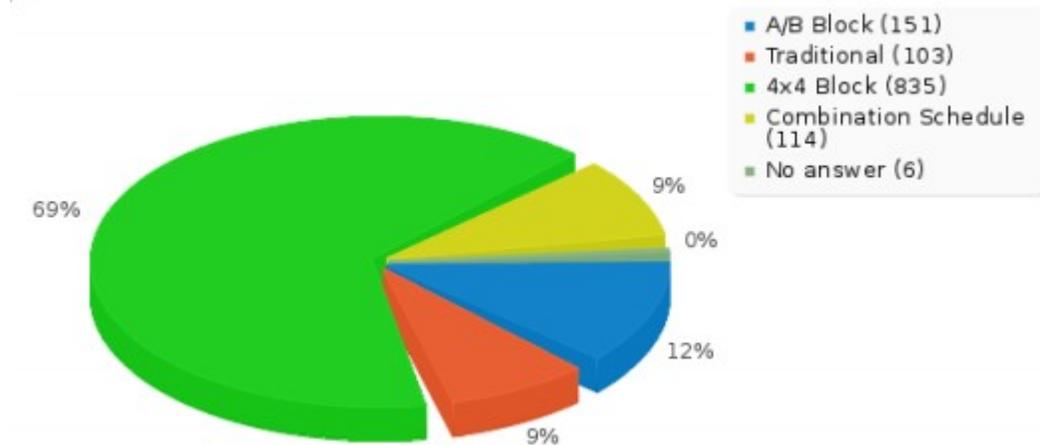
21

Question Number 12: In your opinion, the Career Technical Education Courses are best served by which schedule?

A total of one hundred fifty-one (151) respondents chose A/B scheduling as the best schedule to serve Career Technical Educational Courses. This translates to twelve and forty-nine hundredths percent (12.49%). One hundred three (103) respondents chose Traditional scheduling resulting in eight and fifty-two hundredths percent (8.52%). An overwhelming majority chose 4 X 4 Block scheduling resulting in sixty-nine and seven hundredths percent (69.07%). One hundred fourteen (114) respondents preferred the Combination schedule resulting in nine and forty-three hundredths percent (9.43%). Six (6) respondents did not answer the question resulting in five tenths (0.5%).

Table XII

| | Count | Percentage |
|--------------------------|-------|------------|
| A/B Block (1) | 151 | 12.49% |
| Traditional (2) | 103 | 8.52% |
| 4x4 Block (3) | 835 | 69.07% |
| Combination Schedule (4) | 114 | 9.43% |
| No answer | 6 | 0.50% |
| Non completed | 0 | 0.00% |



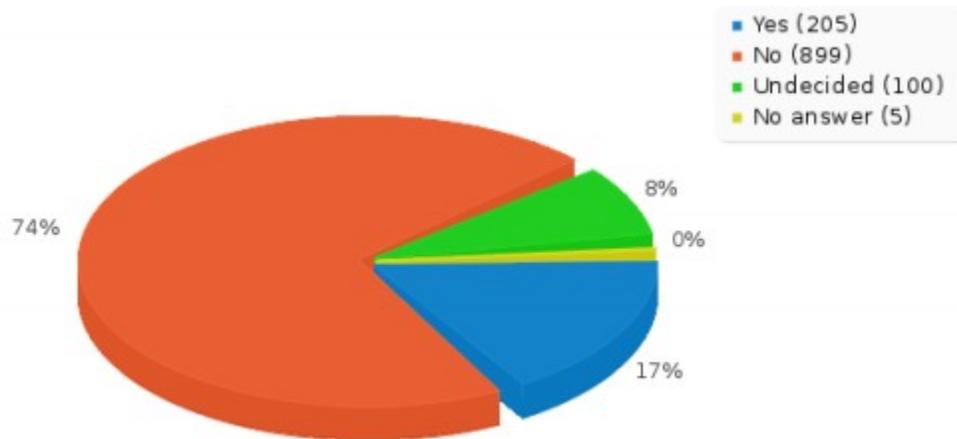
Question Number 13: Do you feel a 50 minute class period provides students enrolled in a lab or workshop format class (i.e. forensic science, biology, band, cosmetology, theater arts, culinary arts, etc) adequate time to complete classroom instruction and lab assignments?

A total of two hundred five (205) respondents felt a fifty (50) minute class did provide students enrolled (in a lab or workshop format) adequate time to complete classroom instruction and lab assignments. This translates to sixteen and ninety-six hundredths percent (16.96%). Eight hundred ninety-nine (899) respondents did not feel a fifty (50) minute class period provided adequate time to complete classroom instruction for lab or workshop courses. This translates to seventy-four and thirty-six hundredths percent

(74.36%). One hundred (100) respondents were undecided resulting in eight and twenty-seven hundredths percent (8.27%). Five (5) respondents did not answer the question resulting in forty-one hundredths percent (0.41%).

Table XIII

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 205 | 16.96% |
| No (2) | 899 | 74.36% |
| Undecided (3) | 100 | 8.27% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |



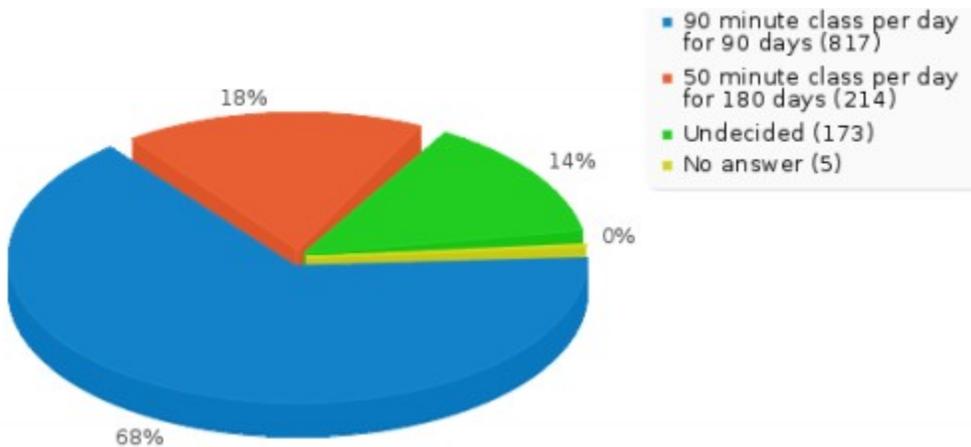
Question Number 14: Do you feel retention of material is best achieved by longer class period for a shorter duration or a shorter class period for a longer duration?

A total of eight hundred seventeen (817) respondents felt retention is best achieved by longer class period for a shorter duration resulting in sixty-seven and fifty-eight percent (67.58%). Two hundred fourteen (214) respondents felt shorter duration or a shorter class period for a longer duration best achieved retention of material. This translates to seventeen and seven

tenths percent (17.7%). One hundred seventy-three (173) respondents were undecided resulting in fourteen and thirty-one hundredths percent (14.31%). Five (5) respondents did not answer the question resulting in forty-one hundredths percent (0.41%).

Table XIV

| Count | Percentage |
|--|------------|
| 90 minute class per day for 90 days (1) | 817 67.58% |
| 50 minute class per day for 180 days (2) | 214 17.70% |
| Undecided (3) | 173 14.31% |
| No answer | 5 0.41% |
| Non completed | 0 0.00% |



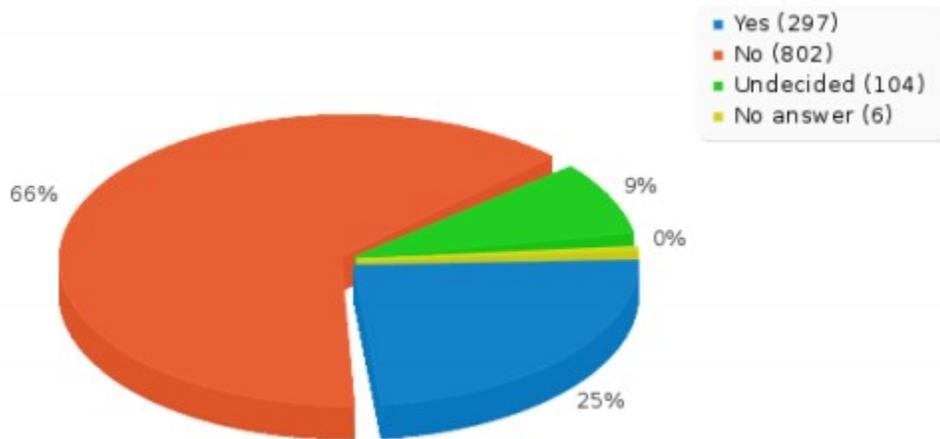
Question Number 15: Do you feel a fifty (50) minute class period provides teachers adequate time to complete classroom instruction in math classes?

A total of two hundred ninety-seven (297) respondents feel fifty (50) minute class periods does provide teachers adequate time to complete classroom

instruction in math. This translates to twenty-four and fifty-seven hundredths percent (24.27%) of the respondents surveyed. Eight hundred two (802) respondents did not feel a fifty (50) minute class period provided teachers adequate time to complete classroom instruction in math. This translates to sixty-six and thirty-four hundredths percent (66.34%). One hundred four (104) respondents were undecided resulting in eight and six tenths percent (8.6%). Six (6) respondents did not answer the question resulting in five tenths percent (0.5%).

Table XV

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 297 | 24.57% |
| No (2) | 802 | 66.34% |
| Undecided (3) | 104 | 8.60% |
| No answer | 6 | 0.50% |
| Non completed | 0 | 0.00% |

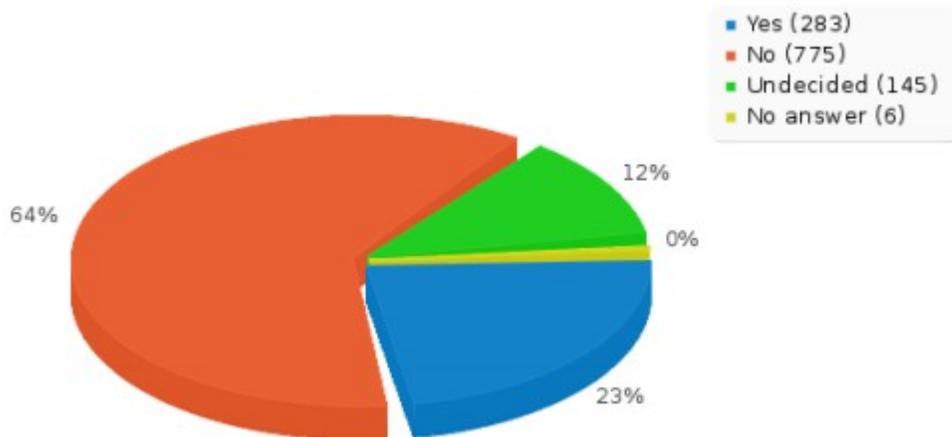


Question Number 16: Do you feel a fifty (50) minute class period provides teachers adequate time to complete classroom instruction in foreign language classes?

A total of two hundred eighty-three (283) respondents feel a fifty (50) minute class period provides teachers adequate time to complete classroom instruction in foreign language classes. This translates to twenty-three and forty-one percent (23.41%). Seven hundred seventy-five (775) respondents do not feel a fifty (50) minute class period provides teachers adequate time to complete classroom instruction in foreign language classes. This translates to sixty-four and one tenths percent (64.1%). One hundred forty-five (145) were undecided resulting in eleven and ninety-nine hundredths percent (11.99%). Six (6) respondents did not answer the question resulting in five tenths percent (0.5%)

Table XVI

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 283 | 23.41% |
| No (2) | 775 | 64.10% |
| Undecided (3) | 145 | 11.99% |
| No answer | 6 | 0.50% |
| Non completed | 0 | 0.00% |

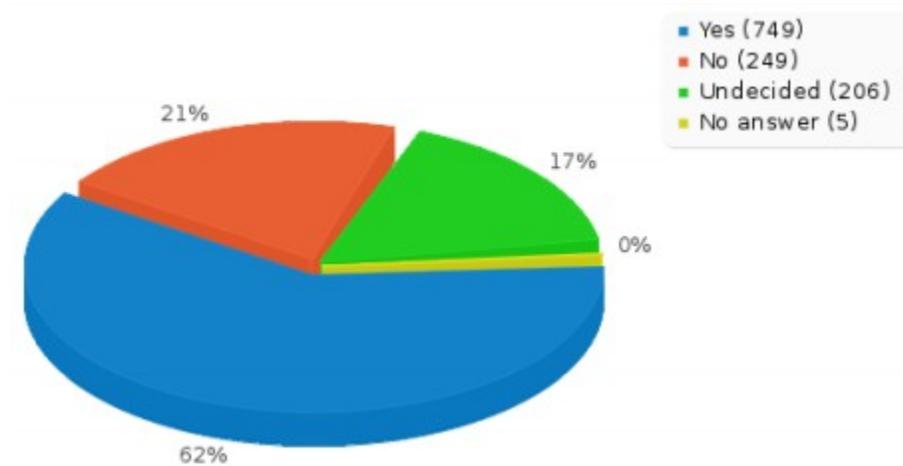


student achievement?

A total of seven hundred forty-nine (749) respondents feel the academic class schedule does effect student achievement resulting in sixty-one and ninety-five hundredths percent (61.95%). Two hundred forty-nine (249) respondents do not feel the academic class schedule effects student achievement. This translates to twenty and sixty hundredths percent (20.60%). Two hundred six (206) respondents were undecided resulting in seventeen and four hundredths percent (17.04%). Five (5) respondents did not answer the question resulting in forty-one (0.41%).

Table XVII

| | Count | Percentage |
|---------------|--------------|-------------------|
| Yes (1) | 749 | 61.95% |
| No (2) | 249 | 20.60% |
| Undecided (3) | 206 | 17.04% |
| No answer | 5 | 0.41% |
| Non completed | 0 | 0.00% |

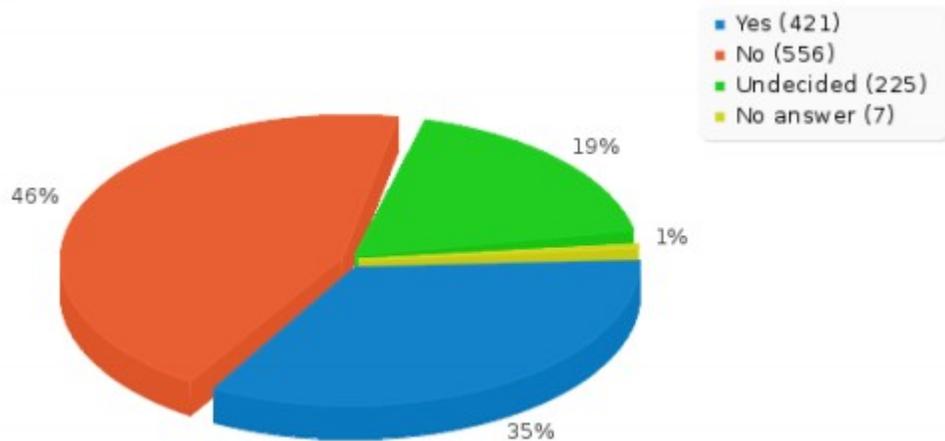


Question Number 18: Do you feel a change in class scheduling and seat time in a class is a priority for school improvement?

A total of four hundred twenty-one (421) respondents feel a change in class schedule and seat time in a class is a priority for school improvement resulting in thirty-four and eighty-two hundredths percent (34.82%). Five hundred fifty-six (556) do not feel a change in class scheduling and seat time in a class is a priority for school improvement? This translates to forty-five and ninety-nine hundredths percent (45.99%). Two hundred twenty-five (225) respondents were undecided resulting in eighteen and sixty-one hundredths percent (18.61%). Seven (7) respondents did not answer the question resulting in fifty-eight hundredths percent (0.58%).

Table XVIII

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 421 | 34.82% |
| No (2) | 556 | 45.99% |
| Undecided (3) | 225 | 18.61% |
| No answer | 7 | 0.58% |
| Non completed | 0 | 0.00% |

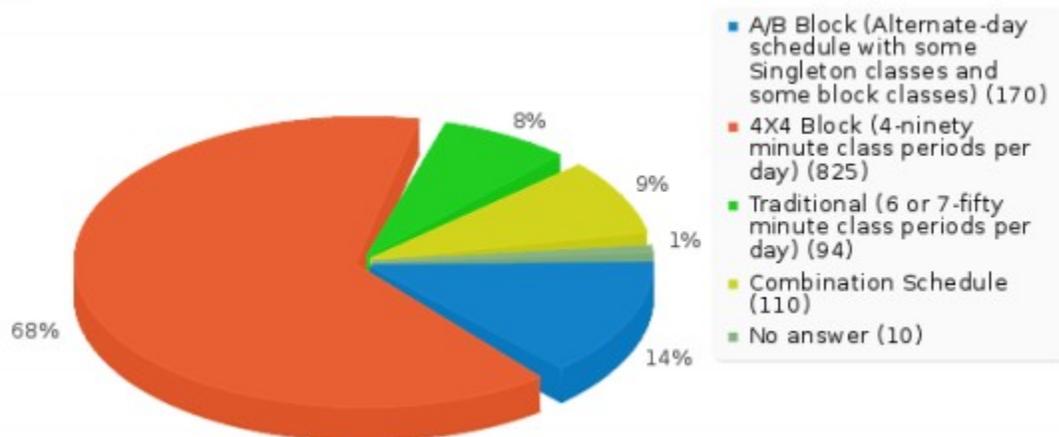


Question Number 19: Please indicate the schedule you feel is best suited to improve student learning?

A total of one hundred seventy (170) respondents feel A/B Block (Alternate-day schedule with some Singleton classes and some block classes) is best suited to improve student learning. This translates to fourteen and six hundredths percent (14.06%). An overwhelming number of eight hundred twenty-five (825) respondents feel the 4 X 4 Block (4-ninety minute class periods per day) is best suited to improve student learning resulting in sixty-eight and twenty-four hundredths percent (68.24%). Ninety-four (94) respondents feel the Traditional (6 or 7-fifty minute class periods per day) is best suited to improve student learning resulting in seven and seventy-eight hundredths percent (7.78%). One hundred ten (110) respondents feel a Combination Schedule (singleton classes with block) is best suited to improve student learning resulting in nine and one tenths percent (9.10%). Ten (10) respondents did not answer the question resulting in eighty-three hundredths percent (0.83%).

Table XIX

| | Count | Percentage |
|---|-------|------------|
| A/B Block (Alternate-day schedule with some Singleton classes and some block classes) (1) | 170 | 14.06% |
| 4X4 Block (4-ninety minute class periods per day) (2) | 825 | 68.24% |
| Traditional (6 or 7-fifty minute class periods per day) (3) | 94 | 7.78% |
| Combination Schedule (4) | 110 | 9.10% |
| No answer | 10 | 0.83% |
| Non completed | 0 | 0.00% |

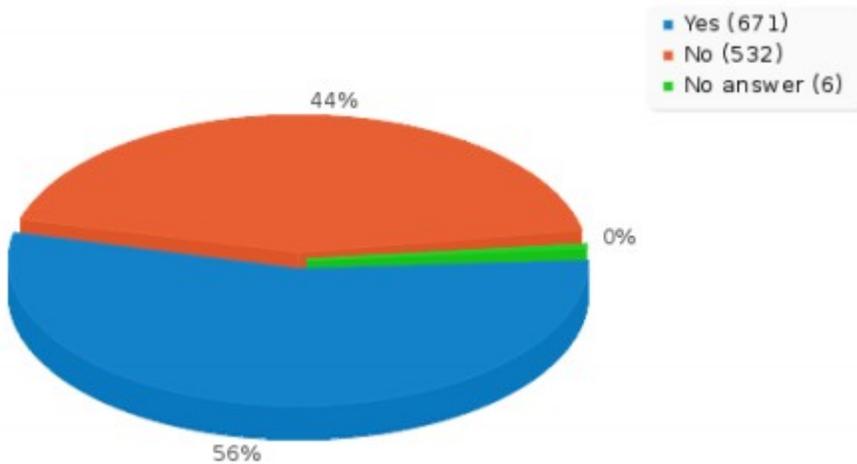


Question Number 20: Would you support going to Summer School in order to pick up additional courses or make up classes?

A total of six hundred seventy-one (671) respondents would support going to Summer School to take additional courses or to make up courses failed during the previous year. This translates to fifty-five and five tenths percent (55.5%). Five hundred thirty-two (532) respondents would not go to Summer School in order to take additional classes or make-up courses failed during the pass school year. This translates to forty-four percent (44%). Six (6) respondents did not answer the question resulting in five tenths percent (0.5%).

Table XX

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 671 | 55.50% |
| No (2) | 532 | 44.00% |
| No answer | 6 | 0.50% |
| Non completed | 0 | 0.00% |

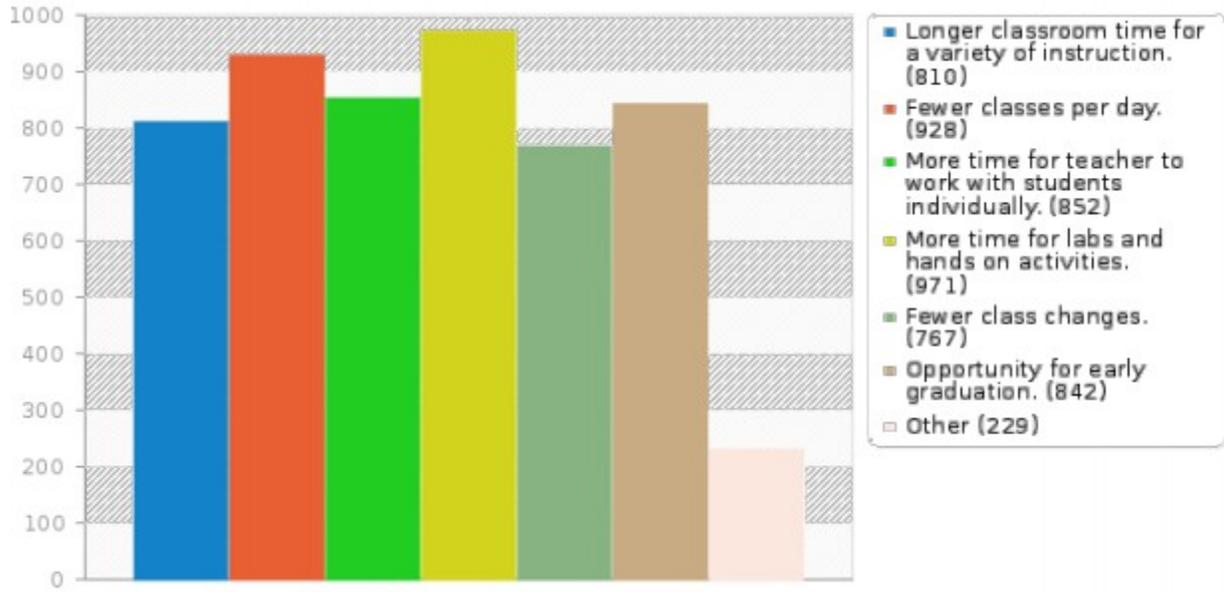


Question Number 21: Please check all statements that you like in the 4 X 4 Block scheduling? If other, please explain.

A total of eight hundred ten (810) respondents liked the longer classroom time for a variety of instruction. Nine hundred twenty-eight (928) respondents liked fewer classes per day. Eight hundred fifty-two (852) respondents like 4 X 4 Block scheduling due to more time for the teacher to work with students individually. Nine hundred seventy-one (971) respondents liked 4 X 4 Block because it allowed more time for labs and hands on activities. Seven hundred sixty-seven (767) liked block scheduling because fewer class changes were needed. Eight hundred forty-two (842) respondents liked block due to the opportunity for early graduation. Two hundred twenty-nine (229) comments were submitted by written response. See Appendix (A) for written responses.

Table XXI

| | Count | Percentage |
|---|--------------|-------------------|
| Longer classroom time for a variety of instruction. (1) | 810 | 67.00% |
| Fewer classes per day. (2) | 928 | 76.76% |
| More time for teacher to work with students individually. (3) | 852 | 70.47% |
| More time for labs and hands on activities. (4) | 971 | 80.31% |
| Fewer class changes. (5) | 767 | 63.44% |
| Opportunity for early graduation. (6) | 842 | 69.64% |

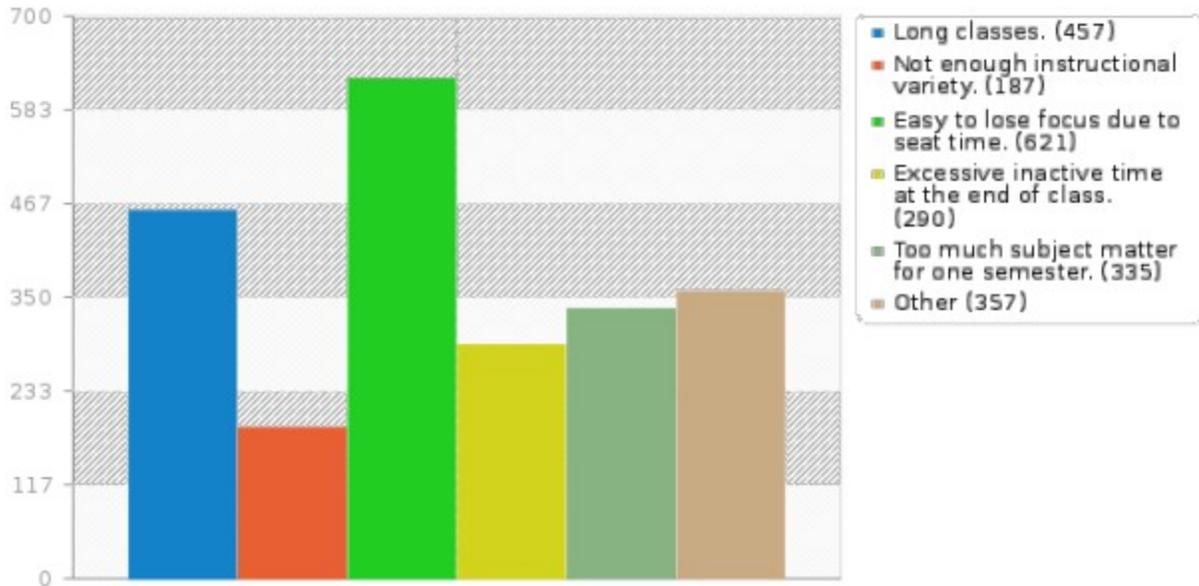


Question Number 22: Please check all statements that you dislike in the 4 X 4 Block scheduling? If other, please explain.

A total of four hundred fifty-seven (457) respondents disliked the long ninety (90) classes. One hundred eighty-seven (187) respondents felt there was not enough instruction variety using the 4 X 4 Block. Six hundred twenty-one (621) respondents felt it was easy to lose focus due to seat time. Two hundred ninety (290) respondents felt there was excessive inactive time at the end of class. Three hundred thirty-five (335) respondents felt too much subject matter for one semester was required. Three hundred fifty-seven (357) comments were submitted by written response. See Appendix (B) for written responses.

Table XXII

| | Count | Percentage |
|--|-------|------------|
| Long classes. (1) | 457 | 37.80% |
| Not enough instructional variety. (2) | 187 | 15.47% |
| Easy to lose focus due to seat time. (3) | 621 | 51.36% |
| Excessive inactive time at the end of class. (4) | 290 | 23.99% |
| Too much subject matter for one semester. (5) | 335 | 27.71% |
| Other | 357 | 29.53% |



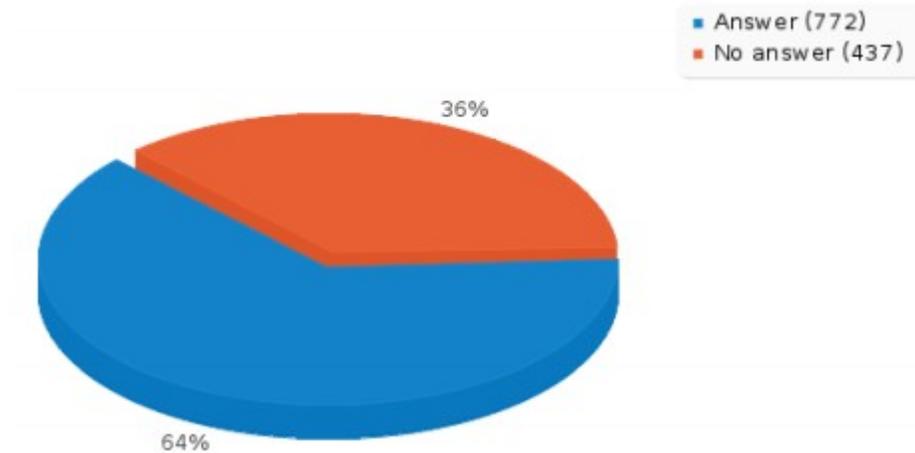
32

Question Number 23: How would you change the instructional schedule to maximize student achievement and motivate students to learn more? (Please elaborate in your own words)

A total of seven hundred seventy-two (772) respondents submitted written responses to this question. See Appendix (C) for written responses.

Table XXII

| | | |
|---------------|-----|--------|
| Answer | 772 | 63.85% |
| No answer | 437 | 36.15% |
| Non completed | 0 | 0.00% |



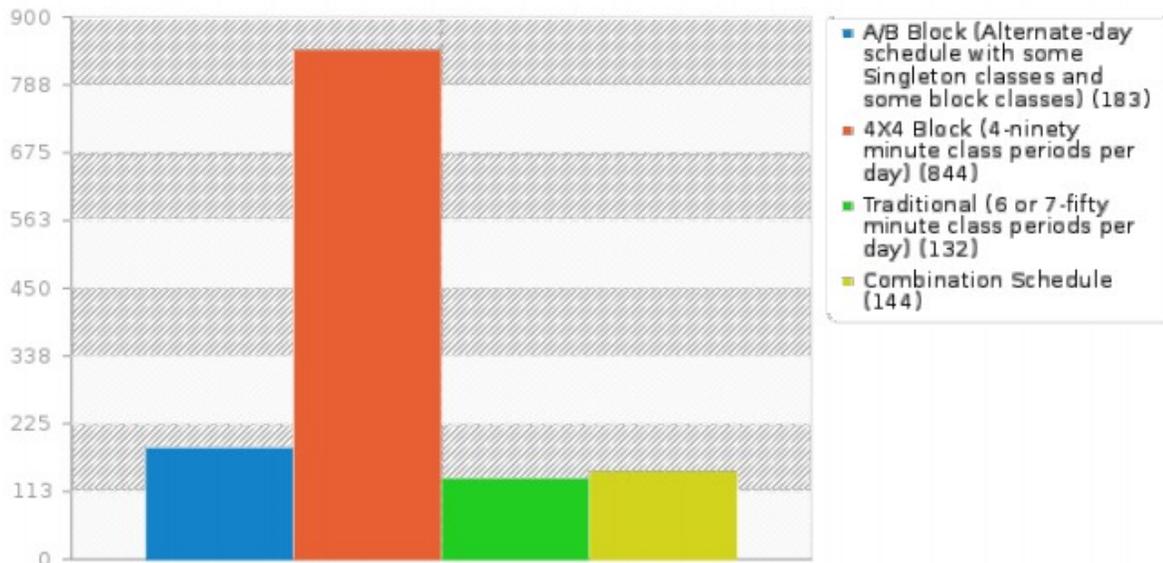
033

Question Number 24: Which scheduling system would best allow all ability level learners to learn and retain information?

A total of one hundred eighty-three (183) respondents felt A/B Block (Alternate-day schedule with some Singleton classes) scheduling system would best allow all ability level learners to learn and retain information? This translates to fifteen and fourteen hundredths percent (15.14%). Eight hundred forty-four (844) respondents felt 4 X 4 Block (4-ninety minute class periods per day) scheduling system would best allow all ability level learners to learn and retain information resulting in sixty-nine and eight one hundredths percent (69.81%). One hundred thirty-two (132) respondents felt the Traditional (6 or 7-fifty minute class periods per day) scheduling system would best allow all ability level learners to learn and retain

information resulting in ten and ninety-two hundredths percent (10.92%). One hundred forty-four (144) respondents felt a Combination Schedule (4 X 4 Block with some Singleton classes) scheduling system would best allow all ability level learners to learn and retain information resulting in eleven and ninety-one percent (11.91%).

*183-A/B Schedule *844-Block (4x4) *132-Traditional *144-Combination



A/B Block (Alternate-day schedule with some Singleton classes and some block classes) (1)
 4X4 Block (4-ninety minute class periods per day) (2)
 Traditional (6 or 7-fifty minute class periods per day) (3)
 Combination Schedule (4)

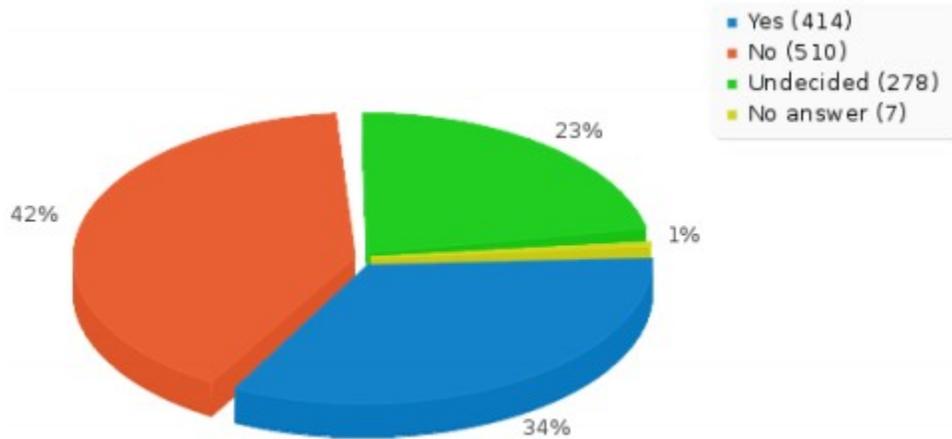
Question Number 25: Do you feel subject matter is best learned and retained in a year long period of time?

A total of four hundred fourteen (414) respondents felt subject matter is best learned and retained in a year long period of time resulting in thirty-four and twenty four hundredths percent (34.24%). Five hundred ten (510) respondents felt subject matter is not learned best and retained in a year long period of time. This translates to forty-two and eighteen hundredths percent (42.18%). Two hundred seventy-eight (278) respondents were

undecided resulting in twenty-two and ninety-nine hundredths percent (22.99%). Seven (7) respondents did not answer the question resulting in fifty-eight hundredths percent (0.58%).

Table XXV

| | Count | Percentage |
|---------------|-------|------------|
| Yes (1) | 414 | 34.24% |
| No (2) | 510 | 42.18% |
| Undecided (3) | 278 | 22.99% |
| No answer | 7 | 0.58% |
| Non completed | 0 | 0.00% |



Survey Results

Many of the respondents in the community survey were pleased with the present schedule of 4 x 4 Block classes in the two high schools. The responses to Block scheduling, in general, were overwhelmingly positive. Clearly, the majority surveyed felt the present Block schedule met the needs

of the student body and the educational goals of the district, as well.

The majority of the respondents was pleased with Block scheduling and did not want to see any changes made to the current schedule used in the Blount County high schools. The majority supported the importance of flexibility in class scheduling. Some respondents voiced a concern with block scheduling, but overall the comments were very supportive of the 4 X 4 Block Schedule. Although, the respondents liked the 4 X 4 Block, the respondents did not like the A/B Block schedule. Fifty-nine percent (59%) of the respondents did not think student achievement would improve using the A/B Block schedule.

Sixty-three percent (63%) of the respondents felt some flexibility in scheduling was needed to meet the new graduation requirements. The majority of the respondents surveyed, sixty-seven percent (67%), felt the 4 X 4 Block improves student achievement. Seventy percent (70%) of the respondents did not feel a six (6) or seven (7) period school day would improve achievement.

Sixty-nine percent (69%) of the respondents felt the current Block schedule was best for Career Tech Educational courses or other lab courses. The respondents felt the 90-minute class period provided the opportunity for extended time for detailed projects, experiments, and work related training. Seventy-four percent (74%) felt a class longer than 50-minutes was needed for any lab class.

The majority of the respondents clearly supported the 4 X 4 Blocks schedule. The undecided respondents were significant enough to warrant education of the scheduling options. It is possible that some respondents did not understand the difference between the schedules and the relationship to student achievement. Most students surveyed had never experienced a traditional schedule, or any other schedule, due to the Block schedule being implemented in the Blount County School System in 1997. Teachers, students, and parents, and community leaders felt the Block schedule allowed more time to use different teaching strategies in their classes. The students had more time to complete labs, projects, and presentations, which allowed the students a more affluent learning environment. The majority of the respondents at both schools believe the benefits of block scheduling outweigh any shortcomings.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The test data for Blount County School's ACT scores show no significant difference between the scores of students on block schedules and those on a traditional schedule from 1993 to present. Prior to Block scheduling from 1993 to 1997, the mean composite ACT score for the district was 20.32. Blount County High Schools switched to 4 X 4 Block schedule in August 1997. The mean composite ACT score from 1998-2009 for the district was 20.34. The ACT scores have not dropped, but remained consistent for the past seventeen (17) years with a mean composite score of 20.33. The lowest composite ACT score was in 2003 with 19.7. The highest ACT score was in 2006 with a 20.9. The ACT scores for the past six (6) years are trending upward with a composite score of 20.62.

Attendance for both high schools, William Blount and Heritage has remained stable from 1996-2009. The attendance data range from 1996 to 2009 for William Blount High School is 93.7% in 1996 to 92.7% in 2009. The attendance data range from 1996 to 2009 for Heritage High School is 91.2% in 1996 to 93.4% in 2009. The attendance can be an issue when using block schedule. Missing one day of the Block schedule (due to snow, sickness, or fieldtrip) is the equivalent of two days using a Traditional schedule resulting in missed instruction, opportunities to practice a new concept, and lost time that is difficult to regain.

Financially, the 4 X 4 Block is more costly than a traditional seven (7) period schedule. The extra cost needed to train teachers in more varied instructional methods, extra teachers needed for the elective courses, and loss of instructional time due to ninety (90) planning a day per teacher all result in a higher cost for the district. Under the traditional seven (7) period schedules the students take seven (7) courses during the year, while under block scheduling the students take eight (8) courses during the year. The extra eighth courses taken by the students require the schools to hire extra teachers to teach those courses. Statistically, that means that the Block scheduling schools must increase their teacher salary budget by at least fourteen percent (14%) just to hire the teachers needed to teach the extra

courses. Under the Block schedule, at any one time, one quarter of teachers are in planning periods. In Block scheduling teacher planning time is 90 minutes versus 50 minutes for the Traditional schedule. In addition, teachers' planning periods are shorter and the amount of instructional time and student contact time is extended in the traditional schedule; therefore, fewer teachers are needed.

One can see a financial savings with textbooks when using Block scheduling; however, while textbooks are expensive, the savings is minimal compared to teachers' salaries and benefits.

It is important to address the opinion of students, teachers, and parents and community leaders in the Blount County Schools surveyed in March 2010. Although, William Blount or Heritage High School showed no significant difference in ACT scores, or attendance, the majority surveyed believed block scheduling had a positive impact on the education experiences of the students. The students, teachers, parents, and community felt better about the outcome for learning using Block scheduling. The respondents clearly favored Block scheduling for many of the same reasons stated in the research.

| <i>Advocates of Block Schedule Claims:</i> |
|--|
| Better grades and fewer failures |
| Less time lost between classes |
| Less discipline problems (less "start-ups" and "endings") |
| More time for labs and advanced topics |
| More time for teacher planning |
| More time for off-site work experiences |
| More class time due to start up times |
| Less stress for students and teachers (due to fewer classes) |
| Teachers are able to adopt more varied teaching styles |
| Reduced dropout rate (due to quicker grade recovery) |

In general, highly motivated and higher ability students perform well under the block schedule. The concern is with the middle range students or lower ability students. They require more time to learn a concept and more practice to embed the concept in their long term memory. Another concern is uninterrupted learning for classes needing daily practice or sequence, such as: Foreign language, band, music, math, and sports. Dr. Gary Nixon, Executive Director of the Tennessee State Board of Education, in an email,

stated, “How can we expect students who cannot pass six subjects to pass seven in the same amount of time? I see schools moving away from 4 X 4 Block, because it is more expensive and funds are becoming more limited than in the past. The advice I do offer is to hold achievement as the standard and vary the amount of time for students to get there based on their needs” (February 2010). Dr. Canady agrees with Dr. Gary Nixon’s assumption that the individual needs of the student are the first priority. Canady, in a phone conversation, said, “A schedule should always be built around the students’ needs with achievement being the measuring stick” (February 2010).

The collective body of research shows no improvement associated with Block scheduling; however, research does show improvements associated with scheduling plan changes. During discussions with teachers, most favored Block scheduling, but agreed there were some trade-offs and challenges to improving their classroom teaching practices for the longer 90-minute block of instructional time. Research supports their views. In general, teachers’ use of instructional practices is better suited for the Traditional schedule. In fact, it has been found that apart from lecture, the frequencies of teaching methods are similar regardless of the schedule used to deliver the instruction. This could be why Block scheduling has not produced the desired gains in student achievement.

| Opponents of Block Schedule Claims: |
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| Problems with attention span |
| Teachers not teaching to the bell (filler activities) |
| Curriculum reduced in order to complete textbook by end of the semester |
| Retention problems due to long gaps of learning between sequential courses |
| Teachers do not use varied teaching styles, but still lecture with few hands-on activities |
| Sequence classes needing daily practice (band, music, foreign languages) |
| Students have more extensive homework to complete daily |
| Students find it harder to make up absences |
| Learning delayed students need uninterrupted daily practice for the linear year |
| Financial expense is greater for the school system |

Another factor related to scheduling is college or job readiness. The

students entering college from high schools using a Block schedule were not out performing students who graduated from high schools using a Traditional class schedule. In fact, students who attended high schools with Traditional schedules did slightly better. The Iowa high schools' study found no significant differences in student achievement between blocked and non-block on the Iowa Tests of Educational Development Achievement Test completed by high school juniors. However, Vocational Technical courses produced improved learning outcomes using the Block schedule. The current Tech-Prep model emphasizes applied learning--making students more active participants in the classroom through projects, laboratory activities, and other problem-solving exercises involving real world-of-work tasks. Courses using an applied learning approach require time for students to plan, set-up, conduct, and prepare reports on projects or experiments. The longer block of time is needed to complete projects and engage in worksite-job opportunities.

Despite the lack of support for academic gains, Block scheduling does build a strong school climate. It provides longer blocks of time for teacher-student interaction, resulting in fewer student discipline referrals. Block scheduling has been proven to reduce the dropout rate and provides quicker grade recovery options for "at risk" students.

Conclusions

The primary question of this study was to determine the best way to plan and utilize the academic curriculum to achieve maximum student learning. The empirical data reviewed during this study shows no significant difference between the academic performance of students on block schedules and those on a traditional schedule. In fact, some systems are reverting back to a traditional schedule. Others are choosing to modify the 4 X 4 Block by combining ninety (90) minute classes with singleton fifty (50) minutes classes. The cause for change from Block to other forms of scheduling is multifaceted. First, the varying degree of success related to Block scheduling has been inconsistent to say the least. The majority of students and teachers' felt the 4 X 4 Block schedule offered an academic advantage over the Traditional schedule, but actually there is no statistical support for one over the other. Second, the trend is changing across the state and nation. There is a movement toward a Combination or Modified Block schedule due to the extra cost incurred by adding more teachers, teacher training, teacher plan time, and classes needed to support the curriculum of the Block schedule. A Combination or Modified schedule offers flexibility to the high school master schedule, while keeping the cost down. Teacher planning could occur during a 50-minute block while instruction remains on a

90-minute block. According to the survey completed in March 2010 by students, teachers, parents, and community leaders of the Blount County School System, sixty-three percent (63%) of the respondents felt that some flexibility in scheduling was needed to meet the new graduation requirements mandated by the Tennessee Diploma Project.

The reasons for embracing Block scheduling still exist; therefore, the Block schedule should not be totally abandoned. The Block schedule has proven to reduce the dropout rate by recovering credits within the four (4) year window for high school students, which is an important aspect of the state mandates. The cost for training teachers, hiring the staff, and implementing the Block schedule is continuous, but the initial “start-up” cost has already been absorbed. In addition, the Block schedule is the preferred high school schedule according to the survey completed in March 2010 by the students, teachers, parents, and community leaders of the Blount County School System. Perhaps a modified or combination schedule with more flexibility is an alternative to the rigid 4 X 4 Block schedule. Research strongly supports the need for a more traditional fifty-minute (50) yearly schedule for sequenced courses needing continuous, uninterrupted practice such as band, music, sports, foreign languages, and others. However, educating the students, teachers, parents, and community leaders on the need for a schedule change is critical. The stakeholders in the Blount County School System need to compare the costs to the benefits associated with the Block schedule to decide if the cost is worth the possible gains.

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Recommendations

While Block scheduling has several advantages, advocates of the schedule are not consistent in their claims regarding academic advantages. In fact, advocates of Block scheduling do not list academic gains as an advantage for Block scheduling. While, the research consistently points out that dropout rates are decreased with a Block schedule and graduation rates increase, the reason is not academic achievement. The Tennessee Diploma Project and federal mandates under No Child Left Behind require that educators be willing to consider a flexible schedule that utilizes the best parts of Block and the best parts of a Traditional schedule. A flexible schedule will address student needs and maximize student learning time. Based on these considerations are the following recommendations:

- 1.** Make preparation to modify the current 4 X 4 Block schedule by

combining Singleton classes with the 90-minute Block classes

- 2.** Select administrators, lead teachers, student council members, and a select group of community members from both high schools to formulate the new modified block schedule. Both high schools should implement the same type of schedule keeping consistency within the school system

- 3.** Educate the stakeholders in Blount County as to why the schedule change is needed

- 4.** Continue to evaluate student achievement under the Modified Block schedule

- 5.** Continue teacher training (best teacher practices) for using longer blocks of time for learning and teaching in order to facilitate their transition to the 90-minute class period

- 6.** Monitor teacher performance in the classroom ensuring that teachers are applying the methodologies that are best suited for longer blocks of teaching and learning

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According to Wikipedia, "*Education in the largest sense is any act or experience that has a formative effect on the mind, character, or physical ability of an individual.*"