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**THE IMPACT OF BLOCK SCHEDULING ON STUDENT  
ACHIEVEMENT, GRADUATION RATE, AND  
ATTENDANCE AT THE HIGH  
SCHOOL LEVEL**

by

Sedric G. Clark, B.S., M.E.

A Dissertation Presented in Partial Fulfillment  
of the Requirements for the Degree  
Doctor of Education: Educational Leadership

COLLEGE OF EDUCATION  
LOUISIANA TECH UNIVERSITY

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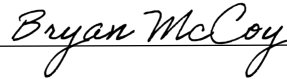
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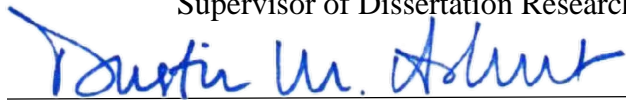
entitled **The Impact of Block Scheduling on Student Achievement, Graduation  
Rate, and Attendance at the High School Level**

be accepted in partial fulfillment of the requirements for the degree of

**Doctor of Education, Educational Leadership Concentration**



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## **ABSTRACT**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. The study was a mixed methods study that compared existing data from three high schools from the same school district in a southern state which all moved from a traditional schedule to a block schedule and back to a traditional schedule over the same period of time. The study results included the comparison of composite ACT scores and attendance rates from the years pre-block implementation, the years of block implementation, and the years post-block implementation. The comparison of graduation rate data was limited to the years of block implementation and post-block implementation. An Analysis of Variance, ANOVA, was utilized to assess the impact of block scheduling on composite ACT scores, graduation rates, and attendance rates. For the qualitative portion of the study, administrators who served at the schools during the three time periods were interviewed. Their responses were recorded and analyzed and common themes and differences were noted. The results of the analysis of the quantitative data indicated that there was no statistical difference in the composite ACT scores and attendance rates between students on a block schedule and those on a traditional schedule. The results of the analysis of graduation rates indicated that there was a statistical difference between students on a block schedule and those on a traditional schedule, with students on a traditional schedule performing better.

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## **DEDICATION**

I dedicate this dissertation to the love of my life, Katonya, who has been both encouraging and supportive throughout our marriage, my career and the “doctoral journey”. You are a blessing to my life and I am grateful to you and for you. To God be the Glory!

## TABLE OF CONTENTS

ABSTRACT.....	iii
APPROVAL FOR SCHOLARLY DISSEMINATION .....	iv
DEDICATION .....	v
LIST OF TABLES .....	x
ACKNOWLEDGEMENTS .....	xi
CHAPTER 1 INTRODUCTION .....	1
Statement of Problem.....	1
Problem Statement .....	3
Purpose of the Study .....	5
Research Questions .....	6
Null Hypotheses .....	7
Research Hypothesis.....	7
Conceptual Framework.....	7
Limitations and Delimitations.....	8
Significance of the Study .....	9
Outline of the Study .....	10
Definition of Key Terms.....	10
Summary .....	12
CHAPTER 2 LITERATURE REVIEW .....	13

Introduction.....	13
Historical Perspective .....	13
The Traditional Schedule .....	14
Advantages.....	15
Disadvantages .....	16
Early Alternatives to the Traditional Schedule.....	18
The Accountability Era and a New Call for a New Schedule.....	19
The Block Schedule .....	21
Types of Block Schedules.....	21
The A/B Day or Alternating Day Schedule .....	22
Advantages.....	23
Disadvantages .....	23
The 4 x 4 Block Schedule .....	24
Advantages.....	25
Disadvantages .....	28
Block Scheduling and Student Achievement.....	30
Block Scheduling and School Climate .....	31
Block Scheduling and School Administration.....	33
Moving Off the Block.....	34
Summary .....	35
<b>CHAPTER 3 METHODOLOGY .....</b>	<b>39</b>
Introduction.....	39
Research Questions.....	39



Null Hypotheses.....	40
Research Hypothesis.....	40
Methodology.....	40
Setting.....	42
Participation/Sample.....	42
Data Collection Procedures.....	42
Data Analysis.....	43
Participant Rights.....	44
Potential Limitations.....	45
Summary.....	45
CHAPTER 4 RESULTS.....	46
Introduction.....	46
Descriptive Data and Organization of Analysis.....	46
Interview Data.....	49
Common Themes from Administrator Interviews.....	49
Differences from Administrator Interviews.....	51
Archival Data.....	52
Initial Inspection of Data.....	53
Findings.....	54
Summary.....	57
CHAPTER 5 STUDY SUMMARY.....	60
Introduction.....	60
Summary of Quantitative Results.....	61

Research Question 1 .....	61
Research Question 2 .....	61
Research Question 3 .....	62
Lessons Learned from Administrators.....	63
Limitations .....	73
Recommendations for Policy and Practice .....	73
Recommendations for Future Research .....	74
Summary.....	75
REFERENCES .....	77
APPENDIX A HUMAN USE APPROVAL LETTER .....	84
APPENDIX B ADMINISTRATOR INTERVIEW QUESTIONS.....	86
APPENDIX C LETTER TO SUPERINTENDENT.....	88

## LIST OF TABLES

<b>Table 2-1</b>	<i>Sample Student Schedule on a 6-Period Traditional Schedule .....</i>	15
<b>Table 2-2</b>	<i>Sample Student Schedule on a Flexible Modular Schedule.....</i>	19
<b>Table 2-3</b>	<i>Sample Student Schedule on A/B or Alternate Day Schedule.....</i>	22
<b>Table 2-4</b>	<i>Student Schedule on 4 x 4 Block Schedule.....</i>	25
<b>Table 4-1</b>	<i>Raw Data from Schools .....</i>	53
<b>Table 4-2</b>	<i>Inspection of Data.....</i>	53
<b>Table 4-3</b>	<i>Results of ANOVA on Composite ACT Scores.....</i>	55
<b>Table 4-4</b>	<i>Results of ANOVA on Graduation Rates .....</i>	56
<b>Table 4-5</b>	<i>Results of ANOVA on Attendance Rates .....</i>	57

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# **CHAPTER 1**

## **INTRODUCTION**

### **Statement of Problem**

The American educational system, since its inception, has been an entity that constantly evolves and changes (Kruse & Kruse, 1995). The publication of *A Nation at Risk* (National Commission on Excellence in Education, 1983) and the fear that it generated among educators and the general population accelerated that pattern of change. *A Nation at Risk* brought to the forefront of educational conversation the fear that the current state of our nation's system of education was creating and would continue to create an America that lagged behind other nations.

This fear generated conversation and then a call to action to ensure that our educational system would better prepare our students and thereby prevent such a catastrophe (Williams, 2011). With that call to action came the beginning of the school accountability era—the era in which school districts, individual schools, and school personnel would be held accountable for student achievement results. Consequently, different methods of enhancing and accelerating student achievement were sought (Williams, 2011). At the secondary level, particularly high school, one of the facets that began to be closely examined to elicit change and improve student achievement was the daily bell schedule.

Reevaluating the school schedule and the manner in which time is allocated for classroom instruction during the school day, however, was not a new practice or concept. The evolution to school schedules utilized today has been shaped by discussions, decisions, and publications such as the Report of the Committee of Ten (Mackenzie, 1894), National Education Association's Cardinal Principles of Education (1918), and vertical articulation of a standardized education through Carnegie Units by the Carnegie Commission in the early 20th Century (Roberts, 2016).

For over a century, educators have experimented with the change of schedule as a means to fix what was seen as broken in education (Rettig & Canady, 2013). However, this practice reached its height in the 1990s as the era of educational accountability began (Rettig & Canady, 2013). During that time, much research on the effects of the implementation of block scheduling, "a teaching schedule that organizes at least a portion of the school day into larger blocks of time (e.g., more than 60 minutes) to allow greater flexibility for various instructional activities," (Cawelti, 1995, p.10 ) was done. Such research led the National Education Commission on Time and learning to declare that the future of public education depended on the use and allocation of school time and recommended the implementation of block scheduling in the nation's schools in 1994 (Childress, 2018). In 1996, the National Association of Secondary School Principals added support to the adoption and implementation of this schedule type when it declared that block scheduling was an exemplary model (Childress, 2018).

In the 1990s, many schools and districts selected and implemented varying versions of block schedules (Williams, 2011). The types of block schedules varied by schools and districts were chosen to be implemented by those districts for different

reasons. While districts and schools selected schedules they believed would help improve student achievement results, some also chose to implement block scheduling believing that the implementation would have a positive effect on school climate factors which included, but were not limited to, discipline, attendance, dropout rates, graduation rates and tardiness (Buckman, 1995). No matter the reasons districts and/or schools chose to move from traditional scheduling to block scheduling, “as early as 2001, it was estimated that approximately fifty percent of the nation’s high schools were utilizing some form of block scheduling” (Roberts, 2016, p. 3).

Move forward three decades. The American education system is still changing and evolving, and the weight of accountability for student achievement still rests on school districts, schools, and educators. In fact, new laws such as the Every Student Succeeds Act (ESSA), the reauthorization of the Elementary and Secondary Education Act (ESEA), have again placed a demand on educational leaders, schools, and the school systems for a return on the investment in the form of student achievement and academic growth (Roberts, 2016). With that demand also comes flexibility for interventions and sanctions to meet the targets (Klein, 2015). Challenges to meet this demand still remain in education, and effective methods to meet these challenges and ensure student success are still being sought. The implementation of block scheduling is still being considered by some school districts and schools as a possible means to increase student achievement.

### **Problem Statement**

Sufficient research (Griffin & Nicholson, 2002; Landry, 2016; Williams, 2011) over the past years has revealed the inconsistencies pertaining to the impact that the

implementation of block scheduling or extended learning periods has on student achievement. Several studies conducted revealed the positive effects that block scheduling has on student achievement (Smith, 2010; Smith, 2017; Williams, 2011). The results of other studies indicated that block scheduling had no impact or possibly even negatively impacts student achievement (Arnold, 1998; Hodges, 2002; Norton, 2010). Without inconsistent data, there is no concrete answer as to the effect of block scheduling and its impact on student achievement.

This study will contribute to the general conversation and body of knowledge on the impact that the implementation of block scheduling has on student achievement and school climate. For this study, I will attempt to ascertain that impact by examining twelve years of data from three high schools in a southern state. During that 12-year span, the high schools transitioned from traditional scheduling to block scheduling and back to traditional scheduling. All but one of those schools spent the first four years on a traditional schedule, the middle four years on a block schedule, and returned to a traditional schedule for the final four years. One of the schools served as the pilot school for block implementation and spent the first two years of the 12-year period on a traditional schedule, the next six years on block scheduling, and the final four years on a traditional schedule.

This research will examine, evaluate, and analyze through quantitative research methods composite ACT scores, graduation rates, and attendance rates of the students attending the school in each time span as part of this research. Additionally, a portion of this study will be dedicated to interviewing administrators who served at those same schools during the transitions from schedule type to schedule type. Through the use of



qualitative research methods, information from the administrator interviews will be examined, evaluated, and analyzed in an effort to learn what the school administrators observed as the area or areas that were impacted most by both the implementation and moves to and from the different schedule types. Because there is limited research that gives administrative accounts from school administrators who have worked through transitions from traditional to block and back to traditional, this study will contribute to the general knowledge and conversation on that aspect also.

This research topic is both important and timely. Because the research on the effect that block scheduling has on student achievement is generally inconsistent, research using current standardized measures enhances the conversation (Roberts, 2016). In addition, there is limited research on this topic that focuses on schools and students in the southern United States. This research will be completed at a time when some schools and school districts are choosing to move away from block scheduling (Vaughn, 2019). Thus, the results of this research will assist the leaders of those schools and school districts in their decision making.

### **Purpose of the Study**

The purpose of this study is to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This study will be a mixed methods study. For the quantitative portion of the study, archival data will be collected from the district office that serves the selected schools and from the department of education of the state in which the schools are located. The results of the analysis of this data combined with the data gathered from the school administrator interviews, the qualitative portion of the study, will serve as a guide for school

administrators contemplating the implementation of block scheduling or the move from block to traditional. It will also serve as a reference for those administrators currently employed in schools that utilize block scheduling.

This mixed methods study will concentrate on high schools that serve students in grades 9-12 in the same school district in the southern United States. Findings from this study will establish whether or not there is a correlation between schedule type, specifically block scheduling, to student achievement and school climate. Findings from this study, fused with current research, will enlighten educational leaders when selecting an appropriate schedule type to propel student achievement.

### **Research Questions**

This study will ascertain the effect of block scheduling on student achievement, graduation rate, and attendance in high schools. The research in this study will answer the following questions:

1. Is there a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule?
2. Is there a significant difference in graduation rates between students on a block schedule and students on a traditional schedule?
3. Is there a significant difference in attendance rates between students on a block schedule and students on a traditional schedule?

### **Null Hypotheses**

Three null hypotheses were explored in this work.

1. There is no significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.
2. There is no significant difference in graduation rates between students on a block schedule and students on a traditional schedule.
3. There is no significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

### **Research Hypothesis**

Three research hypotheses were explored in this work.

1. There is a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.
2. There is a significant difference in graduation rates between students on a block schedule and students on a traditional schedule.
3. There is a significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

### **Conceptual Framework**

For this research study, a mixed methods approach will be used to determine the impact that the implementation of block scheduling has on student achievement and culture in high schools. Confronting the school schedule gives educational leaders and reformers the opportunity to utilize components of the Constructivist Theory. The “Constructivist Theory or constructivism posits that learning is not linear and is a process

by which the learner constructs their knowledge through interaction with content, experiences, and others” (Roberts, 2016, pp. 9-10). Jean Piaget is considered the father of this theory.

Educational leaders who want to change the school schedule to positively affect student achievement and school climate would be working within the two basic tenets of constructivism. The first tenet is that learning is an active process where the learner constructs the knowledge. The second tenet is that learning should be authentic and real to students (Roberts, 2016).

In his 2016 research, Roberts notes,

Directly addressing the school schedule provided an opportunity for school reformers to capitalize on the underpinnings of the Constructivist Theory.

Constructivist Theory or constructivism posits that learning is not linear and is a process by which the learner constructs their knowledge through interaction with content, experiences, and others. A change in the school schedule offers potential for real reform to capitalize on these core tenets of constructivism. A block schedule could provide for extended learning periods leading to greater interaction and fewer interruptions. (pp. 9-10)

### **Limitations and Delimitations**

A limitation of this study is the choice of participants. The high schools in this study are all in the same school district in a southern state.

Countless factors contribute to academic achievement and student learning (Roberts, 2016). The school schedule is one of many. As a result, this study may produce an impressive or not so impressive view of block scheduling. Results from this study

may not be generalizable to other modes of standardized tests such as Advanced Placement (AP) tests (Roberts, 2016).

An additional limitation for this study stems from the experience of the researcher with block scheduling. In order to complete this research, the researcher, a ten year plus employee of a district whose schools operated under block scheduling and who completed research 20-plus years ago on block scheduling, diminished all preconceptions.

The delimitations that cause reliability or generalizability issues in the later results of this study include the restricted regional setting, the level of educational setting (high school only), the teaching and learning styles present in the classrooms of the participants (as they also can play a role in student achievement), and discipline (Williams, 2011).

### **Significance of the Study**

Immense significance surrounds this topic of study for several reasons. This study adds to the current research concerning the impact of school scheduling on student achievement. The Every Student Succeeds Act (ESSA), the current federal education law, does at least two things. ESSA continues to hold education agencies and educators accountable for student growth and student achievement. However, different from No Child Left Behind (NCLB), the federal education law that it replaced, it offers both agencies and educators more flexibility in finding ways to ensure student growth and student achievement. Block scheduling may offer some hope for an increase in both student growth and student achievement at the secondary level.

Finally, an understanding of the impact that block scheduling has on school climate is crucial. School leaders will benefit from information that potentially indicates

if one schedule type or length of a course or class period produces a better culture, deeper student engagement, fewer discipline problems, better attendance, more leadership and growth opportunities for students. Proponents of block scheduling assert that longer class periods, fewer class changes, and the ability to focus on fewer classes help improve elements of school climate (Canady & Rettig, 1995). The improvement of both of these components of education, student achievement, and school climate, are important objectives for school leaders (MacNeil et al., 2009).

### **Outline of the Study**

This mixed methods study will be completed utilizing a sequential explanatory strategy. Chapter 2 is a review of related literature. Chapter 3 focuses on the methodology of the study. Chapter 4 contains the results of the analysis of the data. Chapter 5 includes information from the administrator interviews as part of the summary and implications from data analysis. The information collected from the interviews will be disclosed and used for recommendations for future research. Through this method, the highest priority will be given to the student data, and the administrator interview data will be treated as a crucial secondary source.

### **Definition of Key Terms**

The following terms are used throughout this document and are defined for the purpose of this study:

4 x 4 Block Schedule: Students enroll in and attend the same four 90-minute classes for 90 days. Students can complete eight classes within a year (Canady & Rettig, 1995).

A/B (Alternate-day) Schedule: A teaching schedule where students and teachers meet their classes every other day for extended blocks of time (Canady & Rettig, 1995).

Academic Achievement: The outcome of education as measured for this research through student proficiency scores on ACT Composite Score.

ACT: A standardized test used for college admissions.

ANOVA: Analysis of variance (ANOVA) is a collection of statistical models, and their associated estimation procedures (such as the “variation” among and between groups) used to analyze the differences among group means in a sample.

Block Schedule: A teaching schedule that organizes at least a portion of the school day into larger blocks of time (e.g., more than 60 minutes) to allow greater flexibility for various instructional activities (Cawelti, 1995).

ESSA: The Every Student Succeeds Act (ESSA) is the main law for K–12 public education in the United States; it replaced No Child Left Behind. The law holds schools accountable for how students learn and achieve. ESSA aims to provide an equal opportunity for students who get special education services (U.S. Department of Education, n.d.).

NCLB: No Child Left Behind (NCLB) is an act signed into law on January 8, 2002. This Federal law affecting K–12 education was grounded in four principles: accountability for results, more choices for parents, greater local control and flexibility, and an emphasis on doing what works based upon scientific research (No Child Left Behind Act, 2002).

RtI: Response to Intervention (RtI) is a multi-tier approach to the early identification and support of students with learning and behavior needs (RTI Action Network, n.d.).

School Climate: student engagement, discipline rates, attendance rates, and participation in extra and co-curricular offerings.

Traditional schedule: A single-period daily school schedule composed of students participating in six, seven, or eight classes each day and varying in duration between 40 and 60 minutes (Canady & Rettig, 1995).

### **Summary**

As the American education system has evolved, the call for better-prepared students has increased. As the move for school accountability increased, so did the search for methods, programs, and practices that would help increase student success. Block scheduling is considered by many as a practice that not only helps improve student success but also helps improve school climate.

This study will attempt to ascertain whether or not block scheduling has a positive impact on student achievement and school climate. Specifically, this study will examine the effect of block scheduling in the high school setting on ACT composite rate, graduation rate, and attendance. The use of and reorganization of time aligns with Jean Piaget's constructivist conceptual framework.

Limitations and delimitations were discussed. An outline of the study was presented. Finally, key terms were defined.



## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **Introduction**

The purpose of this study is to determine the impact of the implementation of block scheduling on student achievement, graduation rate, and attendance at the high school level. In an attempt to do so, the historical perspective of both secondary school scheduling and the thrust for implementing an alternate schedule will be assessed through a review of related literature. The two primary types of schedules, traditional and block, will be reviewed in conjunction with the pros and cons associated with both. In addition, this review will feature an in-depth examination of the advantages and disadvantages of block scheduling. Finally, a synopsis of the review of literature is included.

#### **Historical Perspective**

In the early nineteenth century, teachers in America, most of whom had limited formal education themselves, were expected to teach multiple subjects well (Gargis, 2013). There was no set schedule, and “staff at all levels taught any subject at any time of the day” (Schroth, n.d., p. 5).

In 1892, the National Education Association founded and commissioned the Committee of Ten to form a standard curriculum for American schools. The Committee encouraged high schools to focus student learning

on five or six academic subjects during each of the four years of high school.

(Gargis, 2013, p. 3)

In the early 20<sup>th</sup> Century, the Carnegie Foundation began to promote four years of high school for all students and the assigning of high school credits based on Carnegie units, the amount of time spent in class for each subject (Gargis, 2013). Students would have to take 120 hours in each subject in classes for 40 to 60 minutes in length for at least four or five days a week in order to earn the Carnegie units (Gargis, 2013). This was the beginning of the traditional schedule, a schedule type that still exists in many schools today (Gargis, 2013).

### **The Traditional Schedule**

In many American high schools, students follow what is called a traditional schedule. In this type of schedule, students attend six to eight classes each day that meet approximately 50 minutes each throughout the entire school year (Dibiase & Queen, 1999). Teachers prepare for those six to eight classes and teach, on average, between 100 and 150 students per day (Gargis, 2013). In turn, students have six to eight different teachers and textbooks and receive Carnegie units or credits for these classes based on the “in-seat” time that they are in classes during the school year (Gargis, 2013; Huff, 1995).

The Carnegie Standard has its roots in the industrial standardization reforms of the early twentieth century that were led by people such as Frederick W. Taylor, who engaged in time studies of U.S. factory workers to improve their efficiency at fixed stations. In an effort to bring greater uniformity to the educational process, the Carnegie Commission used similar concepts in assuming that a certain quantity of time was directly related to more efficient production (Kruse & Kruse, 1995).

As a result, a “factory-like” system of education came into existence (Kruse & Kruse, 1995). Table 2-1 shows an example of a traditional 6-period schedule. The notion that students were part of an assembly line and teachers as factory workers who were expected to create a quantifiable product in a given amount of time. Principals, managers in this situation, were expected to ensure that teachers were accountable. It is through this historical perspective the traditional high school master schedule evolved (Kruse & Kruse, 1995).

**Table 2-1**

*Sample Student Schedule on a 6-Period Traditional Schedule*

<u>Period</u>	<u>Class</u>
1	English I
2	Band
3	Algebra 1
4	World Geography
5	Physical Education
6	Physical Science

*Note.* 6-Period Traditional Schedule (55 minutes per day for 180 days).

**Advantages**

The traditional schedule is a schedule comprised of six to eight classes that are 60 minutes or less long. These classes meet every day of the school year. Teachers who teach on this schedule type teach five to seven classes a day and have one designated planning period. On this type of schedule, students receive credits through approximately Carnegie units and attend classes for approximately 130 hours per unit (Smith, 2009).

In Smith’s (2009) study, the following were noted as advantages to the traditional block schedule. There is an advantage to the consistency of the daily schedule. Students have daily contact with each teacher. Students also spend more total seat time in

traditional classes than in block classes (Smith, 2009). Additionally, the traditional schedule and shorter class periods are of benefit to some students. The continuity that comes with the shorter periods helps students who suffer from attention deficit disorder and other disabilities (Block scheduling vs. traditional scheduling, 2008).

### **Disadvantages**

Research has indicated that there is little correlation between what a student learns during a grading period and class period length, and the credits students receive for attendance minutes (Huff, 1995). “Unlike the workplace, in most secondary schools, students move from room to room five to seven times a day with five to seven teachers using five to seven textbooks and varying methodologies. Students report to a different ‘boss’ every fifty minutes and must adjust to several different sets of rules and expectations” (Buckman, 1995, p. 11). The content in each of the courses is not aligned to other core subjects, and in most cases, teachers do not relate what students are learning to prior learning and some real-life experience (Block scheduling vs traditional scheduling, 2008). The limitations of the traditional schedule time blocks minimize opportunities for students to engage in activities that develop analytical, practical, creative, or research-based thinking (Block scheduling vs traditional scheduling, 2008). Thus, the master schedule for many, if not most schools, has determined the organization of the school day and the school year for both teachers and students (Buckman, 1995). As a result, that current structure has limited the ability of both teachers and students to be successful.

Other problems may be caused by students attending so many classes each day while learning on a traditional schedule. On days when students have several tests for

which to study, the requirements of the day may cause them to perform a balancing act that is difficult to manage (Block scheduling vs traditional scheduling, 2008). Such a situation can make preparing for classes and staying in charge of their learning difficult for students.

The article “Block scheduling vs. traditional scheduling: pros and cons of a traditional seven period schedule” (Block scheduling vs traditional scheduling, 2008) lists the following as challenges to the traditional schedule. Simple classroom management on a traditional schedule can be another problem issue. Because of the number of times students have to change classes and because of the short length of time in classes, students are in the hall more and in the classroom seats less. Consequently, the time that it takes to settle students at the beginning of class can be prolonged eat into class time. This means that actual teaching time would be reduced.

It is critical that the learning environments at high schools are restructured in order to ensure student achievement. Research by Huff (1995) emphasized that administrators can no longer afford to rely on an outdated educational prototype developed by our forefathers to become the standard used to educate the youth of today. The type of schools and schooling offered to students must be purposeful with an overarching blueprint of college and career readiness that will prepare them for high school and beyond. This deliberate approach to educating students will not only provide the intellectual tools but the social skills they will need to cope with the complex human and technical problems they will face after high school. If this becomes the school’s mission, a new framework organized around consolidating and coordinating students learning supports is absolutely necessary, and though there is not a substantial amount of

research that has been conducted at the middle school level on the effects of changing the typical 45–60 minute six, seven, or eight period schedule (Mattox et al., 2005), the search for a component or components that will increase student achievement and improve school culture. Although it should be noted that no one element of change alone can redirect a school (Kruse & Kruse, 1995), one of the elements having the highest possibility to facilitate transformation and increase student achievement is intensified block scheduling (Cawelti, 1995; Kruse & Kruse, 1995).

### **Early Alternatives to the Traditional Schedule**

“J. Lloyd Trump’s ‘An Image of the Future,’ published in 1958, caused some schools to experiment with ungraded instruction, long periods of independent study, and large group instruction” (Schroth, n.d.). The plan called the Flexible Modular Schedule or “The Trump Plan” failed, partly because of the large amount of unstructured, independent student study time (Canady & Rettig, 1995; Schroth et al., 1997). Table 2-2 shows an example of a flexible schedule. Eventually, schools that adopted the flexible system returned to traditional scheduling (Queen & Isenhour, 1998).

**Table 2-2***Sample Student Schedule on a Flexible Modular Schedule*

<u>Monday</u>	<u>Tuesday</u>	<u>Wednesday</u>	<u>Thursday</u>	<u>Friday</u>
English I	English I	Physical Education	Band	English I
Algebra I	English I	Physical Education	Band	Algebra I
Physical Education	Seminar	Seminar	Physical Science	Physical Education
World Geography	Seminar	Seminar	Physical Science	World Geography
Band	Algebra I	World Geography	Early Release/ Teacher Planning	Band
Physical Science	Algebra I	World Geography	Early Release/ Teacher Planning	Physical Science

*Note:* Each block is 50-55 minutes

Other scheduling experiments also failed. In the 1970s, the Open School concept and fluid block scheduling became popular and successful for a while (Schroth, n.d.). Both types of scheduling were eventually abandoned (Schroth, n.d.). In the late 1980s, the move to and the implementation of the zero-period schedule became popular in some areas of the country (Schroth, n.d.). Though still used in some schools, this flexible schedule still did not meet the needs that many reformers sought (Schroth, n.d.).

### **The Accountability Era and a New Call for a New Schedule**

In 1983, the National Commission on Excellence in Education published *A Nation at Risk*. Using school reform data, this report emphasized the increasing gap between the achievement of foreign students and American students. By 1991, The National Education Commission on Time and Learning was established to better understand the correlation between learning in schools and time (Gargis, 2013). In 1994, the same commission published *Prisoners of Time*. This report described the current

methods of “scheduling time” in schools as the design flaw in secondary education. The report stated that schools were prisoners of time and that time is learning’s warden. It reported that students must “learn what you can in the amount of time we make available” (Gargis, 2013, p. 14).

In the school reform and school accountability era, many components of the structure and function of schools are scrutinized as means to improve the quality of education for students and to ensure their success (Kruse & Kruse, 1995). Schools and school districts are constantly being judged, critiqued, and criticized. The areas of criticism are well known to both those in and out of the educational system. For high schools, those areas of criticism have included: (a) low scores on standardized tests, (b) learners who are not motivated and do not take ownership of their learning, (c) large high schools that do not meet the individual needs of students, (d) curriculum or learning pathways that have no connection to the world outside of school, (e) ineffective instructional practices that do not add value to students’ academic growth, and (f) the inability to match students with learning experiences that will prepare them for life after high school (Buckman, 1995).

As a result of the previously mentioned concerns and sometimes conflicting views of the traditional high school model, many schools have implemented deviations to the norm (Cawelti, 1995). In many places, there have been few significant changes to the traditional high school model in our country since the early 1900s (Huff, 1995). This statement is also true at the middle school level, where educators are also looking at different ways to schedule students (Mattox et al., 2005). Nationwide, administrators are focusing their attention on how time is allocated and organized during the school day to



ascertain whether the restructuring of that time can be a means to improve both teaching and learning (Landry, 2016). Teachers see fewer students during the day, thereby giving them more time to spend with individual students (Kruse & Kruse, 1995). “As reform efforts began to cause a restructuring of U.S. high schools, scheduling became a reconstruction tool. Block scheduling was listed as a movement under the component of school organization” (Gargis, 2013, p. 15).

### **The Block Schedule**

Block scheduling is a modern variation of the traditional schedule. The exception to each comes in the manner in which time is arranged. In an intensified block schedule, each class period is lengthened, and the number of classes taken daily is lessened. Thus, students take fewer classes per day but spend a greater amount of time in the remaining classes (Kruse & Kruse, 1995). The manipulation of time still fulfills the seat-time requirements of the Carnegie standard, though in an accelerated fashion compared to the traditional block (Kruse & Kruse, 1995). In an intensified block schedule, class periods are longer than 60 minutes. This division of time into longer blocks allows teachers to use and students to benefit from various instructional methods (Cawelti, 1995).

### **Types of Block Schedules**

There are different block schedule formats. One type of block schedule is the Copernican Plan. Carroll (1994b) wrote about this type of plan. Under this plan, students attend one academic class for six weeks or thirty days for four hours a day. At the same time, the student attends one elective or non-academic class for four hours per day. The plan allows students to complete at least seven credit hours per semester.

However, the two types of block schedules that seem to be most popular in schools across the country are the A/B Schedule and the 4 x 4 Schedule.

### **The A/B Day or Alternating Day Schedule**

The A/B Day schedule is another type of block schedule. Huff (1995) writes about this type of schedule. Students who attend classes on a flexible schedule attend class for the entire year and receive credit on a yearly basis. However, they attend classes on alternating days. “Instead of classes meeting for 45-60 minutes each day, classes now meet for 94 minutes every other day. These alternating days are referred to as “A” and “B” block days” (Huff, 1995, p. 21).

Under this plan, students are enrolled in 8 classes per year and attend all 8 all year long. They attend four of those classes on “A Day” and the other four on “B Day.” This type of schedule is utilized by both high and middle schools (Hackney, 2015). Teachers teach three classes per day and are responsible for six classes for the year. Table 2-3 shows an example of the A/B Schedule.

**Table 2-3**

*Sample Student Schedule on A/B or Alternate Day Schedule*

<u>Block</u>	<u>A Day</u>	<u>B Day</u>
1 <sup>st</sup>	English I	Algebra I
2 <sup>nd</sup>	Choir	Band
3 <sup>rd</sup>	World Geography	Physical Science
4 <sup>th</sup>	JROTC	Physical Education

*Note:* A/B schedule (90 minutes per day for 180 days).

### *Advantages*

Smith (2017) noted the following as advantages to the A/B Block schedule:

- Teachers see fewer students during the day, giving them more time for individualized instruction,
- With the increased span of teaching time, longer cooperative learning activities can be completed in one class period,
- Students have more time for reflection and less information to process over the course of the school day, and
- Teachers have extended time for planning (Smith, 2017).

In his research, Williams noted the following advantages:

- Opportunity to plan and to implement extended lessons,
- Fewer passing periods,
- Opportunity to utilize varied teaching strategies,
- Increased instructional time, and
- Itinerant teachers can be assigned to one school on A days and a second school on B days (Williams, 2011).

### *Disadvantages*

Several disadvantages to the A/B Schedule have been noted. In her research, Smith (2017) noted that on an A/B schedule, teachers see students only two to three days a week, which fosters a lack of continuity from day to day. Additionally, if a student misses a day under an A/B schedule, that is actually missing two, or sometimes even more days.

Zepeda and Mayers (2006) warn about the potential pitfalls the alternating schedule can present. Teachers and students may wonder what day it is early on in the year, and rarely do teachers and students meet on consecutive days. In addition, there is little opportunity for acceleration or repetition of courses, and students are expected to master six to eight classes a year.

Smith (2017) notes the following disadvantages to the A/B schedule:

- Teachers see students only two to three days a week, which fosters a lack of continuity from day to day.
- If a student misses a day under an A/B schedule, that is actually missing two, or sometimes even more days.

### **The 4 x 4 Block Schedule**

Edwards (1995) wrote about the type of block scheduling that may be the most common. The 4 x 4 schedule centers on the premise of offering four classes per semester in both the fall and spring semesters of a high school academic year. Students who attend schools with this type of schedule take more classes during the year, eight, than students on a six or seven period traditional schedule. However, they only focus on four classes at a time. Table 2-4 shows a sample of the 4 x 4 block schedule.

**Table 2-4***Student Schedule on 4 x 4 Block Schedule*

<u>Block</u>	<u>1<sup>st</sup> Semester Class</u>	<u>2<sup>nd</sup> Semester Class</u>
1 <sup>st</sup>	English I	Algebra I
2 <sup>nd</sup>	Band	Band
3 <sup>rd</sup>	World Geography	Physical Science
4 <sup>th</sup>	JROTC	JROTC

*Note:* 4 x 4 Block Schedule (90 minutes per day for 90 days).

***Advantages***

In recent years, many high schools have moved from the traditional schedule to some version of the block schedule (Cawelti, 1995). Carroll (1994a), the creator of a schedule that became the foundation for the intensified block schedule, advanced that high schools are in trouble without change. He posits that the current educational efforts are not generating a labor force that will be able to compete with the labor forces of other industrialized countries. Such a labor force will not be able to meet the expectations that are held for and needed from the labor force in our country.

Block scheduling is an educational initiative considered as a viable means of improving several aspects of schooling, including student achievement. Though it has been a feasible option for over four decades, the rise in popularity of block scheduling in the United States at the secondary level took flight in the late 1980s (Lewis et al., 2005).

Block scheduling is not only viewed as a means to cure bad ills, though. Some use the scheduling to make better or enhance what they already have (Hottenstein & Malatesta, 1993). Carroll (1994a) noted the following advantages to this type of schedule. Scores on standardized tests, school environment, attendance, and other elements may be considered acceptable by both school system personnel and school

supporters, but these advocates may look at block scheduling as a means of bettering the scores or as a means of enhancing the climate. With block scheduling, there is often a smaller teacher-pupil ratio. In addition, the number of students that teachers teach daily normally decreases. There seems to be a more effective use of space and time with block scheduling. The additional time in class allows for additional higher-order thinking and group work, something that is conceivably extremely difficult or virtually impossible to do with the time constraints of the traditional block schedule.

In his study of the impacts of block scheduling, Williams (2011) found that block scheduling had several advantages. Noting the need for high schools to utilize time more effectively, Williams cited the following as definite advantages:

- Teachers had more planning time to collaborate with colleagues and fewer classes for which to prepare,
- Teachers are assigned fewer students each semester; thereby spending more time with individual students,
- Students are more engaged in the learning process, which leads to fewer referrals and fewer dropouts,
- Students who fail classes have the opportunity to retake them,
- Students required graduation credits at a quicker pace and are eligible to graduate early and/or move into the workforce, early admission to post-secondary schools, and
- There are fewer interruptions to the school day and less movement in the building because fewer classes per day mean fewer transitions between classes (Williams, 2011).

Mattox et al. (2005) completed a research study that examined the effects of block scheduling on student achievement in five middle schools in North Carolina. The study was a longitudinal study that spanned six academic years. For the first three of the six years, courses in the five schools were taught using the traditional 50 to 55-minute class schedule. For the final three years of the study, the five middle schools in the study were all on some type of block schedule. Students' academic achievement was measured at the conclusion of each year via the state standardized assessment. In addition, teachers were selected and interviewed, and school records were reviewed. This was done to detect any other factors linked with the implementation of block scheduling that could have possibly affected the students' mathematics scores.

At four of the middle schools, no significant difference in mathematics achievement was revealed during the first year of block schedule implementation. In all four of those schools, students' mathematics scores demonstrated a significant upward trend in the second and third years of block scheduling. At the fifth school, a significant difference in the students' mathematics scores was detected in all three years. Mathematics scores of students at this middle school showed significant growth each year.

Students in all five middle schools had better mathematics achievement under the block scheduled as compared to the traditional schedule. The researchers listed the following benefits for students:

1. Students on block schedules have more choice in course selection and take more classes.

2. Students on block schedules benefit from the varied teaching methods teachers can utilize, which is afforded by the longer class periods.
3. Students on block schedules have a greater focus on academics and fewer discipline problems (Mattox et al., 2005).

Smith (2017) reported the following advantages to this type of schedule. They included:

1. Teachers see fewer students during the day, giving them more time for individualized instruction.
2. There is more time to conduct extended activities, such as seminars and projects.
3. With the increased span of teaching time, longer cooperative learning activities can be completed in one class period.
4. Students have more time for reflection and less information to process over the course of the school day.
5. Teachers have extended time for planning.
6. There are fewer class changes, resulting in fewer opportunities for discipline issues.
7. Students have fewer tests, quizzes, and homework assignments since they have fewer classes (Smith, 2017, p. 39).

### ***Disadvantages***

It is important to note that not all research has shown that block scheduling has positive effects on school climate or student achievement. Specifically, there has been concern expressed about the effects of block scheduling on the College Board's



Advanced Placement (AP) Program Examinations (Smith & Camara, 1998). Because AP Exams are only offered in May, there are two specific concerns: (a) students completing an AP course in the fall term of block scheduling are penalized by having to wait to take the examination; and (b) students completing an AP course in the spring may be at a time disadvantage (Smith & Camara, 1998). In addition, Williams' research noted the following problems associated with block scheduling:

1. Students on block schedules receive fewer instructional minutes than students on a traditional schedule
2. Many students do not have the attention span to endure the length of time of a block class.
3. Students who take an AP class in the fall semester do not take the exam until the spring.
4. There is a negative effect on student retention of information in sequential classes if they are not scheduled in close proximity.
5. The academic achievement of students in math, science, and foreign language classes may decline (Williams, 2011).

Smith (2017) reported the following disadvantages to this type of schedule. They included:

1. Teachers see students only two to three days a week, which fosters a lack of continuity from day to day.
2. Students have difficulty focusing for 90-minute classes.
3. It is difficult to cover the necessary material for Advanced Placement courses in the time allotted.

4. In a 4 x 4, all of the information normally taught in a semester course has to be covered in one quarter.
5. If a student misses a day under a 4 x 4 schedule, that is actually missing two days (Smith, 2017).

### **Block Scheduling and Student Achievement**

The research on the effects of block scheduling is mixed at best. Some research has indicated that the implementation of block scheduling has no impact on student achievement. In Arnold's (1998) research on the early implementation of block scheduling in Virginia schools, no significant difference was found in student achievement. This study compared the academic achievement levels of the same schools before and after the implementation of block scheduling. In 2010, Norton completed a study that focused on the implementation of 4 x 4 block scheduling in South Carolina high schools. The researcher wanted to see if there was a significant difference in student achievement among schools that used 4 x 4 block, A/B Block, or traditional schedule. English and math end-of-course scores were targeted. The results indicate no significant differences in scores among the three types of schools.

Conversely, there is other research that indicates that block scheduling does have an impact on student achievement. Bonner's (2012) research on North Carolina high schools focused on the effect of block scheduling on African-American and special needs students. The results showed a significant positive relationship between the implementation of block scheduling and the achievement of African American students in biology but showed no statistically significant relationship between the implementation of block scheduling and the achievement of special needs students. Forman's (2009)

study focused on one school's change from traditional to block scheduling in Massachusetts. Data for the study was collected over three years. Tenth-grade students were the focal point each year. During the first two years of block scheduling, the percent of 10<sup>th</sup> graders passing the tests required to graduate increased by over 15%. In the Lewis et al. (2005) study, ACT series test scores of students attending schools with various schedule types were analyzed. The results of the analysis indicate that students in schools with 4 x 4 block schedules had greater gains between their 9<sup>th</sup> and 11<sup>th</sup>-grade years in test scores in reading and mathematics than did students who attended schools with traditional or A/B block schedules.

### **Block Scheduling and School Climate**

Biesinger et al. (2008) focused their research on how block scheduling affected areas associated with student achievement, but it also gave insight into how block scheduling affected school culture. According to the article: 1) block scheduling did not change students' attitudes toward math; 2) helped students make significant gains in self-efficacy, and 3) critically needs teacher professional development in order to be successful. Norton's aforementioned 2010 South Carolina study does not support the implementation of block scheduling as a factor that positively impacts student achievement. However, the research does give other critical areas where the implementation of 4 x 4 scheduling had positive impacts. Zepeda and Mayers (2006) analyzes the impact of block scheduling. Findings indicate that block scheduling increased grade point averages and school climate across the board but showed mixed results on standardize testing improvements.

Landry's (2016) research compared the data collected from surveys of high school teachers who taught on a traditional schedule and those who taught on the block schedule. The data indicated that teachers who taught on a traditional student schedule did not believe that the schedule was optimal for deep student inquiry and used direct instruction more because of time restraints. Those teachers indicated that they would do more student-led discovery learning if they had more time. In Landry's study, teachers also said that they did not have sufficient time each day to collaborate with their colleagues.

In the same study, teachers who taught on the block schedule were evenly split, having an overall positive experience teaching in a block system. They believed that teaching on a block schedule required shifts in teaching methodologies and that the block schedule allowed for more time to spend with individual students and address their needs. Teachers on block schedules also said that they had more time to collaborate with colleagues and that teacher anxiety levels improved while working on block schedules.

Queen noted,

Most high schools that adopted the block schedule have enhanced the academic environment by increasing the number of courses that a student can complete in a 4-year period. In the process, educators have increased graduation rates, lowered discipline referrals, and improved dropout rates.

(Queen, 2000, p. 221)

Khazzaka (1998) focused his research on six high schools that moved to the block schedule. Those schools showed the following results:

- 100% increases in the graduation rate of Native Americans,

- 50% increases in at-risk students during block scheduling,
- 13.5% in overall attendance improved 13.5% with an overall, and
- 21% decrease in absences.

### **Block Scheduling and School Administration**

In a paper presented to the Mid-South Educational Research Association, Griffin and Nicholson (2002) evaluated the impact of block scheduling on two Mississippi High Schools. In that paper, the researchers found that though administrators believed that block scheduling allowed adequate time to cover content, they had concerns about the scope of the curriculum. Administrators who participated in this study reported experiencing fewer discipline problems on the block schedule as compared to the traditional 7-period day. Administrator response also indicated a positive change in teaching styles and instructional practices and an increase in the attendance rate.

Those administrators also expressed the following concerns about block scheduling. They reported that longer classes, if not filled with proper activities, became boring to students. Students with short attention span suffered. Respondents noted that if a teacher is weak before moving to the block schedule, she/he becomes weaker after moving. In summary, administrators said that they would choose to stay with the block schedule as opposed to returning to the traditional 7-period day.

Khazzaka (1998) recorded the opinions of 22 administrators who worked in schools with traditional schedules that transitioned to block schedules. Using a survey with an open-ended question that solicited perceptions on the move to a block schedule from the traditional schedule, Khazzaka found that administrators felt:

- Students earned more credits

- School climate/atmosphere was more relaxed
- Academic success increased
- Teachers utilized a variety of instructional strategies
- Student disciplinary infractions decreased
- Increased positive attitude towards school (parents, students, faculty, and staff).

Other studies (Handy & Urich, 1998; Stader & DeSpain, 1999) have yielded similar responses from administrators.

### **Moving Off the Block**

Nearly three decades after the block revolution, schools and districts are still making a choice to implement, retain, or leave the block schedule. In fact, some districts that adopted and implemented block scheduling in past decades are now making a return to the traditional schedule (Williams, 2011). In his research, he noted

Many schools on the block schedule bandwagon fell off because of failed promises of fewer disciplinary problems and higher student academic performance. In addition, there is a difference between the perception, which remained positive, and the reality of the studies, which cast a bit of doubt in the world of education.” (Williams, 2011, pp. 20-21)

The choice to go to, stay on, or leave the block is happening across the country. In Iberia Parish in Louisiana, the district chose to move away from block scheduling and return to traditional scheduling (Vaughn, 2019). The change came after 20 years of block scheduling in the parish. The board voted to change the high school schedules from a 4-block schedule to a 7-period schedule. The Superintendent said, “the needs of the

students, as well as the accountability required by educators has changed to the point that a 7-period schedule makes more sense” (Vaughn, 2019, para. 6).

The Davenport Iowa School Board made a similar decision about the schedule choice for its high schools. In 2019, the board voted to place its high schools on a traditional schedule beginning in the fall of 2020 (Valley, 2019). The district’s high schools had been on the block schedule since 2012. The district returned to traditional scheduling as a cost-saving measure.

There continues to be, however, districts that are choosing to move to block schedules. In 2015, the Sevier School District of Richfield, Utah, created their own version of block scheduling. The district created a “5 x 5” block schedule, a version of the A/B block where students attend five classes per day (5 x 5 Block Schedule, n.d.). According to the website, this schedule was created and implemented in order to offer greater class choice and to align better with the district’s technical center schedule. In 2018, the Sun Prairie Area School District of Wisconsin moved to block scheduling (Block Scheduling, n.d.). The website lists the need for additional minutes of instruction to meet the goals of their new strategic plan as the reason for the switch. In Bryan, Texas, middle and high school students will be on a block schedule for the 2020-2021 school year (Katz, 2020). This decision was made for safety reasons due to the outbreak of the COVID-19 pandemic.

### **Summary**

The review of literature focused on two primary types of secondary schedules, traditional and block. Historically, adjusting the secondary school schedule has been viewed as a means to address areas of internal and external criticism. The approaches to

addressing the scheduling issue have varied by district and, in some districts, by school. In many places, there have been few changes to the traditional high school schedule. In others, the schedule has been changed several times from traditional to block and back to traditional in an attempt to find what produces the best results for student achievement.

In schools with traditional schedules, students attend six or seven classes for 50 minutes each day for an entire school year. This type of schedule is normally viewed as a “factory-like” system. A primary advantage of this system is the consistency of the daily schedule for the entire school year. Primary disadvantages include the number of classes that students take at one time and limited time for student engagement.

In schools with block schedules, students take fewer classes per day and spend more time in those classes. On the A/B block schedule, students are enrolled in eight classes all year long. They attend four of those classes for approximately 90 minutes and the other four classes for approximately 90 minutes on the following day. On the 4 x 4 block schedule, students attend four classes during the fall semester for 90 minutes per day and four more classes during the spring semester. Advantages to block scheduling include students attending fewer classes with more time in those classes each day and having the ability to take more classes per year overall. Disadvantages include loss of instructional minutes, student attention span during longer periods of instruction, and possibly placing fall semester Advanced Placement students at a disadvantage with the 4 x 4 schedule.

Administrators of schools who have implemented the 4 x 4 schedule seem to report that the implementation has a positive impact on student achievement and school culture. There is, however, little research that harnesses the perceptions of administrators



who moved from traditional scheduling to block scheduling and back to traditional scheduling.

After more than two decades of significant research and implementation, the results of the impact of block scheduling on student achievement are mixed. The research notes both advantages and disadvantages. The results of the impact of block scheduling on school climate are also mixed. Surveys and interviews of teachers, students, and school administrators substantiate this.

After three decades, schools are still deciding whether to institute and implement the block schedule or not. Some schools are getting off or transition from the block schedule to the traditional schedule. Yet, there are other schools and districts that are getting on or adopting and implementing some form of block scheduling.

There is, therefore, a need for research that provides school leaders information that will assist them in their decision to change their type of schedule. Do the advantages of the implementation of block scheduling outweigh the disadvantages enough to indicate that a change in schedule will positively impact student achievement and school culture? Is there beneficial information that we can glean from administrators who have lived through the change of schedule process? What can a school or a district expect before, during, and after implementation?

This research will attempt to provide answers to these and other questions. The data gained through interviewing school administrators who lived through a change in schedule will not only add to existing knowledge and but also prove beneficial to those administrators, schools, and districts who may be considering the implementation of

block scheduling. Though not a silver bullet, block scheduling has the possibility of having a positive impact on student achievement and school climate.

## **CHAPTER 3**

### **METHODOLOGY**

#### **Introduction**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This chapter details the methodology utilized in an attempt to make this determination. The specific procedures used to select, process, and analyze information of the study are detailed. The setting and participation samples are revealed. Data collection procedures and data analysis methods are discussed. Finally, participants' rights and limitations of the study are discussed.

#### **Research Questions**

This study determined the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. The research in this study answered the following questions:

1. Is there a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule?
2. Is there a significant difference in graduation rates between students on a block schedule and students on a traditional schedule?

3. Is there a significant difference in attendance rates between students on a block schedule and students on a traditional schedule?

### **Null Hypotheses**

The three null hypotheses explored in this work were:

1. There is no significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.
2. There is no significant difference in graduation rates between students on a block schedule and students on a traditional schedule.
3. There is no significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

### **Research Hypothesis**

The three research hypotheses explored in this work were:

1. There is a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.
2. There is a significant difference in graduation rates between students on a block schedule and students on a traditional schedule.
3. There is a significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

### **Methodology**

This study was a mixed methods study utilizing both quantitative and qualitative research methods. The quantitative portion of this research was a longitudinal, ex-post-facto study. Using data provided by the district in which all three schools are located and

data available at the website of the state board of education, the researcher collected and analyzed data covering a span of twelve consecutive years, 2006-2007 to 2017-2018. For the schools included in this study, that 12-year time frame are divided into three periods: (a) pre-block implementation, (b) during block implementation, and (c) post-block implementation.

Each of these high schools moved from traditional scheduling to block scheduling and then back to traditional scheduling. For each of these schools, student data from three time frames, pre-block implementation, during block implementation, and post-block, implementation were evaluated. The study focused on the following types of data: ACT composite scores, graduation rates, and attendance rates. The ACT composite scores served as the student achievement indicator. Graduation and attendance rates served as school climate indicators. The analysis of the data determined if there is any significant difference between the achievement levels of students who attend school on block schedules and students who attend school on a traditional schedule. The analysis of the data indicated if the implementation of block scheduling has an impact on school climate.

For the qualitative portion of this study, administrators who served at the schools during the moves from traditional scheduling to block scheduling and back to traditional scheduling were interviewed. Permission from the district superintendent and the selected administrators was secured prior to the interviews. Once permission was secured, the researcher personally interviewed the school leaders, recorded their responses, and analyzed the resulting data. The information from the interviews is included in Chapter 5 of this study.

### **Setting**

The setting for this study was a school district in a southern state. The district has urban, suburban, and rural high schools. The high schools in the district varied in size and student composition.

### **Participation/Sample**

Student data from the selected schools was collected, reviewed, and analyzed. The participants for the study were students in grades 9-12 at those schools. This study was a secondary analysis of available existing public data sets. The sample of administrators for the interviews was administrators who worked at the schools from which student data is collected.

### **Data Collection Procedures**

No data were collected until approval was received from the Louisiana Tech University Human Use Committee. For the quantitative portion of this study, ACT composite scores, graduation rates, and attendance rates were collected. As directed by the superintendent, a member of the selected school district's central office team created an electronic file containing the requested information. That member delivered that file to me. The data were reviewed and analyzed. Additionally, descriptive data were collected from the state department of education website. That data was available to the public as the department has annually reported on and updated this information.

For the qualitative portion of the study, the researcher, after receiving the superintendent's approval, contacted, by phone, administrators who had served in the selected schools during the time span of the study. All of the administrators agreed to be

interviewed and an interview schedule was created. After securing informed consent from each, I interviewed each administrator. Each interview consisted of six questions. These questions were versions of questions used in a study by Davis-Wiley et al. (1995) and can be found in Appendix B of this study. The interviews were audio-taped and manually transcribed.

### **Data Analysis**

The quantitative data collected and analyzed in the study fell into the following areas: composite ACT scores, graduation rates, attendance rates, and administrator interviews.

Analysis of composite ACT scores was performed by calculating the mean composite ACT score of the schools during the following three intervals between the 2006-2007 and 2017-2018 school years: (a) the years on the traditional schedule before block implementation, (b) the years during block implementation, and (c) the years after the return to the traditional schedule. Those mean composite ACT scores were compared. An Analysis of Variance (ANOVA) was used to determine if there is any significant difference between the three means.

Analysis of graduation rates was performed by calculating the mean graduation rates of each of the schools during the following two intervals: (a) 3-years during block implementation, the 2011-2012 through 2013-2014 school years, and (b) 4-years after the return to the traditional schedule, the 2014-2015 through 2017-2018 school years. This time span differed from that of the time span in the other two research questions because neither the district nor the state website provided graduation rates before the 2011-2012 school year. Those mean graduation rates were compared. An Analysis of Variance

(ANOVA) was used to determine if there is any significant difference between the two means.

Analysis of attendance rates was performed by calculating the mean yearly average daily attendance rates of the schools during the following three intervals between the 2006-2007 and 2017-2018 school years: (a) years on the traditional schedule before block implementation, (b) the years during block implementation, and (c) the years after the return to the traditional schedule. Those mean attendance rates were compared. An Analysis of Variance (ANOVA) was used to determine if there is a significant difference between the three means.

The qualitative data for this study was obtained through administrator interviews. Each interview consisted of six questions. These questions were versions of questions used in a study by Davis-Wiley et al. (1995). Administrators who served at the schools identified in the study during the time of transition from schedule type to schedule type were interviewed. The interviews were audio-taped, manually transcribed, and later analyzed to identify themes, commonalities, and rights.

### **Participant Rights**

The superintendent of schools of the district in which the three schools are located were contacted. He was asked to allow access to school data and to select school leaders who will participate in this study. Once permission was granted, the selected school leaders were contacted and informed about the research. Interview dates and times were established. Interviews were recorded. Those who decide to participate were informed of the ability to withdraw from participation. Participants were informed of the measures



that will be taken and to keep their information confidential. The findings from the study will be shared with all participants.

### **Potential Limitations**

As stated before, the study used data collected from schools in a single district in a southern state. During the years from which data was collected, there were changes in graduation requirements, the tests students needed to pass in order to graduate, and diploma types.

Another limitation of this study was the choice of participants. Because the study focused only on schools from a primarily urban district in the southern United States, the results may not be generalizable to students from different backgrounds. Other contextual variables may also limit the generalizability of the results.

### **Summary**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This chapter detailed how that was done.

The methodology, or specific procedures, used to select, process, and analyze information of the study were detailed. The research questions, null hypotheses, and research hypotheses were listed. The setting and participation samples were revealed. Data collection procedures and data analysis methods were discussed. Finally, participants' rights and limitations of the study were discussed.

## **CHAPTER 4**

### **RESULTS**

#### **Introduction**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This was done through the evaluation of archival data at schools that transitioned from traditional schedules to block schedules and back to traditional schedules. An additional goal of this study was to collect the perceptions of school administrators who worked at schools during the transition between schedules. This chapter presents the archival data and interview data and the analysis of both data sets.

#### **Descriptive Data and Organization of Analysis**

School administrators who served at the schools during the transition between schedules were targeted for the interviews of this study. Three administrators who lived through the move in the district from traditional schedule to block and back to a traditional schedule answered six questions that gave an indication of their perception of the transitions and how the transition affected different groups on their campuses. The researcher sought out these administrators and interviewed each of them. The interviews were recorded and later transcribed. After transcription, themes, commonalities, and differences were noted and analyzed. That analysis is included in this chapter. The full

responses from the administrators containing their lessons learned and advice for administrators considering or living through the move between schedule types are included in Chapter 5.

The schools selected for the archival data were the schools at which these administrators served. The school district from which the archival data was taken is a district in the southern United States. The district had high schools of various sizes and various socio-economic and ethnic compositions. The schools from which the archival data was collected were a good representation of the high schools in the district.

Each of the three schools in this study utilized a version of the traditional schedule with students taking six or seven classes per day through the 2007-2008 school year. For the study, the schools were named School A, School B, and School C. During the 2008-2009 and 2009-2010 school years, School A and School B remained on the traditional schedule while School C served as the pilot school for block implementation for the district. The change in state graduation requirements prompted the district to change all high schools to A/B block scheduling for the 2010-2011 school year. Those schools remained on that schedule through the 2013-2014 school year. During the 2014-2015 school year, all high schools moved to a traditional 7-period day, and the schools have remained on that schedule since.

During the 12-year span of our study, the average enrollment of School A was 2100. Of the students considered, 54.92% were female, and 45.08% of the students were male, 50.67% of the students were of a minority race, mostly African-American, and 38.90% of the students were considered economically disadvantaged.

During the 12-year span of our study, the average enrollment of School B was 569. In the School B population, 50.58% of the students were female, and 49.52% of the students were male, 99.47% of the students were of a minority race, virtually all African-American, and 88.08% of the students were considered economically disadvantaged.

During the 12-year span of our study, the average enrollment of School C was 1392. In the School C population, 51.12% of the students were female, and 48.88% of the students were male, 68.46% of the students were of a minority race, virtually all African-American, and 56.86% of the students were considered economically disadvantaged.

To determine the impact of block scheduling on student achievement, mean ACT scores for each of the three schools before block implementation, during block implementation, and post block implementation were evaluated. To determine the impact of block scheduling on school climate or culture, two data sources were evaluated. Mean attendance rates for each of the three schools before block implementation, during block implementation, and post block implementation were analyzed. Additionally, mean graduation rates during and post block implementation were evaluated. Graduation rates before the implementation of block scheduling were not considered as neither the district nor the state website provided information on graduation rates before that time.

The analysis of data is presented in four sections. The first section addresses the analysis of interview data collected from the administrators. The second section presents the archival data. The third section describes the tests of the hypotheses. Finally, the fourth section is a summary of the chapter.

### **Interview Data**

As part of this study, administrators who served at the selected schools as either the principal or assistant principal were interviewed. The administrator who served at School A was named Administrator #1. The administrator who served at School B was named Administrator #2. The administrator who served at School C was named Administrator #3. They were asked to answer six questions. These questions were versions of questions used by Davis-Wiley et al. in a 1995 study. All of the administrators are still employees of the district. Each now has an advanced position with the district.

All high schools in the district, except School C, were on a traditional schedule prior to the 2010-2011 school year. School C served as a pilot school for the district implementing the 4 x 4 block schedule during the 2008-2009 and 2009-2010 school years. During the 2010-2011 school year, all high schools in the district transitioned to the AB or alternating day schedule. The schools remained on that schedule through the 2013-2014 school year. During the 2014-2015 school year, all high schools in the district transitioned back to a version of the traditional schedule, the 7-period day. The schools have remained on that schedule since. Each interviewee answered all six questions.

### **Common Themes from Administrator Interviews**

This study was a mixed method study. The thoughts and impressions of administrators who served at the identified schools were collected through interviews, a qualitative method. Commonalities and themes were identified to analyze interview data. Common themes from the interviews are presented in the following paragraphs.

With regard to interview Item #1, “Describe how you prepared staff to move from one schedule type to another,” common themes were: (a) involving teachers, professional development, (b) preparing your staff for change, and (c) ensuring that teacher leaders have input.

With regard to interview Item #2, “How was your administrative role affected by the implementation of the new schedule,” common themes were: (a) there was not much change, (b) reduction in time spent monitoring the hall during the implementation of block scheduling, and (c) increase in time spent monitoring the hall during the traditional schedule.

With regard to interview Item #3, “What were the reactions of the students to the new schedule type,” common themes were: (a) confusion over whether it was an “A Day” or “B Day,” (b) students found block schedule offered more opportunities to take classes that they liked, (c) initial hesitation to eventually liking the block schedule, and (d) an appreciation for the number of classes that can be taken in four years with the block.

With regard to interview Item #4, “What were the reactions of parents to the new schedule type,” common themes were: (a) initial hesitation to eventually liking the block schedule, (b) if the kids are happy with the schedule, the parents will be happy with the schedule, and (c) no negative reaction from parents.

With regard to interview Item #5, “What advice would you give novice administrators on changing schedule types,” common themes were: (a) do your homework/research, (b) visit other schools that are using the schedule type to which you are transitioning, and (c) include teachers in the process from the beginning.

With regard to interview Item #6, “Are there any other comments or information that you would like to share,” common themes were: (a) block scheduling is more expensive than traditional scheduling and the (b) importance of involving your faculty in the change process.

### **Differences from Administrator Interviews**

With regard to interview Item #1, “Describe how you prepared staff to move from one schedule type to another,” the major difference was that the teachers at School C had experienced a change in schedules more than the teachers at the other two schools.

With regard to interview Item #2, “How was your administrative role affected by the implementation of the new schedule,” the major difference was that Administrator #1 saw the greatest dilemma was the revamping of the master schedule as the school moved back from block to a traditional schedule.

With regard to interview Item #3, “What were the reactions of the students to the new schedule type,” Administrator #2 stressed how block scheduling benefitted athletics while Administrator #3 stressed the students dislike of moving back to a traditional schedule that had them moving from class to class more often.

With regard to interview Item #4, “What were the reactions of parents to the new schedule type,” Administrator #3 expressed that more parents were concern about the move back to traditional and wanted to make sure that it was in the best interest of students.

With regard to interview Item #5, “What advice would you give novice administrators on changing schedule types,” Administrator #1 stressed the initial involvement of your teachers more than the other two administrators.

With regard to interview Item #6, “Are there any other comments or information that you would like to share,” differences were Administrator #1’s belief that block scheduling would only return to their district as a state mandate, Administrator #2’s belief that block scheduling is a greater benefit to students at low performing schools, and Administrator #3 expressed his belief that there are good and bad aspects to all types of schedules. It is all about making the schedule that you have work for your students.

### **Archival Data**

Prior to the 2010-2011 school year, the high schools in the district had various schedule types. School A had a 6-period traditional schedule. School B had a 7-period traditional schedule. School C had a 6-period traditional schedule prior to 2008. From 2008-2010, School C served as the pilot school for the district, implementing a 4 x 4 block schedule.

From 2010-2011 through 2013-2014, the district implemented AB day block scheduling in all of its high schools. Since 2014, all high schools in the district have been on a 7-period traditional schedule. The school building configuration for each of the schools is 9-12.

Table 4-1 illustrates the archival data used for this study. The data were obtained from the school district and verified on the state department of education website.



**Table 4-1***Raw Data from Schools*

	<u>06-07</u>	<u>07-08</u>	<u>08-09</u>	<u>09-10</u>	<u>10-11</u>	<u>11-12</u>	<u>12-13</u>	<u>13-14</u>	<u>14-15</u>	<u>15-16</u>	<u>16-17</u>	<u>17-18</u>
<b>School A</b>												
<i>Composite ACT</i>	21.7	22.1	21.5	21.7	20.9	21.8	21.5	20.9	21.4	21.9	22.4	21.8
<i>Graduation Rate</i>	N/A	N/A	N/A	N/A	N/A	85.1	81.6	82.1	91	90.5	91.3	92.8
<i>Attendance Rate</i>	93.1	93.9	93.9	93.2	95	94.6	95	95	94	94.6	93.9	93.5
<b>School B</b>												
<i>Composite ACT</i>	16	17.4	16.4	15.5	16	16.7	16.6	16.5	17.2	18	16.4	15.5
<i>Graduation Rate</i>	N/A	N/A	N/A	N/A	N/A	73.5	73.1	78.7	95	91.7	86.8	89.5
<i>Attendance Rate</i>	93.9	93.9	94	88.1	88.5	91	91	91.9	93	92.2	93.2	92.5
<b>School C</b>												
<i>Composite ACT</i>	17.9	17.7	17.7	17.4	17.1	17.2	16.7	17	17	17.3	17	17.1
<i>Graduation Rate</i>	N/A	N/A	N/A	N/A	N/A	70.5	67	75.1	80.4	85.2	82.1	89.4
<i>Attendance Rate</i>	91.8	91.7	91.7	91.6	93.6	91.9	91.8	92.6	91.7	93.1	92.7	92.2

**Initial Inspection of Data**

The initial inspection of the data is show in Table 4-2.

**Table 4-2***Inspection of Data*

<u>Implementation</u>	<u>Mean Composite ACT Score</u>	<u>Mean Graduation Rate</u>	<u>Mean Attendance Rate</u>
Pre-block	18.8	76.3%	92.75%
During	18.1	N/A	92.51%
Post-block	18.6	88.81%	93.05%

The results of the data inspection indicated:

- There was no difference in composite ACT scores.
- There was a difference in graduation rate (students on a traditional schedule performed better), and
- There was no difference in attendance rates.

### **Findings**

**Research Question 1:** Is there a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule?

**Null Hypothesis 1:** There is no significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.

**Research Hypothesis 1:** There is a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule.

A one-way between subjects ANOVA was conducted to compare the impact of block scheduling on composite ACT score data. The 0.05 level of significance was accepted. The calculation was made using the mean of the composite ACT scores of each of the schools during the pre-block implementation, block implementation, and post-block implementation periods. The data was obtained from the schools' district office and verified by the state department of education website. Table 4-3 shows the results of the ANOVA test on the composite ACT scores.

**Table 4-3***Results of ANOVA on Composite ACT Scores*

	<u>Sum of Squares</u>	<u>Df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig</u>
Between Groups	2.6764	2	1.382	0.23192	0.794295
Within Groups	190.42	33	5.7703		
Total	193.0964	35			

The f-ratio value was 0.23192. The p-value was 0.794295. The result was not significant at  $p < .05$ . The null hypothesis was accepted.

**Research Question 2:** Is there a significant difference in graduation between students on a block schedule and students on a traditional schedule?

**Null Hypothesis 2:** There is no significant difference in graduation rates between students on a block schedule and students on a traditional schedule.

**Research Hypothesis 2:** There is a significant difference in graduation rates between students on a block schedule and students on a traditional schedule.

A one-way between subjects ANOVA was conducted to compare the impact of block scheduling on graduation rate data. The 0.05 level of significance was accepted. The calculation was made using the mean annual graduation rates of each of the schools during the block implementation and post-block implementation periods. The data were obtained from the schools' district office and verified by the state department of education website. Table 4-4 shows the results of ANOVA on graduation rates.

**Table 4-4***Results of ANOVA on Graduation Rates*

	<u>Sum of Squares</u>	<u>Df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig</u>
Between Groups	804.6432	1	804.6432	30.90595	0.000023
Within Groups	494.6692	19	26.0352		
Total	1299.3124	20			

The f-ratio value was 30.90595. The p-value was 0.000023. The result was significant at  $p < .05$ . Students on a traditional schedule performed better. The research hypothesis was accepted.

**Research Question 3:** Is there a significant difference in attendance rates between students on a block schedule and students on a traditional schedule?

**Null Hypothesis 3:** There is no significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

**Research Hypothesis 3:** There is a significant difference in attendance rates between students on a block schedule and students on a traditional schedule.

A one-way between subjects ANOVA was conducted to compare the impact of block scheduling on attendance rate data. The 0.05 level of significance was accepted. The calculation was made using the mean attendance rates of each of the schools during the pre-block implementation, block implementation, and post-block implementation periods. The data were obtained from the schools' district office and verified by the state

department of education website. Table 4-5 shows the ANOVA results on attendance rates.

**Table 4-5**

*Results of ANOVA on Attendance Rates*

	Sum of Squares	Df	Mean Square	F	Sig
Between Groups	1.9046	2	0.9523	0.36591	0.696344
Within Groups	85.8843	33	5.7703		
Total	87.7889	35			

The f-ratio value was 0.36591. The p-value was 0.696344. The result was not significant at  $p < .05$ . The null hypothesis was accepted.

### Summary

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This was done through the evaluation of archival data, specifically composite ACT scores, graduation rates, and attendance rates of selected schools in a school district that transitioned from traditional schedules to block schedules and back to traditional schedules. Additionally, the perceptions of school administrators who worked at schools during the transition between schedules were captured through interviews. Those interviews were analyzed. Both commonalities and differences were identified. Archival data from the schools focusing on ACT scores, graduation rates, and attendance rates were collected and analyzed. The null and research hypotheses were tested, and the results gave answers to the research questions.

Null Hypothesis 1, “There is no significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule” and Research Hypothesis 1, “There is a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule,” were tested. An analysis of composite ACT scores was performed by calculating the mean composite ACT score of each of the schools during: (a) the years on the traditional schedule before block implementation, (b) the years during block implementation, and (c) the years after the return to the traditional schedule. Those mean composite ACT scores were compared. An Analysis of Variance (ANOVA) was used to determine that there was no significant difference between the means. Thus, the Null Hypothesis 1 was accepted.

Null Hypothesis 2, “There is no significant difference in graduation rates between students on a block schedule and students on a traditional schedule,” and Research Hypothesis 2, “There is a significant difference in graduation rates between students on a block schedule and students on a traditional schedule,” were tested. An analysis of graduation rates was performed by calculating the mean graduation rates of each of the schools during: (a) the years of block implementation and (b) the years after the return to the traditional schedule. Those mean graduation rates were compared. An Analysis of Variance (ANOVA) was used to determine that there was a significant difference between the means. Thus, Research Hypothesis 2 was accepted.

Null Hypothesis 3, “There is no significant difference in attendance rates between students on a block schedule and students on a traditional schedule,” and Research Hypothesis 3, “There is a significant difference in attendance rates between students on a

block schedule and students on a traditional schedule,” were tested. An analysis of attendance rates was performed by calculating the mean yearly average daily attendance rates of each of the schools during: (a) the years on the traditional schedule before block implementation, (b) the years during block implementation, and (c) the years after the return to the traditional schedule. Those mean attendance rates were compared. An Analysis of Variance (ANOVA) was used to determine that there was no significant difference between the three means. Thus, the Null Hypothesis 3 was accepted.

Thus, the research from this study indicates that there was no significant statistical difference between the composite ACT scores of students on block schedules and students on traditional schedules. The research indicates that there was a significant statistical difference between graduation rates of students on block schedules and students on traditional schedules. Students on a traditional schedule had higher graduation rates than those on a block schedule. Finally, the research indicates that there was no significant statistical difference between the attendance rates of students on block schedules and students on traditional schedules.

## **CHAPTER 5**

### **STUDY SUMMARY**

#### **Introduction**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. This was done through the evaluation of archival data. This data was collected from schools that transitioned from traditional schedules to block schedules and back to traditional schedules over a 12-year period. Longitudinal comparisons of mean ACT composite scores, graduation rates, and attendance rates were conducted to examine the difference in achievement between students attending classes on a traditional schedule and those attending classes on a block schedule. Additionally, the study collected the perceptions of school administrators who worked at schools during the transition between schedules. This chapter presents a summary of results, conclusions, and discussions as it relates to the analysis of archival data, lessons learned from administrators through interviews, limitations, recommendations for policy and practice, recommendations for future studies, and a summary of the study.



## **Summary of Quantitative Results**

### **Research Question 1**

The first research question was, “Is there a significant difference in composite ACT scores between students on a block schedule and students on a traditional schedule?” The results of the study showed there were no statistically significant differences between students on a block schedule and students on a traditional schedule in composite ACT scores. Thus, I was unable to reject Null Hypothesis 1.

Norton (2010) performed a study to determine if there were significant differences among South Carolina schools that employed 4 x 4 schedules, A/B schedules, and traditional schedules. Analyzing the standardized test scores of students at 131 schools over a 3-year period, the results of the study indicated that there was no significant difference in scores. The results from this portion of this study aligned with those findings.

### **Research Question 2**

The second research question, “Is there a significant difference in graduation rates between students on a block schedule and students on a traditional schedule?” The results of this study showed that there was a statistically significant difference in graduation rates between students on a block schedule and students on a traditional schedule. In this study, students on a traditional schedule had higher graduation rates. Thus, Research Hypothesis 2 was accepted.

The change in state graduation requirements may be a contributing factor in the graduation rate difference. The 2011-2012 school year was the first year that the state

measured its new graduation requirements. That year provided a baseline. The graduation rate of most schools in the district and the state increased after the baseline year.

The analysis of composite ACT scores and attendance rates were completed over three time spans. The analysis of graduation rates was completed using only two time spans. This may have also been a contributing factor in the results also.

Hodges' (2002) study that focused on academic achievement, attendance, and discipline referrals for middle school students also produced mixed results. The results showed statically significant differences in some academic areas while finding no significant differences in discipline and attendance rates.

### **Research Question 3**

The third research question was, "Is there a significant difference in attendance rates between students on a block schedule and students on a traditional schedule?" The results of this study showed that there was no statistically significant difference between students on block schedules and students on traditional schedules in attendance rates. Thus, I was unable to reject Null Hypothesis 3.

An initial inspection of the raw attendance data for the three schools shows that with the exception of School B's attendance rate during the years on the block, the schools' attendance rates remained steady. The results from the analysis of attendance rates aligned with Hodges' (2002) findings that there was no significant statistical difference in attendance rates between middle school students on the block and traditional schedules.

### **Lessons Learned from Administrators**

An important portion of this study was interviewing the administrators who served at the schools during the transition periods. For the following responses, Administrator #1 was the administrator who served at School A. Administrator #2 was the administrator who served at School B. Administrator #3 was the administrator who served in School C.

When asked to describe how you prepared your staff to move from one schedule type to another, Administrator #1 said, “I think the main thing is to get your teachers involved. There is always resistance to change. So, the first thing we did is we went to our department chairs, pulled a group of teachers together, and we knew at the time that we were going from a 6-period day to some kind of a block schedule. We knew we were going to change. The sixth period day just died when the graduation requirements went up. So, I think that was the biggest thing was just letting them become part of the process. And, it actually went over well once they got to put their two cents worth in, so to speak.”

Administrator #2 said, “Anytime you’re moving from a traditional 6-period day schedule to a block schedule, it was kind of difficult. Because teachers had never taught on a block schedule before. And they were thinking that, going on a block schedule, we don’t have to offer homework or we don’t have to do anything. So, we did a lot of professional development, toured some other districts, so they got a chance to see it first hand, teaching on the block schedule. So, once they saw that, and it was difficult the very first year, but after the very first year, they saw the positive of it. They keep their kids for a long period of time, and they could go more in-depth with what they were covering. Oh, it was the best thing since sliced bread.”

Administrator #3 said, “Well, it’s ironic. We had multiple schedule types. When I first became principal, we had a 4 x 4 block. Then we moved to an AB Block. And then we moved to a 7-period day. So, the transition between the 4 x 4 and AB was not that big of a transition for our staff. They were used to a block schedule. Really, it was working through the hurdles of four classes in the fall followed by four classes in the spring, to then we were alternating four each day. It didn’t really change the scope of what the teachers had to do or had to prepare for. It just put everything together at that point for them.

“Now, when we moved to a 7-period day, that was a huge culture shock for our staff. We’re talking about teachers who were used to teaching three blocks a day now teaching six periods a day. The biggest adjustment, I believe for the staff, was time management. Going from a 90-minute period to a 55-minute period, we had to really rethink our approach to the class setting. Really get stringent on bell ringer activities, transitions, and closure. They were just so accustomed to that 90-minute period. Everything became condensed. And, we had to do a lot of professional development with time management for those teachers to fit in that 55-minute period.”

These responses match what was learned through in the review of related literature. In an interview following the announcement of her school district’s plan to move off the block, one superintendent said, “Moving forward, we’re going to establish a district transition team and school transition team to ensure we have a smooth transition” (Vaughn, 2019).

When asked how was your administrative role affected by the implementation of the new schedule, Administrator #1 said, “I don’t know that it changed that much.

Administrators deal with headaches every day. We deal with a crisis every day. We went from a 6-period day to the A/B Block, and the only real change was dealing with people who didn't want to go from the sixth period day to what we were doing; but once we did it, once we got used to it, everybody was ok, you know. And then we went to something else. I didn't really see a big change in the administrative role at all."

Administrator #2 said, "It was affected big time; it was affected for the better. With the block schedule, we had fewer times we had to get out for class changes. We would go out four times compared to seven. That's a huge difference with your administrative time. By the time you get back to your office, the bell has sounded again, and now you have to be back out on the halls again. So, by going block schedule, monitoring the transition period cut down tremendously."

Administrator #3 said, "Really, on the administrative side, it was figuring out staffing from the staffing formula the district provided to us. Obviously, with 4 x 4 and AB, the staffing formula remained relatively the same. When we went to a 7-period day, we lost staff members and then had to make adjustments for that. And then, the creation and development of the master schedule. It wasn't that big of a change from 4 x 4 to AB, but when we went to the 7-period day, we had to completely revamp our master schedule. And it's just allocation of staff and resources for the schedule. That was our biggest dilemma as administrators. The administrators' responses to this question match the findings from Landry's (2016) study.

When asked about the student reaction to the new schedule type, Administrator #1 said, "Well, you've gotta understand the schedule. Going from a 6-period day, we went to an A/B Block. In other words, we had A days, and we had B days. The first year, I

can't remember, there was something we had done it meant that one week you were on one schedule and week and you were on a different schedule. That got changed the following week. I don't remember what it was.

The biggest issue from the kids initially was just remembering what day it was, whether it was A Day or B Day. And, uh, but once they realized that we were giving them other opportunities, classes that we couldn't offer on a 6-period day, that student, you know, that driven kid that's gonna take advantage of everything you can offer, they jumped all over it, and so it opened up. See, we were taking eight classes, and we weren't a 4-block, end of the semester, the year is over. We had eight classes all year long. And so, uh, that meant by the end of their senior year, if they had been there for four years, they had 32 credits. So, they took every AP course we had to offer, I mean, so on and so forth, so they really jumped into it."

Administrator #2 said, "The kids did not like it at first because they were staying in class for a long period of time. But once they went to p. e. and classes that they liked, they got opportunities to sit in those classes for a long period of time; they fell in love with it. And as far as your athletic purpose, oh, it's a huge thing. Because you can start your block that last hour, and you basically get through with your football and basketball, and your kids don't have to stay after school. So, it was a huge advantage."

Administrator #3 said, "You know, the transition from the 4x 4 to the A/B they really didn't have a problem with. The only issue they had at that point was they were accustomed to four classes in the fall and 4 classes in the spring. Well, now, I've got eight classes, and I'm going A Day, B Day, and we then were flipping every Monday. So, Monday this week was A Day next week was B Day. We had to actually put signs like

kind of a menu board, so to speak, at the front entrance of the school as to what week we were. They got adjusted to the Tuesday, Wednesday, Thursday, Friday A Day, B Day. A lot of our kids, at that point, were running two backpacks: an A Day backpack and a B Day backpack. We had to actually send out messages on Friday overall call to try and help remind them that Monday would be an A Day or B Day. Otherwise, they would show up with the wrong backpack. But the adjustment to that was pretty seamless other than the adjustment to what is this Monday.

The 7-period day, that took a little more adjusting for the kids, and again, I think it was simply the time span. And it took adjusting for us. I mean, every time we looked up, a bell was ringing. We're up and moving again instead of that 90-minute period that we were so acclimated to. In some ways, I think it helped the kids because it broke up the time and allowed them to move from class to class, but it was a little more fast-paced for them that they had to adjust to."

The administrators' responses to this question align with the research completed by Smith (2017), Williams (2011), and Zepeda and Mayers (2006).

When asked about the parental reaction to the new schedule type, Administrator #1 said, "I think the parent reaction was exactly the same. They embraced the positive things and the only problem was is it A Day or B Day."

Administrator #2 said, "A couple of parents at first didn't like it, but I've always said that the kids sell the schedule to the parents. Once the kids bought into it, they went home and told Momma and Daddy; we didn't have any problem."

Administrator #3 said, "You know, from our parent base, we just really didn't get a lot of feedback from them as far as negative. They seemed to be kind of laissez-faire,

just roll with the punches with whatever it was going to be. They realized that it was a district decision, and I think we got a little more push back on the 7-period day. We had to explain. They wanted to know if this was in the best interest of the kid. Well, being honest with them, that decision wasn't made on what was in the best interest of the student. It was made based on financial situations in the district, and I think that they understood that we had to cut staff. That was the way to do it as a district to move to that 7-period day to reduce staff, and we just ensured that everything would remain the same as far as the education they were receiving, the instructional format would still be the same. And they seemed to be ok with that.

Those responses align with information discovered in the review of related literature. In Vaughn's (2019) article, the superintendent said. "I think many (parents and students) are fearful of change, but once we go through the transition and ensure that their needs and concerns will be addressed, we will do what we always do in Iberia Parish, which is to educate students to the best to our ability."

When asked what advice would you give novice administrators on changing schedule types, Administrator #1 said, "Get buy-in from your teachers who are going to be the most vocal opposition. If you make that teacher part of the change, it's hard for them to then get out there on social media or go running to their buddies and complain about it. Put them in there first. You know, it's like saying Mr. So and So, I need you to make this work. This is gonna happen. I need you to help make it work. How can we, I won't say soften the blow, but how can we make going from a 6-period day to an A/B Block work. And then it becomes their creation."



Administrator #2 said, “Well, first of all, you want to do your homework. You want to have your administrative team go to another school that’s doing the quote/unquote schedule that you’re doing so you can see it first-hand. I tell folk all the time that it’s a difference between theory and application. When you see it, then you can say, huh, we can do this or we can do that. So just don’t go on theory and say I read this or I researched this; you need to see it in action. Once you see it in action, then you can decide that this is the best for me and my school.

Administrator #3 said, “Over prepare. You have to hyper prepare in the beginning when you’re switching from one schedule type to another. Do your research. Go out prior to. Read as much as you can on the new schedule type. Visit other schools and districts who have been running it. Ask questions of them. Get that feedback. That way, you are as prepared as you can possibly be because there are going to be pitfalls. You need to be looking for those pitfalls and really kind of expecting those things. Whereas, if you didn’t do your homework, these things are going to blindside you. Then you’re gonna be caught off guard. Then you’re gonna be more reactive in your nature instead of being proactive and planning ahead.”

“Doing your research” is something that the one superintendent did before moving back. “Our research in the state shows about 24 percent of the parishes were still on a strict 4 x 4 block schedule,” Lavolette said. There has been trepidation to the move, but the superintendent said the school district will do everything in its power to make sure the transition is as seamless as possible” (Vaughn, 2019).

Finally, when asked were there any other comments or information that you would like to share, Administrator #1 said, “I think buy-in is the most important thing

you can do. No one likes not being part of the process. Now, we went from the A/B Block to the 7-period day, and I'm not being critical of it, but there was no pre-discussion. We did it for economic reasons and not educational reasons, but even then, there wasn't a whole lot of opposition. I just knew that once we left a block schedule, we would never go back, and I don't ever see that happening in (our district). The only way I see it happening is if (the state) takes away some local control and says that all schools will be on a particular type of schedule, and good Lord, I don't see that happening at all."

Administrator #2 said, "I will say that anybody that is considering going to block schedule, my whole career I've worked in low performing schools. I think it benefits those schools because the teachers get to keep their kids longer, and they can go in-depth. I think that when you're on a traditional six period or seven period day when you're talking about 45 minutes and 50 minutes, by the time you get into your lesson, the bell sounds. So, then you have to start all over again. So, I really like the block schedule. It is more expensive because you have to have more electives, and that's why our district decided not to go with block because of financial situations."

Administrator #3 said, "Really, you know, looking at the different schedule types, I think I'm lucky. Whereas some principals may have run only one schedule type, I've been a part of a 6-period, a 7-period, 4 x 4, and an A/B. So, I've run the gamut on all of them. I just think that all of them have their benefits and all of them have their things that are drawbacks as well. At the end of the day, it's all about student achievement and making whatever schedule you're in fit your needs as a school and your student's needs. Carving out that time for things such as RtI and additional supports for those kids that

really need it, and nowadays, really all of our kids because of different bubble groups. Just be prepared and make sure that you're doing everything that you can to move students in the right direction." Smith's (2017) and Williams' (2011) research produced similar findings to the administrators' answers to this question.

The questions for this interview were versions of questions used in the Davis-Wiley et al. (1995) study. In that study, the researcher examined the perceptions of administrators and teachers in two Tennessee high schools that had moved from a traditional 6-period school day to a 4 x 4 block school day. Ten administrators were surveyed, and four were interviewed.

Many responses in the Davis-Wiley et al. (1995) study were similar to the responses of administrators in this study. The importance of staff development, the positive reaction of students, and the positive overall impact on school climate were noted. A difference was that most administrators in the Davis-Wiley et al. study felt that the move to block scheduling had a significant impact on their administrative roles.

The administrators in this study agreed that student and parent adjustment to a schedule change type was virtually a non-factor. Once the schedule was implemented, both students and parents got on board. Teacher adjustment to the schedule change was the most crucial factor. In order to maximize commitment and minimize chaos, ensuring that teachers are, and know that they are, a crucial part of this process is important. The adjustment for administrators to changes in schedule was also minimal.

Block scheduling was the preferred schedule type of administrators interviewed for this study. All administrators in this study encouraged other administrators considering any type of schedule change to over prepare before implementation, get their

teachers on board with the change, communicate the changes to parents and students, and do what is best for students with the schedule you have.

The review of research that the impact of block scheduling on student achievement and school climate factors was ambiguous. The results of some studies indicated a positive impact, while the results of other studies indicated no impact or a possible negative impact. The results of this study reinforce this ambiguity. The results of this study show no significant statistical difference in composite ACT scores and attendance rates of students between students on block and traditional schedules. The results of this study show that there is a significant statistical difference in graduation rates between students on block and traditional schedules.

The review of research that focuses on the perceptions of school administrators who worked in schools that changed schedule types generally indicated that administrators preferred block scheduling to traditional scheduling. It also indicated that students and parents had positive views of block scheduling. The results of this study echoed those sentiments. The sum of the results of this research seemed to align with the current research.

Block scheduling should not be considered a silver bullet. Like other schedule types and other facets of education, it is a tool that can be used to impact student achievement and school climate. How it impacts or the degree to which it impacts depends on the situation and the people in the situation.

### **Limitations**

Several limitations existed for the study. These limitations were associated with the archival data, descriptive data and interview.

1. The schools in the study all used the A/B block schedule. Because of this factor, the results may be considered only generalizable to A/B block situations.
2. The study was limited to variables used. There are other factors that can be measured including tardy rates, discipline rates, end of course scores, and Advanced Placement Scores.
3. The study was limited by the schools selected. The schools selected were from a single district.
4. The study was limited by the school administrators selected to be interviewed. Thus, the information presented in this study is limited to their experiences and their views.

### **Recommendations for Policy and Practice**

The following are recommendations for policy and practice. A key element in the success of the schedule change process is communication. Districts and administrators should work to prepare all stakeholders for the change and effectively communicate the change process to all stakeholders.

Another crucial element is securing teacher buy-in to the schedule change process. It is important to ensure that teachers are actively engaged and are given meaningful roles in the schedule change process. The administrator interviews for this

study repeatedly point to this as a crucial factor. The research referenced in this study also does.

Because both student success and teacher success depend on it, districts and administrators should provide professional development for teachers during the schedule change process. Additionally, teachers should also be involved in the selection of professional development. Both the research referenced in this study and the advice of the administrators interviewed for this study points to this as a key factor in the successful change from one schedule type to another.

Finally, districts should offer parent informational and training sessions during the schedule change process. As noted in the responses of the administrators interviewed for this study, student like or dislike of the schedule plays a big role in parent like or dislike of the schedule. Parent training sessions will help parents prepare their children for the schedule change, which in turn may lead to a greater appreciation of the schedule type by both student and parent.

### **Recommendations for Future Research**

This study evaluated the impact of block scheduling on student achievement and school climate by analyzing the composite ACT scores, graduation rates, and attendance rates of three schools in the same district that transitioned from traditional scheduling to block scheduling and back to traditional scheduling. The study addressed important issues, but there are still questions to be answered.

There are limited studies on schools and districts that have made the transition from block scheduling back to traditional schedules. Future research may focus on those

schools. Because more districts are now making this choice, researching the effects of that choice is important.

Administrators who are facing a scheduling choice selection would benefit from the experiences of those who have gone through it. Research that focuses on the experiences of administrators with the change from schedule type to schedule type is important.

Though there is research on the subject, current examinations of the effects of block scheduling on student achievement and school climate at the middle level may also give administrators at that level greater insight.

Finally, the schools in this study all utilized the A/B Block Schedule. Current research on the implementation of the 4 x 4 Block Schedule could also give administrators needed information.

### **Summary**

The purpose of this study was to determine the impact of block scheduling on student achievement, graduation rate, and attendance at the high school level. In an attempt to do that, a problem statement, research questions, and research hypotheses were formed. A review of related literature was completed that examined the history of scheduling in American schools, compared schedule types, and noted current trends in scheduling.

The methodology of the study was presented and detailed how data would be collected and analyzed. The data was collected, analyzed, and results were presented. The results indicate that there is no significant difference in the ACT scores, graduation rates, or attendance rates between students who are on block schedules and those on

traditional schedules. Conclusions and discussions were presented. Lessons from administrators who lived through the process of schedule change were presented in order for administrators who are faced with the possibility of schedule change could benefit from them. Finally, limitations, recommendations for policy and practice, and recommendations for future study were presented.

This study will add to the volume of research on the subject of block scheduling and serve as a reference for those considering or experiencing a change in schedule at the high school level.



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**APPENDIX A**

**HUMAN USE APPROVAL LETTER**





OFFICE OF SPONSORED PROJECTS

EXEMPTION MEMORANDUM

TO: Mr. Sedric Clark and Dr. Bryan McCoy

FROM: Dr. Richard Kordal, Director of Intellectual Properties  
[rkordal@latech.edu](mailto:rkordal@latech.edu)

SUBJECT: HUMAN USE COMMITTEE REVIEW

DATE: October 16, 2020

TITLE: "The Impact of 4X4 Block Scheduling on Student Achievement,  
Graduation Rate, and Attendance at the High School Level"

NUMBER: HUC 21-022

According to the Code of Federal Regulations Title 45 Part 46, your research protocol is determined to be exempt from full review under the following exemption category(s): 45 CFR 46.104(d) (2) i.

"Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording) if at least one of the following criteria is met:

- (i) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects;
- (ii) Any disclosure of the human subjects' responses outside the research would not reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, educational advancement, or reputation; or
- (iii) The information obtained is recorded by the investigator in such a manner that the identity of the human subjects can readily be ascertained, directly or through identifiers linked to the subjects, and an IRB conducts a limited IRB review to make the determination required by § 46.111(a)(7)."

Thank you for submitting your Human Use Proposal to Louisiana Tech's Institutional Review Board.

A MEMBER OF THE UNIVERSITY OF LOUISIANA SYSTEM

P.O. BOX 3092 • RUSTON, LA 71272 • TEL: (318) 257-5075 • FAX: (318) 257-5079

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## **APPENDIX B**

### **ADMINISTRATOR INTERVIEW QUESTIONS**

### Administrator Interview Questions

1. Describe how you prepared staff to move from one schedule type to another.
2. How was your administrative role affected by the implementation of the new schedule?
3. What were the reactions of the students to the new schedule type?
4. What were the reactions of parents to the new schedule type?
5. What advice would you give novice administrators on changing schedule types?
6. Are there any other comments or information that you would like to share?

Taken from: Davis-Wiley, et al. (1995). Block Scheduling in the Secondary Arena: Perceptions from the Inside.

**APPENDIX C**

**LETTER TO SUPERINTENDENT**

1081 Vesta Ave  
Gladewater, TX 75647  
March 31, 2020

Keith Burton, Chief Academic Officer  
Caddo Parish Public Schools  
1964 Midway Avenue/PO Box 32000  
Shreveport, Louisiana 71130

Dear Mr. Burton,

As you are aware, I am in the educational leadership doctoral program at Louisiana Tech University and I am in the process of writing a dissertation. My dissertation focuses on the impact of block scheduling on student achievement, graduation rate and attendance.

Over the past years, Caddo Parish high schools moved from traditional scheduling to block scheduling and then, back to traditional scheduling. An evaluation of that change in scheduling and the student data associated with it would be critical to my study.

I am requesting permission to access the ACT composite scores, graduation rates, and attendance rates of CE Byrd High School, Green Oaks High School and Southwood High School for the 2005-2017 school years. I am also requesting permission to interview administrators who served at those schools and the superintendents who led the district during this period.

If permission is granted, I will send you a list of interview questions before I speak with administrators. Because the information that I gather may prove beneficial to your district, I will share the results of the evaluation of student data and interviews once the study is completed.

Thank you for your assistance in this matter. Please let me know if more information is needed from me.

Sincerely,



Sedric G. Clark