

## **Relationship of Instructional Time Configuration, Gender and Race on Seventh Grade Social Studies Performance**

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### **Abstract**

This study compared the academic performance of seventh-grade students on a state-mandated social studies accountability test by the instructional time configuration used and explored the relationship among the variables of gender, race and poverty on this performance. Results of 24,919 seventh-grade student social studies test scores from 117 middle schools as well as a survey given to principals of the same 117 middle schools were analyzed. While controlling for poverty, students in schools using a 61-79 minute block all year schedule configuration earned significantly higher test scores than students using any other schedule configuration. Additionally, White students scored significantly higher on the test than Hispanic students, and Hispanic students scored significantly higher on the test than Black students regardless of the instructional time configuration used.

**Key words:** instructional time, middle level education, scheduling, social studies, testing

### **Introduction**

Many teachers and administrators are still struggling with how the content area of social studies fits into the educational transparency and accountability world first created by the *No Child Left Behind Act* (NCLB, 2002) and continuing with the *Every Child Succeeds Act* (ESSA, 2015). With the focus on reading/language arts and mathematics, this national legislation does not mandate standardized testing in social studies nor does it include social studies in its school performance calculations. Because of this omission, the legislation has had a dramatic impact on social studies instruction. In addition, the adoption of Common Core State Standards in many states added even more pressure on teachers' curricular decisions. These more rigorous standards have caused teachers to focus additional attention on implementing and teaching the English

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Language Arts and Literacy Standards and Mathematics Standards at the expense of other subject areas (Alberti, 2012/2013).

Past studies show the pressure on schools to perform well in the tested subjects of reading/language arts, mathematics, and science impacts both the schedule (i.e., time allocated to instruction) and the actual amount of time spent teaching social studies (Abrams, Pedulla, & Madaus, 2003; Bailey, Shaw, & Hollifield, 2006; Burroughs, Groce, & Webeck, 2005; Heafner, 2018; Houser, Krutka, Roberts, Pennington, & Coerver, 2017; Kavanagh & Fisher-ari, 2018; Leming, Ellington, & Schug, 2006; Lintner, 2006; Pace, 2012; Segail, 2003; VanFossen, 2005; Vogler, 2003; Vogler & Virtue, 2007; Zamosky, 2008). Lintner (2006) found in a study of Kindergarten through fifth-grade social studies in South Carolina that “with such a tremendous emphasis being placed on reading, writing, and math, social studies has to fight for instructional time” (p.3). Bailey et al. (2006) determined that the actual amount of instructional time spent on social studies in Kindergarten through fifth-grade, self-contained classrooms in Title I schools in the state of Alabama confirmed the assault on social studies’ instructional time reported by Lintner (2006). Bailey et al. (2006) also found that not only was the instructional time spent on social studies reduced in Alabama’s elementary schools, but the amount of time actually spent on social studies on average was far less than the amount of time allocated by the school district and mandated by the state. In fact, there were weeks in some schools when social studies was not taught at all (Bailey et al., 2006). Also, researchers vonZastrow and Janc (2004) surveyed over 900 elementary-level and secondary-level principals across the United States and found that schools spent more time on and allocated more resources to instruction in reading and math than to social studies because of pressures to meet state and federal accountability mandates.

### **South Carolina’s Testing Program**

Before the national education accountability legislation NCLB (2002) and its successor the ESSA (2015), the state legislature passed the South Carolina Education Accountability Act in 1998 which enacted a review process for evaluating K-12 schools in South Carolina (South Carolina Department of Education, 2009). The primary instrument for measuring student progress according to this law was the Palmetto Achievement Challenge Test (PACT). In 1999, the PACT was first administered to students in grades 3-8 and scores were categorized as Advanced, Proficient, Basic, or Below Basic. The tests first included only sections in mathematics and English, but in spring 2003 the assessment was expanded to include science

and social studies. However, in spring 2007 the state cutback on its testing program and introduced the census testing of social studies and science in grades four and seven; This meant that only students in grades four and seven would be required to take both the social studies and science tests. For students in grades three, five, six, and eight, they would take either the social studies or science test but not both. In June 2008, the assessment system was renamed the Palmetto Assessment of State Standards (PASS). The only major difference between the PACT and the PASS was the categories used to report student scores. Whereas the PACT categorized student scores as Advanced, Proficient, Basic, or Below Basic, student scores on the PASS were to be reported as Exemplary, Met, or Not Met. Individual student scores on these tests would be used to help determine a ranking for the state's School Report Card that rates schools as Excellent, Good, Average, Below Average, and Unsatisfactory (South Carolina Department of Education, 2009). In 2014, the PASS was changed to the South Carolina Palmetto Assessment of State Standards (SCPASS).

At the time this study was conducted, the PASS was the state's testing program and the social studies portion consisted of 45 items for third grade up to 60 items for eighth grade. Each item was a 1-point, four-option, multiple-choice question aligned to the standards for that particular grade level (South Carolina Department of Education, 2009). In addition, the test contained 6 to 12 embedded field test items. These items were for test development purposes only and were not included in the calculation of student scores (South Carolina Department of Education, 2009).

### **Modern Learning Theory**

A fundamental tenet of modern learning theory, that different or expanded learning goals require different approaches to instruction, also suggests that expanded opportunities to learn may also be required (Bransford, Brown, & Cocking, 1999). Because prior knowledge forms the foundation needed to efficiently acquire new knowledge (Wanzek, Roberts, Vaughn, Swanson, & Sargent, 2019) and a student's level of background knowledge can predict future academic achievement (Cromley & Azevedo, 2007; Taboada, Tonks, Wigfield, & Guthrie, 2009), the relevancy of allocating appropriate amounts of instructional time is particularly significant (Dochy, Segers, & Buehl, 1999).

It is not a stretch to conclude that scheduling configurations have the power to not only compromise a teacher's ability to provide time to ensure their students have an in-depth coverage

of a subject such as social studies, but also their ability to provide the type of quality of instruction necessary for their students to learn the material and relate it to their lived worlds. These types of relevant connections to the skills and to other areas of the curriculum are essential to prepare elementary and middle-level students for future studies at the secondary-level (Abrams et al., 2003; Bloom, 1974; Carroll, 1963; Hirsch, 2006; Leming, Ellington, & Schug, 2006; National Education Commission on Time and Learning, 1994; Slavin, 1994; Walberg, 1988). This is especially true in the era of high-stakes testing when developmentally-appropriate practices for students, particularly at the middle-level, are incongruent with the standards-based summative accountability expectations of academic rigor within content-discreet oriented curriculum and instruction (Anfara & Waks, 2001). Therefore, the challenge for educators is how to allocate, organize, and employ instruction time so that curriculum content and pedagogy can be aligned in ways that are integrated, relevant, exploratory, and engaging, while simultaneously enabling students do well on standardized state-sanctioned tests (Thompson, 2000).

### **Scheduling Configurations**

Most states have laws that define the minimum number of days per year and hours per day that students must attend school. The minimum amount of instructional time is specified; however, the way time is allocated is not prescribed and thus enables schools to have considerable flexibility in instructional time configurations based on prioritized instructional and non-instructional activities. Unfortunately, criticism of how instructional time is structured has a history spanning over 300 years (Zepeda & Mayers, 2006); the latest epoch of this issue has included publications such as *A nation at risk: The imperative for education reform* (National Commission on Excellence in Education, 1983), *A Place Called School: Prospects for the Future* (Goodlad, 1984), and *Prisoners of time: Report of the National Education Commission on Time and Learning* (National Education Commission on Time and Learning, 1994), all demanding the restructuring of instructional time.

In response, an unprecedented wave of schools moved away from traditional schedules and adopted different configurations touted as a way to maximize instructional time (Canady & Rettig, 1996). For example, in Texas, the number of high schools using block scheduling rose from 4 percent to over 40 percent in a four-year span between 1992 and 1995 (Texas Education Agency, 1999). Block scheduling was seen as an instrument to maximize instructional time by (1) reducing the number of students for whom teachers must prepare and with whom teachers

and arrived each day and/or each term; (2) reducing the number of classes, and assignments, tests, and projects that teachers must address during any single day of term; (3) reducing the fragmentation in traditional schedules, a complaint especially pertinent to classes requiring extensive practice and laboratory work; (4) providing teachers with lots of time that allow and encourage the use of active teaching strategies promoting greater student involvement; and (5) allowing students variable amounts of time for learning without lowering standards, and without punishing those who need more or less time to learn (Hottenstein, 1998). Currently, the most commonly used configurations are the traditional instructional time configurations and the flexible instructional time configurations (Daniel, 2007).

### **Traditional schedules**

Traditional schedules are those with “a fixed number of daily periods of uniform length, with delivery of instruction strictly adhering to departmental classifications” (Hackmann & Valentine, 2000, p. 6). Traditional schedules generally contain from five to ten instructional periods (Hackmann & Valentine, 2000).

### **Flexible schedules**

Flexible schedules are those that are characterized by a shift from fixed-time instructional periods (e.g., 40-50 minutes) towards longer instructional periods (e.g., 75-150 minutes). These extended amounts of time within flexible instructional time configurations are often associated with inquiry or constructivist pedagogies rather than didactic lecture (Bevevino, Snodgrass, Adams, & Dengel, 1999; Daniel, 2007). The two most commonly used flexible instructional time configurations are known as block scheduling and alternate day class scheduling or what is referred to as the A/B schedule (Daniel, 2007).

### **Block schedules**

Block scheduling uses blocks of time created from combining instructional time allotted for a traditionally scheduled period (45-minutes) into two or more combined periods (Hackmann, 2002). This can include periods of all the same length (e.g., 90 minutes) or can adjust the length of time devoted to each time block according to the instructional needs of students (e.g., core academic subjects such as math and language arts may be assigned longer blocks of time while subjects not considered core or academic such as physical education and art may be assigned shorter blocks of time). The length of time of a block can also vary from day to day and week to week. Common block instructional time configurations in middle-level use what is referred to as

a 4x4 (four-by-four) schedules where students take four classes for half an academic year and then four different classes the second half of the academic year (Daniel, 2007).

### **A/B schedule**

Flexible instructional time configurations may also utilize an alternating day schedule. In this arrangement, classes may be assigned to meet on an every-other-day basis with even-numbered and odd-numbered class periods meeting on alternating days (Hackmann, 2002). For example, students may attend one set of classes on certain days of the week and another set of classes on the remaining days.

### **Statement of the Problem**

The federally mandated NCLB and later ESSA legislation's focus on reading/language arts and mathematics testing outcomes has forced administrators and teachers to allocate more instructional time to these content areas at the expense of other content areas. However, 28 states, including South Carolina, still include social studies as part of their accountability system and mandate scores in this content area to be included as part of a school's review (Mullen & Woods, 2018). If students are expected to score within a particular range in the area of social studies on the state's accountability test, in spite of the pressure and focus on reading/language arts and mathematics, it stands to reason that there needs to be a re-examination in the ways in which instructional time is allocated vis-à-vis scheduling configurations to teach these content areas.

### **Purpose of Study**

The purpose of this study was to compare the social studies performance of middle school students by the instructional time configuration used and examine the relationship among the variables of gender, race, and poverty on this performance. Specifically, this study was designed to identify how instructional time configuration affects scores on a state-mandated social studies test and how the variables gender, race, and poverty impact this relationship.

### **Research Questions**

The following are the study's research questions:

1. How does instructional time configuration affect seventh-grade social studies test scores on a state-mandated test?
2. How does instructional time configuration impact seventh-grade students' achievement on the social studies portion of a state-mandated test relative to gender and race/ethnicity?

This article begins with a description of the study's method followed by an examination of the results of the research questions and concludes with information about the study's limitations and directions for future research.

## **Method**

The data to answer the research questions were obtained through: (1) an examination of 2009 seventh-grade student PASS social studies test scores, (2) South Carolina Poverty Index data,<sup>1</sup> and (3) the results of a survey instrument given to South Carolina middle-level principals designed to elicit information about the instructional time configuration used at their school.<sup>2</sup>

### **Archived PASS and Poverty Index Data**

The South Carolina State Department of Education (SCSDOE) archival data set for the 2009 spring administration of the social studies seventh-grade PASS test (school level, aggregate data only) was used in the present study. The data set was accessed from SCSDOE's PASS data website. In addition, Poverty Index data for 2009 was also retrieved from the SCSDOE's data website archives. The Poverty Index data served as a covariate in this study—to control for poverty.

### **Survey Instrument**

A survey instrument was used to collect data on scheduling configurations and principals' perception data. The instrument asks for demographic information and includes 10 likert item questions. The validity of the survey instrument was previously established through a longitudinal study that began in 2003 (see Rock et al., 2006). Survey questions were developed by university social studies education professors and reviewed by preservice elementary-level and middle level education teachers, practicing teachers, and other university faculty. The questions were edited to improve clarity, reduce bias, and guarantee consistency in interpretation. Survey questions were pilot tested with 25 preservice and 25 practicing teachers. The questions were then redesigned to accommodate recommendations in order to insure the validity of the instrument. Permission to use the survey instrument and to modify questions for the present study was received from the developing researchers and the review board of the University of South Carolina.

An internal consistent reliability analysis was used to assess the reliability of scores yielded by the survey instrument. Cronbach's alpha was used to assess score reliability of the

survey instrument. The survey instrument had an alpha of .73, this is slightly above the .70 suggested as being indicative of adequate score reliability (Nunnally & Bernstein, 1994).

### **Sample**

The target population for this study consisted of seventh grade students attending traditional public middle-level schools (excluding charter schools and schools with multiple elementary and secondary grades) in South Carolina who took the PASS social studies test in Spring 2009. There were 210 schools in 73 school districts that met these criteria and they were contacted for possible participation in this study. After contacting these schools and school districts, 117 schools representing 58 districts agreed to participate. Meaning, there was a 56% response rate from schools eligible to participate in the study and a 79% response rate from the eligible districts in the state. The participating schools in this study are representative of the state in terms of percentage rural and urban and student characteristics of race, income, and past performance on state accountability assessments.

The principals of the 117 participating middle-level schools completed the survey instrument. This survey instrument, as previously mentioned, elicited information regarding the instructional time configuration used at the school. This information, in combination with the data set containing the individual student results of the 2009 spring administration of the social studies seventh-grade PASS test, provided data on the instructional time configuration used in each school and the individual PASS social studies test results, including gender, and race of every seventh grade student in the 117 participating middle-level schools. The total sample size for this study was 24,506 students.

## **Findings**

### **Research Question 1**

1. *How does instructional time configuration affect seventh-grade student social studies test scores on a state-mandated test?*

The information to answer this question begins with the study's sample. Descriptive statistics about the sample, including size, percentage, mean, and standard deviation of the variables instructional time configuration, gender, and race are displayed in Table 1.

**Table 1**

*Descriptive Statistics of Seventh-Grade Student PASS Social Studies Test Scores by Instructional Time Configuration, Gender, and Ethnicity*

Variable	<i>N</i>	%	<i>M</i>	<i>SD</i>
Instructional Time Configuration				
Trad 45-60 min blk all year <sup>a</sup>	15928	63.7	617.23	48.95
61-79 min blk all year <sup>b</sup>	5780	23.1	621.34	51.59
80-90 min blk all year <sup>c</sup>	1710	06.9	609.36	47.28
A/B 80-90 min blk all year <sup>d</sup>	1336	05.4	624.97	49.67
A/B 45-60 min blk all year <sup>e</sup>	131	00.5	599.05	38.25
Other <sup>f</sup>	106	00.4	612.98	48.45
Gender				
Male	12859	51.5	621.48	53.66
Female	12132	48.5	614.23	44.57
Ethnicity				
White	14670	58.7	628.55	50.69
Black	8600	34.4	598.72	40.93
Hispanic	1196	04.8	612.39	45.19
Asian	371	01.5	652.67	23.34
American Native/Alaskan	72	00.3	622.96	45.72
Missing	82	00.3		

*Note.* <sup>a</sup>73 schools used this configuration. <sup>b</sup>25 schools used this configuration. <sup>c</sup>10 schools used this configuration. <sup>d</sup>7 schools used this configuration. <sup>e</sup>1 school used this configuration. <sup>f</sup>1 school used this configuration.

In terms of instructional time, traditional 45-60 minute block all year (63.7%) and 61-79 minute block all year (23.1%) were the configurations most frequently used by the sample school population; hence, most widely used by the sample student population. These instructional time configurations were followed by 80-90 minute block all year (6.9%) and A/B 80-90 minute block all year (5.4%). One school used an A/B 45-60 min block all year configuration ( $N = 131$ ,  $\% = .5$ ) and another school used an unnamed “other” instructional time configuration ( $N = 106$ ,  $\% = .4$ ).<sup>3</sup> In regards to the independent variable gender, the sample population was made up of 51.5% males and 48.5% females. Among the different race/ethnicities of students, White (58.7%) and Black (34.4%) comprised 93.1% of the total sample population. They were followed by Hispanic (4.8%), Asian (1.5%), and American Native/Alaskan (.3%).<sup>4</sup>

To answer the first research question, an analysis of variance (ANOVA) was used to compare the variable instructional time configuration to the 2009 seventh-grade student PASS social studies test scores. This statistic was used because we compared one independent variable (instructional time configuration) with one scale level dependent variable (2009 seventh-grade student PASS test scores). Results of the ANOVA show that there was a significant interaction between instructional time configuration and seventh-grade student PASS social studies test scores,  $F(3, 24346) = 35.72, p = .000, \text{partial } \eta^2 = .004$ . The Levene's test was used to check the assumption that the variances of the four instructional time configurations were equal. Results showed the Levene's test was significant and therefore the assumption of equal variances was violated. Since the Levene's test was significant, a Games-Howell post hoc test was used. Results of the Games-Howell post hoc test revealed there were significant mean differences ( $p = .000$ ) between all the combinations of the four instructional time configurations with the exception of the difference between the 61-79 minute block all year and the A/B 80-90 minute block all year instructional time configurations ( $p = .083$ ). Then, because poverty has been identified as a variable with potential to significantly impact student achievement (Anderson, 1993; Guo & Harris, 2000), an analysis of covariance (ANCOVA) was conducted on the interaction between instructional time configuration and 2009 seventh-grade student PASS social studies test scores using a covariate, 2009 Poverty Index, to control for student poverty level. Table 2 shows the result of this analysis.

**Table 2**

*Analysis of Covariance for Seventh-Grade Student PASS Social Studies Test Scores as a Function of Instructional Time Configuration, Using Poverty Level as a Covariate*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Partial $\eta^2$
InstrTime	3	12119.14	5.18	.001	.001
Poverty	1	1394527.32	596.26	.000	.024
InstrTime*Poverty	3	10147.92	4.34	.005	.001
Error	24342	2338.79			

As shown in Table 2, the result of the ANCOVA showed a statistically significant interaction between seventh-grade PASS social studies test scores and instructional time configuration,

while controlling for poverty,  $F(3, 24342) = 5.18, p = .001$ , partial  $\eta^2 = .001$ . In other words, after controlling for students' poverty level, there is a significant difference among the four instructional time configurations and seventh-grade student PASS social studies test scores.

Table 3 presents the means and standard deviations of seventh-grade student PASS social studies test scores by instructional time configuration before and after controlling for poverty level.

**Table 3**

*Adjusted and Unadjusted Means and Variability for Seventh-Grade Student PASS Social Studies Test Scores as a Function of Instructional Time Configuration, Using Poverty Level as a Covariate*

Instructional Time Configuration	<i>Unadjusted</i>				<i>Adjusted</i>	
	<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SE</i>
Trad 45-60 min blk all year	15660	64.3	617.23	48.95	617.56	0.39
61-79 min blk all year	5687	23.4	621.34	51.59	620.27	0.64
80-90 min blk all year	1684	06.9	609.36	47.28	617.42	0.46
A/B 80-90 min blk all year	1319	05.4	624.97	49.67	614.64	1.63

As displayed in Table 3, after controlling for students' poverty level, the 61-79 minute block all year instructional time configuration had the greatest seventh-grade student PASS social studies test score mean (620.27). This configuration was followed by the traditional 45-60 minute block all year (617.56) and 80-90 minute block all year (617.42) instructional time configurations. The A/B 80-90 minute block all year instructional time configuration had the greatest seventh-grade student PASS social studies test score mean (624.97) before controlling for poverty, but after adjusting for students' poverty level this configuration had the lowest seventh-grade student PASS social studies test score mean at 614.64.

## Question 2

*2. How does instructional time configuration impact seventh-grade students' achievement on the social studies portion of a state-mandated test relative to gender and race/ethnicity?*

In addition to poverty, the impact of gender and race/ethnicity on student achievement has been well documented in the literature (Clotfelter, Ladd, & Vigdor, 2009; Fryer & Levitt, 2004, 2006; Holman, 1995; Hull, 2017; Kohlhass, Lin, & Chu, 2010; Thomas & Stockton, 2003). An ANOVA was used again to answer the research question. However, for this research question, a three-way ANOVA was used to help understand the impact students' gender and

ethnicity, as well as the instructional time configuration used, had on seventh-grade student PASS social studies test scores. Table 4 shows the results of the three-way ANOVA.

**Table 4**

*Three-Way Analysis of Variance for Seventh-Grade Student PASS Social Studies Test Scores as a Function of Instructional Time Configuration, Gender, and Race*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Partial $\eta^2$
InstrTime	3	12955.06	5.90	.001	.001
Gender	1	40951.41	18.63	.000	.001
Race	2	1079244.18	491.06	.000	.040
InstrTime*Gender	3	1923.23	.88	.453	.243
InstrTime*Race	6	11691.84	5.32	.000	.001
InstrTime*Gender*Race	6	2634.33	1.20	.304	.001
Error					

As presented in Table 4, the interaction among the variables instructional time configuration, gender, and ethnicity on seventh grade student social studies PASS test results was not statistically significant, nor was the interaction between instructional time configuration and gender. However, there was a statistically significant interaction between instructional time configuration and ethnicity,  $F(6, 23814) = 5.32$ ,  $p = .000$ , partial  $\eta^2 = .001$ . The Levene's test was used to check the assumption that the variances of the four instructional time configurations and three race/ethnicities (White, Black, and Hispanic) were equal. Results showed the Levene's test was significant and therefore the assumption of equal variances was violated. Since the Levene's test was significant, a Games-Howell post hoc test was used. Results of the Games-Howell post hoc test revealed there were significant mean differences ( $p = .000$ ) between the combinations of the four instructional time configurations and White students, White and Black students, and Black and Hispanic students.

An ANCOVA was then used to analyze the interaction between instructional time configuration and ethnicity using The Poverty Index data as a covariate to control for student poverty level. Table 5 shows the result of this analysis.

**Table 5**

*Analysis of Covariance for Seventh-Grade Student PASS Social Studies Test Scores as a Function of Instructional Time Configuration and Race, Using Poverty Level as a Covariate*

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>	Partial eta <sup>2</sup>
InsrTime	3	7956.93	3.68	.012	.001
Race	2	59532.45	27.51	.000	.000
Poverty	1	131934.14	60.98	.000	.000
InstrTime*Race*Poverty	6	6644.05	3.07	.005	.001
Error	23814	2163.73			

As shown in Table 5, the result of the ANCOVA showed a statistically significant interaction between instructional time configuration and ethnicity, while controlling for poverty,  $F(6, 23814) = 3.07, p = .005, \text{partial } \eta^2 = .001$ .

Table 6 presents the means and standard deviations of White, Black, and Hispanic students on the seventh-grade student PASS social studies test before and after controlling for poverty level.

As shown in Table 6, White students scored significantly higher on the test than Hispanic students, and Hispanic students scored significantly higher on the test than Black students regardless of the instructional time configuration used both before and after controlling for poverty level. In other words, White students scored highest on the test followed by Hispanic and then Black students in all instructional time configurations. Also, Table 6 shows that after controlling for poverty level there were only slight differences in the test results for White, Black, and Hispanic students—with two exceptions. The mean test score for White students using an A/B 80-90 minute instructional time configuration dropped 9.4 points (from 637.58 to 628.18) after controlling for poverty level. For Black students using a 80-90 minute block configuration, the mean test score rose 8.17 points (from 593.91 to 602.08) after controlling for poverty level.

**Table 6**

*Adjusted and Unadjusted Instructional Time Configuration Means and Variability by Race for Seventh-Grade Student PASS Social Studies Test Scores, Using Poverty Level as a Covariate*

Instr Time	White					Black					Hispanic				
	Unadjusted			Adjusted		Unadjusted			Adjusted		Unadjusted			Adjusted	
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SE</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SE</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SE</i>
Trad 45-60 Min blk all year	9430	626.98	50.01	626.05	.48	5143	598.35	40.31	599.56	.69	768	610.78	43.60	610.61	1.73
61-79 min blk	3084	634.71	52.46	631.55	.90	2203	601.78	43.66	603.90	1.03	265	614.54	43.13	615.20	2.88
80-90 min blk	908	620.10	50.24	621.53	1.60	702	593.91	37.62	602.08	3.86	57	619.93	50.84	620.86	6.64
A/B 80-90 min blk	860	637.58	49.44	628.18	2.22	355	595.57	38.11	594.09	2.57	63	614.29	41.92	613.38	5.87

## **Discussion**

### **Research Question 1**

How does instructional time configuration affect seventh-grade student social studies test scores on a state-mandated test? Results of an ANOVA comparing the sample's four most frequently used instructional time configurations by the sample school population to the 2009 seventh-grade student PASS social studies test scores and an ANCOVA using the 2009 Poverty Index to control for student poverty level found a significant difference among the instructional time configurations and the seventh-grade student PASS social studies test scores. Students in schools using a 61-79 minute block all year schedule configuration earned significantly higher seventh-grade student PASS social studies test scores than students in schools using a traditional schedule configuration or the sample's two other frequently used types of block scheduling configurations. This finding supports previous research concluding block-scheduled students perform better on standardized tests than traditionally scheduled students (Cobb, Abate, & Baker, 1999; Evans, Tokarczyk, Rice, & McCray, 2002; Hess, Wronkovich, & Robinson, 1999; Mattox, Hancock, & Queen, 2011, Payne & Jordan, 1996; Queen, Algozzine, & Eaddy, 1996) and refutes findings of previous studies that either conclude there are no significant differences in student performance with regard to the scheduling configuration used at the school (Duel, 1999; Lare, Jablonski, & Salvaterra, 2002; Snyder, 1997; Veal & Schreiber, 1999) or traditionally scheduled students outperform block-scheduled students (Arnold, 2002; Gruber & Onwuegbuzie, 2001; Knight, DeLeon, & Smith, 1999; Lawrence & McPherson, 2000; Pisapia & Westfall, 1997).

However, these findings show that there is a limit to the effectiveness of block scheduling on students' academic performance. After controlling for student poverty level, the instructional time configurations with the greatest amount of per period class time (80-90 minute yearlong block and A/B 80-90 minute block all year schedule) had the lowest student achievement performance levels while the instructional time configurations with the least amount per period class time (61-79 minute yearlong schedule and traditional 45-60 minute schedule) had the highest performance levels. While the research literature addressing the relationship of achievement and instructional time configuration impact is sparse with regard to middle-level social studies testing scenarios, the findings of this study support those of similar studies (Gainey & Brucato, 1999; Lewis et al., 2003). Evidence that longer instructional periods fail to

adequately support average attention spans or the retention of general knowledge in core areas (Gould, 2003; Gullatt, 2006) supports the present study's finding that the schedules with the greatest amount of instructional time allocated to social studies (80-90 minute yearlong block and the A/B 80-90 minute block all year schedule) have the lowest student achievement level of all the instructional time configuration types.

### **Research Question 2**

How does instructional time configuration impact seventh-grade students' achievement on the social studies portion of a state-mandated test relative to gender and race/ethnicity? A three way ANOVA comparing the sample's four most frequently used instructional time configurations by the sample student population's gender and race/ethnicity to the 2009 seventh-grade student PASS social studies test scores followed by an ANCOVA on the interaction among instructional time configuration, student gender, and student ethnicity using the 2009 Poverty Index to control for student poverty level was used to answer this question. Results showed a significant interaction among the variables instructional time configuration, student ethnicity, and the seventh-grade student PASS social studies test scores. White students, both before and after controlling for poverty, scored significantly higher on the seventh-grade student PASS social studies test than Hispanic students, and Hispanic students scored significantly higher on the test than Black students regardless of the instructional time configuration used at the school. This result is consistent with general research findings that subgroup membership impacts achievement (Holman, 1995; Kohlhaas, Lin, & Chu, 2010; Thomas & Stockton, 2003), and is consistent with specific research addressing the race/ethnicity academic achievement gap (Clotfelter, Ladd, & Vigdor, 2009; Hull, 2017; Phillips & Chin, 2004; Reardon & Galindo, 2009).

Additionally, results show Hispanic and Black students scored higher on the seventh grade student PASS social studies test in the instructional time configurations meeting daily for a longer period of time (61-79 minute yearlong block and the 80-90 minute yearlong block schedule) than the traditional configuration. This finding coincides with previous research showing Hispanic and Black students perform better in block schedules with longer, concentrated periods of time than a traditional instructional time configuration (Candy & Rettig, 1995; Carroll, 1994; Evans, 2005; Fisher & Frey, 2007; Gill, 2011). Also, research on social studies instruction shows that longer class periods allow teachers increased opportunities for

group activities and in-class projects (Bryant & Bryant, 2000; DiBiase & Queen, 1999; Hamdy & Urich, 1998; Johnson & Johnson, 1989) and to abandon lectures and utilize strategies more compatible with individualized instruction (Slavin, Karweit, & Madden, 1989).

### **Limitations**

The scope and of this study was limited to South Carolina public middle-level schools meeting the criteria for inclusion in this study and whose principal completed the survey instrument. Only schools designated as public middle-level schools that contained grade seven were eligible for inclusion in the target population. Schools classified as charter schools and schools with multiple elementary and/or secondary grades were not included. Because South Carolina assesses social studies state-mandated test results as part of a school's report card calculation, caution must be used in making generalizations about social studies achievement in states that either do not assess social studies or do not assess it at the middle-level.

Further, because the results of this study considered instructional time configurations and achievement in social studies only at the seventh-grade, results could not be generalized beyond this grade level. Additionally, because this study was an initial study, only how instruction time is configured over the course of a school year was considered. The analysis was limited to the most commonly used instructional time configurations. Finally, data was only available at the school level. Therefore, intervening variables such as differences in how time was used within schedules/classrooms, instructional strategies, teacher quality, teacher experience and training, skill in teaching social studies, or the amount of engaged learning time were not addressed.

### **Conclusion and Future Research**

The study's first research question, comparing the social studies performance of middle school students by the instructional time configuration used at the school, results showed that while controlling for poverty, students in schools using a 61-79 minute block all year schedule configuration earned significantly higher seventh-grade student PASS social studies test scores than students in schools using a traditional schedule configuration or schools using either an 80-90 minute block or an A/B 80-90 minute block scheduling configuration. The second research question, the relationship among the variables instructional time configuration, gender, race, and poverty on student test performance, results indicated that while controlling for poverty, White students scored significantly higher on the seventh-grade student PASS social studies test than

Hispanic or Black students regardless of the instructional time configuration used at the school. Additionally, results show that Hispanic and Black students performed better in block schedules meeting daily for a longer period of time (61-79 minute yearlong block and the 80-90 minute yearlong block schedule) than the traditional configuration.

Although this study has provided valuable information about the effect instructional time (scheduling) configuration has had on students' social studies test performance, many questions still remain. For example, what are teachers' perspectives regarding traditional and block instructional time configuration and student achievement on state-mandated tests? What differences are there in the instructional practices used by teachers in meeting state standards in block and traditional instructional time configurations? Finally, what differences are there in students' grades and state-mandated testing performance in block instructional time configurations compared with the traditional time configuration?

### **Footnotes**

<sup>1</sup>The South Carolina Poverty Index is a calculation that ensures that student achievement among districts and schools across the state are being compared with districts and schools with similar student and demographic characteristics. The index is based on free and reduced-price lunch data and Medicaid eligibility data. It was developed in direct response to a mandate of the Code of Laws of South Carolina, Section 59-18-900(C) which required the state to set criteria for academic performance ratings and performance indicators and to establish guidelines for statistical analysis for data-reporting purposes.

<sup>2</sup>The survey instrument used in this study is available upon request from Kenneth Vogler, Department of Instruction and Teacher Education, University of South Carolina, Columbia, SC 29208. E-mail: kvogler@mailbox.sc.edu.

<sup>3</sup>Students in schools using an A/B 45-60 min block all year instructional time configuration and an unnamed “other” instructional time configuration were removed from further calculations because they made up only .9% of the total sample population.

<sup>4</sup>Asian and American Native/Alaskan students were excluded from further calculations because they collectively comprised only 1.8% of the total sample population.

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