Several studies have found that an inordinate amount of potential instructional time is lost in the American secondary school classroom. This paper briefly overviews the history and types of block scheduling in secondary schools and presents findings of a study that examined the perceptions of administrators and teachers in two large eastern Tennessee high schools that implemented block scheduling. The schools changed from a traditional six-period school day to a four-block school day, in which students took four 90-minute classes daily for 90 days. Data were gathered by a survey of 238 teachers and 10 administrators, which yielded response rates of 86 and 60 percent, respectively. Interviews were also conducted with six teachers and four administrators. Most of the teachers and all of the administrators agreed that the staff was adequately prepared for the transition; the staff required more preparation time; and the staff used a wider variety of instructional delivery approaches. Administrators and teachers did not want to abandon the four-by-four block schedule and return to the traditional schedule. Two tables and a copy of the questionnaire are included. (Contains 13 references.) (LMI)
Block Scheduling in the Secondary Arena: Perceptions from the Inside

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November 9, 1995
Block Scheduling in the Secondary Arena:
Perceptions from the Inside

...high schools are not performing satisfactorily; indeed, high schools seem to be failing us and must be greatly improved. (Carroll, 1990, p. 359)

Introduction

For several decades, educational reformers have been grappling with identifying the answer to how we can better use the school day to improve student learning, especially in the secondary arena. Some argue that by increasing either the length of the school day (which is now 5.6 to 6.0 hours on an average) or the number of days in the academic year (typically 175 to 180 days) that student achievement will be positively impacted. However, it has been estimated by some researchers that "only about 60 percent of the school day is actually available for instruction" (Rossmiller, 1983, p. 46) since "40 percent of the typical school day is allocated to non-instructional activities" (p. 46) including pass times, announcements, and other non-procedural activities characteristic of the typical six or seven-period school day. Gilman and Knoll (1983) report an even more shocking calculation of potential instructional time in a given school day to be "probably less than 30 percent (p. 44)." And, Justiz (1984) claims that "16 percent, or approximately one hour, of instructional time each school day was lost on the average" (p.483) to interruptions and distractions from student conduct and administrative processes. This translates to approximately 180 hours per year or the equivalent of 30 school days.

The above studies and others have documented that an inordinate amount of potential instructional time is indeed lost in the American secondary classroom (Canady & Rettig, 1993; Cusick, 1973; Karweit, 1985; Seifert & Beck, 1984). Many feel that the answer to remedying this problem may lie in the physical restructuring of the typical high school day to allow for more concentrated instructional time (e.g. curriculum compacting, Reis & Renzulli, 1992; the Copernican Plan, Carroll, 1990), or to accommodate flexible scheduling (Grinsei, 1989), modular scheduling (Trump, 1959) or block scheduling. It is the latter in particular with which this research study will deal.

This paper will briefly overview the history and types of block scheduling in secondary schools and present the perceptions of administrators and teachers in two large high schools as they make the transition from a traditional six-period school day to the four-block school day.
The paper will be organized into the following sections: Introduction, Purpose of the Study, Significance of the Study, Review of the Literature, Methodology and Procedures, Results, Discussion and Conclusions, Recommendations for Further Research and References.

Purpose of the Study

The purpose of this study was to examine via quantitative and qualitative means, the effect that changing from a traditional multiple-period instructional day to a four-block period day (a 4/4 block schedule) has had on the teachers and administrators of two East Tennessee high schools. Specifically, considerations such as staff development, teacher modification of instructional practices, quality of student work, student absenteeism, concerns and challenges of changing to block scheduling were analyzed.

Significance of the Study

It is hoped that this study will contribute to a current paucity in the literature of the impact of block scheduling on the teachers, administrators and students who are making the transition from a traditional six-period school day to a four-block schedule format.

Review of the Literature

This section will present a definition of block scheduling, identify the five basic models of class scheduling for the secondary arena of the 1990s and explore the documented benefits of block scheduling and increasing the amount of available instructional time.

Definition of block scheduling

In his High school restructuring: A national study, Cawelti (1994) presents a panoramic vista of the high school restructuring movement and the prominent place that "block scheduling" has within that movement. He defines block scheduling as "at least part of the daily schedule is organized into larger blocks of time (more than 60 minutes, for example) to allow flexibility for varied instructional activities (p. 23). To fully appreciate the structure of block scheduling, one must review the other existing schedules prevalent in today's secondary arena.

Models of high school instructional scheduling

In reviewing the variety of high school schedules in the 1990s, Canady and Rettig (1995) have identified five basic designs: 1) single-period schedules (consisting of six, seven or even eight daily classes, varying between 40 to 60 minutes in length); 2) alternating periods within the day or week, "slide
schedules" (during which classes meet on a rotating basis every other day for extended blocks of times); 3) the 4/4 semester plan or the "4 by 4" or "accelerated plan" (in which students take four 90-minute daily classes for 90 days); 4) the trimester, quarter-on-quarter-off model and other intensive scheduling models (in which there are shorter, more intensive courses; student can take, for example, two core courses and related subjects over a 60-day period); and 5) a variety of 180-day combinations (in which there are short and long terms of instruction and remediation/enrichment and staff development for teachers).

Benefits of block scheduling

The following are purported benefits of following a block schedule:

Increases length of class periods;

Enables teachers to use a variety of instructional approaches;

Decreases the number of class changes;

Saves time;

Limits the number of preparations for teachers;

Provides the opportunity for interdisciplinary teaching;

Decreases the number of students taught each day by a teacher;

Increases planning time for teachers;

Helps teachers to develop closer relationships with their students;

Provides the opportunity for project work; and

Provides additional opportunities for teachers to help students. (Canady & Rettig, 1995, p. 28)

Studies examining the additional benefits of fewer blocks of longer instructional time have demonstrated that, "increasing the amount of time students are instructed can have a significant and beneficial effect on student achievement" (Gilman, 1984, p. 41). In fact, research conducted by Strange (1982) strongly suggests that instructional time may be the essential key to student performance. Additionally, offering blocks of more concentration instruction may have a positive impact on discipline problems (fewer pass times between classes mean fewer opportunities for
disruptive behavior); instructional time is increased (an hour of instruction may be gained each week in a four-block class format); students may take courses they normally would have taken during a traditional summer school at no additional cost to students or parents; and individualized, special programs may be more easily scheduled (Canady & Rettig, 1993). Is block scheduling the only way to achieve more available instructional time? Some think not. Some alternatives follow.

Increasing the amount of instructional time

In an effort to utilize the results of research conducted to measure the effect of time-on-task on student learning, many secondary schools have understandably explored a variety of possible scheduling possibilities in addition to block scheduling. Suggestions include: lengthening the school day, and consequently the school year; scheduling enrichment activities before and after-school; varying the amount of instructional time by subject; limiting class size and augmenting graduation requirements.

The obvious problems and challenges associated with implementing any of the above would essentially require that: faculty and staff be additionally compensated; the number of faculty be increased; additional classroom space be provided; and inherent school management problems be addressed (Gilman and Knoll, 1984).

Whereby there exists a variety of formats for instructional delivery and advantages and challenges for each as explored in this review of the literature, the block scheduling format is gaining in popularity in many school districts when the benefits of such a schedule are made known. One such example is at the heart of this research study.

Methodology and Procedures

Specific investigative procedures

The following is the sequence of procedures followed for collection of data for this study:

1. The principal investigator asked all teachers and administrators at the two target schools to participate in the quantitative component of the study.
### Table 1
The Number and Percentage of Teacher Subjects Participating in the Quantitative Component of the Study

<table>
<thead>
<tr>
<th>Total N of Teachers</th>
<th>Total N of Subjects</th>
<th>Percentage of Total N Participating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Far West High School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>118</td>
<td>117</td>
<td>99.2</td>
</tr>
<tr>
<td><strong>East High School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>120</td>
<td>58</td>
<td>48.3</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td>238</td>
<td>175</td>
<td>86.0</td>
</tr>
</tbody>
</table>

### Table 2
The Number and Percentage of Administrator Subjects Participating in the Study

<table>
<thead>
<tr>
<th>Total N of Administrators</th>
<th>Total N of Subjects</th>
<th>Percentage of Total N Participating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Far West High School</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>50.0</td>
</tr>
<tr>
<td><strong>East High School</strong></td>
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<td></td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>75.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>60.0</td>
</tr>
</tbody>
</table>
2. The principal investigator met with the principals of Far West High School and East High School to distribute the teacher and administrator surveys (Appendices A and B) for dissemination. Teachers would turn in their surveys to their department heads who would, in turn, return them to the main office. Administrators would turn them in directly to the main office.

3. The principal investigator and doctoral assistants retrieved the completed surveys from both schools.

4. Volunteer participants for the qualitative component of the study were identified and scheduled for interviews by the doctoral assistants.

5. The doctoral assistants staffed with the principal investigator to agree on a common procedure for transcribing and analyzing the tape-recorded interviews of the participants.

6. After receiving written and audio-taped oral permission from the participants, the interviews were conducted and captured on audio-tapes for later analysis.

7. The interviews were transcribed manually for later analysis by the doctoral assistants.

8. The surveys were organized for later analysis by the principal investigator.

9. The audio tapes of the interviews were sealed in a secure location approved by The University of Tennessee’s Human Subjects Committee.

**Two phases of the research study**

Since there are two different types of research being conducted in this study, data retrieval and analysis occurred in two phases and will be reported in that order in this section with the quantitative component being presented first, followed by a qualitative component.

**Population**

All of the subjects and participants for this research investigation were drawn from Knox County Schools, Knoxville, Tennessee.

Permission to conduct the study was obtained from the school district, the participating two high schools and through The University of Tennessee, Knoxville’s Human Subjects Committee. Pre-agreed upon procedures for collection of data were followed by the principal investigator and two doctoral student assistants. The two assistants had been trained by the lead
investigator in the procedures for the proper retrieval and latter analysis of data. All data retrieval was completed within a two-week window of time during the fall of 1995.

**Subjects**

Suburban Far West High School (student population of 1,883) and Urban-Suburban East High School (student population of 1,375) were selected to participate in the quantitative part of the study. For both of these high schools, this was their first year for following the 4 by 4 block schedule. (These two schools were selected due to the fact that the principal investigator and one of the two doctoral students currently work in the schools one day per week.)

All teachers and administrators in each of the schools (who had been in the target schools for at least one year) were asked to participate in the research. A total of 117 out of a possible total of 118 teachers (99.2%) and 3 out of a total possible 6 administrators (50%) were drawn from Far West High School; and, 58 out of a possible total of 120 teachers (48.3%) and 3 out of total of 4 administrators (75%) came from East High School (Table 1).

**The instruments**

The teacher survey (Appendix A) consisted of two demographic questions followed by 10 modified-Likert scale questions. Four open-ended questions ended the survey. The administrator survey (Appendix B) consisted of one demographic question followed by 12 modified-Likert scale questions. Four open-ended questions ended the survey.

**Analysis of the Data**

The modified-Likert scale section of the surveys were analyzed by hand calculating a mean for each response. The open-ended questions appearing on the survey were qualitatively analyzed to identify commonalities and themes.

**Results**

That which follows is a brief overview of the results of the analysis of the data retrieved for this study. More detailed findings will be available by the researchers in the near future.

The results from each of the two schools surveyed did not appear to greatly differ. They will therefore be treated as an entity and not differentiated by school.

**Teacher survey**

Overwhelmingly, the teachers stated that they were adequately prepared by staff development efforts for the
transition to the 4 by 4 block schedule. Of the total surveys examined, only three teachers expressed a desire to return to the six-period day. Sixteen teachers were completely neutral on the issue and the rest agreed that they wished to stay on the block schedule. When the latter responses were controlled for subject area taught, English math and foreign language teachers, followed by science, social studies, business and special education teachers, respectively, were those most opposed to remaining on the block schedule format. Most teachers felt that they are comfortable with the block schedule yet readily admit that their class preparation time has increased dramatically. Not a few teachers also reported that outside of school, they just "didn't have a life" because of the additional preparation needed to modify their instructional delivery systems. The teachers report that their expectations for students are not necessarily higher and that they don't know yet if the students seem to be retaining material better than the six-period format used in the past. English, science and foreign language teachers were experiencing a high degree of stress due to larger class sizes. In addition, quite a few of the teachers reported that they found it challenging to keep their students on task and motivated for the 90-minute instructional blocks.

Administrator survey

The administrators surveyed for the study all agree that they felt that their respective staffs were adequately prepared for the block schedule format and that the teachers are working harder on instructional preparation than they did last year. Most feel that student involvement appears to be have been positively impacted by the new 4 by 4 format and that the teachers are utilizing more variety in their teaching approaches and are working diligently to vary their instructional delivery systems. All administrators reported that their teachers desired to remain on the block scheduling format.

Participants

Volunteer teachers and administrators from Far West High School and East High School become part of the qualitative part of the study. Two teachers and two administrators came from Far West High School and four teachers and two administrators came from East High School. The specific profiles for each set of participants (administrators and teachers, respectively) follow:

Diana has been a principal at Far West High School (FWHS) for the past 5 of her 8 years as an administrator. Earl, a veteran high school principal for 10 years, has been at FWHS for the past 5 years. Diana has spent all of her 6 administrative years at East High School. Finally, Ted has been at EHS for the last 5 of his 10 years as an administrator.

Lois, an English teacher at Far West High School (FWHS) has 12 years of teaching experience with 4 years at FWHS. Jason,
also an English teacher at FWHS, has 7 years of teaching experience with 4 at FWH. Chris has been a French teacher at East High School (EHS) for three years with all of her teaching experience at EHS. Teresa, English teacher at EHS, has 25 years of teaching experience with 5 being at EHS. Caroline has spent the last 7 of her 8 years of teaching Math at EHS. Finally, Carole, a Life Sciences teacher at EHS, has spent all of her 6 years of teaching at EHS.

The interview questions

The qualitative section of the study consisted of two sets of interview questions, one for the teacher participants and one for the administrator participants.

The eight questions used in the teacher qualitative interview follow:

1. What was your school day like before block scheduling?
2. Run through a typical day last year for me.
3. Think back to when the block scheduling idea was being discussed. a) How was it presented? b) How did you react to it?
4. What meetings or training sessions were held to help prepare you for the move to the block schedule?
5. What is your life like this year with the block schedule?
6. Run through a typical day this year for me.
7. If the Board [of Education] were to announce tomorrow that you were going back to the six-period day, how would you react?
8. Do you have any other comments on the block schedule that I have not given you the opportunity to mention during this interview?

The seven questions used in the administrator qualitative interview follow:

1. Describe how you prepared the staff for the block schedule.
2. How has your administrative role been effected by the new block schedule?
3. What are the reactions of the students to the 4 by 4 format?
4. What are the reactions of the parents to the new schedule?
6. If I were a novice administrator coming into the 4 by 4 format, what advice would you give me?

7. Are there any other comments or information you would like to share with us?

Analysis of the data

The qualitative audio-taped interviews were manually transcribed and later analyzed to identify commonalities and themes.

Results

Teacher interviews

Adjectives such as "hectic," "tiring," "stressful" and "exhausting" peppered teachers' comments when reflecting on their school days pre-block scheduling. Most teachers had five classes with multiple preparations and reported that little was ever accomplished toward lesson preparation during their planning periods.

Most teachers had already heard about the block schedule format replacing the six-period day and all felt that the 4 by 4 concept had been presented in a positive manner to the faculty. Five of the six teachers enthusiastically mentioned that they felt their inclusion in the decision-making and planning process gave them actual ownership and facilitating the change to the new format.

Common concerns expressed by the teachers included the ability to include all material, maintain discipline, keep the students on task and motivated. Two of the veteran teachers commented that they liked the new block format because they were ready for a change. One teacher welcomed the chance for renewal, one wasn't ready, and three stated that they had been comfortable with the old way and not totally sure at first if they were ready for such a complete change.

Regarding staff development for the transition to the block schedule, all teachers mentioned a variety of formal activities provided, a retreat and visitation to established block-scheduled schools and three mentioned personal preparation undertaken in readiness for the transition.

According to the teachers interviewed, life following the block schedule format is overwhelmingly positive and less stressful even though it requires a wider variety of instructional techniques and increased class preparation. For those teachers interviewed, the days seemed shorter, the weeks longer.

Four out of six teachers reported more productive planning periods this year and sufficient time to take care of
administrative duties. All of those teachers interviewed agreed that they would not wish to return to the six-period day.

All teachers agreed that the block schedule is not perfect yet all were positive about it even though two teachers expressed concern for the slower learners in the format.

**Administrator interviews**

All administrators mentioned that: new state mandates were the driving force behind moving to the 4 by 4 block format; the retreat and other staff development activities were beneficial to allowing the teachers to reach consensus regarding embracing the block format; and student reaction to the block schedule was overwhelmingly positive. Two administrators reported that students appeared to be less stressed and that grades had improved.

Most of the administrators feel that their administrative roles have not dramatically changed in the block format except during the early transition period when more time was required for scheduling. Discipline does not appear to have been impacted by the move to block scheduling.

Regarding parent reaction to the 4 by 4 schedule, two administrators mentioned positive reactions and two reported a small group of concerned parents. In particular, some parents were concerned how Ivy League schools would view an applicant from a 4 by 4 format school. Stanford and Princeton replied to one principal that they would look at overall profiles and not at how the student earned his/her Carnegie credits or knowledge.

The administrators commented that the faculty were positive to the new schedule. One administrator expressed concern about the elevated student enrollment in vocational classes but was pleased that this area had been rejuvenated by the block format.

**Discussion and Conclusions**

Based on the results of this study, it appears that the greater majority of the teachers and all of the administrators who participated in this research at both schools, agree that: the staff was adequately prepared for the transition from a six-period day to a four-block schedule; a greater amount of time is required by the staff for class preparation yet, for the most part, tends to result in a greater variety of instructional delivery approaches; and, most importantly, administrators and staff do not want to abandon the 4 by 4 block schedule and return to the traditional schedule.

**Recommendations for Further Research**

Since this paper presented a brief overview of the data analysis, further analysis of data will follow in the very near
future. Of particular interest to the study will be not only a calculation of the mean for each response on the surveys but also a frequency count for each response. Data could additionally be controlled for the type of respondent by instructional discipline.

References


Appendix A

TEACHER QUESTIONNAIRE
BLOCK SCHEDULING
FALL 1995

In an effort to examine the transition process from six-period scheduling to block scheduling, please complete the following questionnaire and return it to your department chair. Thank you.

1. What subject(s) do you teach this fall?
   - ___Business
   - ___Math
   - ___Vocational
   - ___English
   - ___Science
   - ___Other
   - ___Fine Arts
   - ___Social Studies
   - ___Foreign Language
   - ___Special Ed.

2. How long have you been teaching at --- H.S.?
   - ___less than one year
   - ___6-10 years
   - ___1-3 years
   - ___more than 10 years
   - ___4-5 years

Please check the appropriate answers below:

3. Staff development I received prepared me for block scheduling.
   5 (strongly agree)....4....3....2....1 (strongly disagree)

4. I am comfortable with the 4 X 4 block schedule.
   5 (strongly agree)....4....3....2....1 (strongly disagree)

5. I would prefer to return to the six-period teaching day.
   5 (strongly agree)....4....3....2....1 (strongly disagree)

6. Compared to last year, I have increased the number of teaching strategies that I use in a class block.
   5 (strongly agree)....4....3....2....1 (strongly disagree)

7. Compared to last year, my class preparation time has increased.
   5 (strongly agree)....4....3....2....1 (strongly disagree)
8. Compared to last year, student absenteeism has decreased  
   5 (strongly agree)....4....3....2....1 (strongly disagree)

9. I am requiring more homework this year than I did last year.  
   5 (strongly agree)....4....3....2....1 (strongly disagree)

10. Compared to last year, my expectations for students are higher.  
    5 (strongly agree)....4....3....2....1 (strongly disagree)

11. The quality of student work is better this year than last year.  
    5 (strongly agree)....4....3....2....1 (strongly disagree)

12. Based on testing in my class so far this year, students seem to be retaining material better than last year.  
    5 (strongly agree)....4....3....2....1 (strongly disagree)

13. What are your concerns about delivering your subject area in the 4 X 4 block format?

14. Discuss any type of stress you have experienced this year teaching in a block scheduled format.

15. How have you modified your instruction for the block schedule?

16. For you, what have been the challenges of block scheduling?
APPENDIX B

ADMINISTRATOR QUESTIONNAIRE

BLOCK SCHEDULING

FALL 1995

In an effort to examine the transition process from six-period scheduling to block scheduling, please complete the following questionnaire and return it to X's office. Thank you.

1. How long have you been an administrator at --- H.S.?
   ___ less than one year
   ___ 1-3 years
   ___ 4-5 years
   ___ 6-10 years
   ___ more than 10 years

Please check the appropriate answers below:

2. Staff development offered at --- High School prepared the staff for block scheduling.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

3. The staff appears to be comfortable with the 4 X 4 block schedule.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

4. The staff would prefer to return to the six-period teaching day.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

5. Compared to last year, the instructional staff has increased the number of teaching strategies that they use in a class block.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

6. Compared to last year, the staff's class preparation time has increased.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

7. Compared to last year, student absenteeism has decreased.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)

8. More homework is being assigned this year than last year.
   5 (strongly agree) .... 4 .... 3 .... 2 .... 1 (strongly disagree)
9. Compared to last year, staff's expectations for students are higher.
   
   5 (strongly agree) ....4....3....2....1 (strongly disagree)

10. The quality of student work is better this year than last year.

   5 (strongly agree) ....4....3....2....1 (strongly disagree)

12. Based on testing this year, students seem to be retaining material better than last year.

   5 (strongly agree) ....4....3....2....1 (strongly disagree)

13. What are your concerns about the delivery of particular subject areas in the 4 X 4 block format?

14. Discuss any type of stress you have experienced this year as an administrator in a block scheduled format.

15. How has the staff modified their instruction for the block schedule?

16. For you, what have been the challenges of block scheduling?