A Study of First Grade Class Size Reduction Classes and Common Core State Standards Implementation in a Rural Mississippi School District

Toya Vatrina Harrell

Follow this and additional works at: https://scholarsjunction.msstate.edu/td

Recommended Citation

This Dissertation is brought to you for free and open access by the Theses and Dissertations at Scholars Junction. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Scholars Junction. For more information, please contact scholcomm@msstate.libanswers.com.
A study of first grade class size reduction classes and common core state standards implementation in a rural Mississippi school district

By

Toya Vatrina Matthews

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Elementary, Middle School, and Secondary Education Administration
in the Department of Leadership and Foundations

Mississippi State, Mississippi

December 2013
Copyright by
Toya Vatrina Matthews
2013
A study of first grade class size reduction classes and common core state standards implementation in a rural Mississippi school district

By

Toya Vatrina Matthews

Approved:

____________________________________
Linda T. Coats
(Major Professor)

____________________________________
R. Dwight Hare
(Committee Member)

____________________________________
Debra L. Prince
(Committee Member)

____________________________________
James E. Davis
(Committee Member)

____________________________________
Richard L. Blackbourn
Dean
College of Education
The purpose of this study was to explore the impact of class size reduction (CSR) on student performance while implementing Common Core State Standards (CCSS). The researcher sought to examine test scores specifically in 1st grade classrooms during the 1st year implementation of CCSS. Additionally, the researcher wanted to assist school leaders in identifying ways to motivate teachers to perform at the highest level and focus on student outcomes.

The results indicated that students in the CSR classes had higher scores than the students in the non-CSR classes in some subjects. The findings from this study were consistent with the studies in the literature. There was a difference in the pre-test scores and the post-test scores of the CSR and non-CSR. The post-test scores were higher for the students enrolled in the reduction classes. School leaders should consider reducing class size and find a balance between CCSS and the Mississippi frameworks. This challenge will require the support and understanding of the entire learning community and other key members of the educational community. School leaders will be primarily
responsible for ensuring this new initiative is put into practice at a high level of rigor to ensure that students are prepared for college and/or a career.

Keywords: Common Core State Standards (CCSS), Class Size Reduction classes, Non-Class Size Reduction Classes
DEDICATION

I dedicate this work to my daughter Taylor C. Matthews and my mother, the late Vera C. Harrell. I would also like to recognize the cheerleaders in my corner, my father Donell Harrell, my sister, LaDonna Harrell Harris, good friends Tony and Nancy Newson, Kenneth and Robbie Williams, Clarence Hayes, Yolanda Morton, Alisha Clark and my surrogate mothers, Shirley Saddler, LaFiesta Roland, and Josephine Rhymes. These individuals gave me words of comfort, babysat my daughter, rode to Mississippi State and attended class with me, or stayed on the phone with me as I traveled to and from school. You will never know how much I appreciate and love you. Your support has guided me through this phase of my life.
ACKNOWLEDGEMENTS

This journey has been one of the most demanding and enlightening encounters of my life. As I began my program a number of years ago, I thought about giving up and settling for what I had accomplished to that point. However, the encouraging words of the educational leadership faculty and staff of Mississippi State University gave me the hope that I could achieve my goals.

I would like to thank Dr. Linda Coats, my advisor, for her patience and professionalism. You have been a beacon of hope when I thought I could not go on. I would also like to thank Dr. Dwight Hare. Your candidness and support has meant the world to me.

I would like to thank my other two dissertation committee members, Dr. Debra T. Prince and Dr. Ed. Davis. Your positive demeanor and feedback helped to make this journey bearable. It has truly been a valuable experience that I will never forget. I will forever be indebted to my committee for helping me to navigate through this process.
# TABLE OF CONTENTS

DEDICATION .................................................................................................................... ii  

ACKNOWLEDGEMENTS ............................................................................................... iii  

LIST OF TABLES ............................................................................................................. vi  

LIST OF FIGURES ......................................................................................................... viii  

CHAPTER  

I. INTRODUCTION ............................................................................................................. 1  
  Statement of Problem ................................................................................................. 5  
  Purpose of the Study ................................................................................................. 5  
  Research Questions .................................................................................................... 6  
  Need for the Study ..................................................................................................... 6  
  Theoretical Framework ............................................................................................. 8  
  Definition of Terms .................................................................................................. 9  
  Conceptual Framework ........................................................................................... 10  
  Delimitations ........................................................................................................... 11  

II. REVIEW OF THE LITERATURE .............................................................................. 12  
  Historical Perspective of Class Size Studies .......................................................... 13  
  Class Size and Policy ............................................................................................... 16  
  Major Projects to Reduce Class Size ...................................................................... 18  
    Tennessee’s Project STAR ...................................................................................... 18  
    California Class Size Reduction .......................................................................... 20  
    Indiana’s Prime Time ............................................................................................. 22  
    Student Achievement Guarantee in Education (SAGE) ...................................... 24  
    Burke County, North Carolina .............................................................................. 26  
    Common Core State Standards ............................................................................. 27  
    Summary ................................................................................................................ 29  

III. METHODOLOGY ....................................................................................................... 33  
  Research Design ....................................................................................................... 33  
  Instrumentation ........................................................................................................ 34  
  Student Data ............................................................................................................. 35
<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Students’ CSR Status</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>Group Statistics-CSR Status by Reading Scores</td>
<td>42</td>
</tr>
<tr>
<td>3</td>
<td>Independent Samples t-test CSR Status by Reading Scores</td>
<td>42</td>
</tr>
<tr>
<td>4</td>
<td>Group Statistics-CSR Status by Language Scores</td>
<td>43</td>
</tr>
<tr>
<td>5</td>
<td>Independent Samples t-Test-CSR Status by Language Scores</td>
<td>44</td>
</tr>
<tr>
<td>6</td>
<td>Group Statistics-CSR Status by Mathematics Scores</td>
<td>45</td>
</tr>
<tr>
<td>7</td>
<td>Independent Samples t-Test-CSR Status by Mathematics Scores</td>
<td>46</td>
</tr>
<tr>
<td>8</td>
<td>Group Statistics-CSR Status by Science Scores</td>
<td>47</td>
</tr>
<tr>
<td>9</td>
<td>Independent Samples t-Test-CSR Status by Science Scores</td>
<td>48</td>
</tr>
<tr>
<td>10</td>
<td>Group Statistics-CSR Status by Social Studies</td>
<td>49</td>
</tr>
<tr>
<td>11</td>
<td>Independent Samples t-test-CSR Status by Social Studies</td>
<td>50</td>
</tr>
<tr>
<td>12</td>
<td>Group Statistics-CSR Status by Pre-test and Post-test Scores</td>
<td>51</td>
</tr>
<tr>
<td>13</td>
<td>Independent Samples t-Test-CSR Status by Pre-test and Post-test Scores</td>
<td>52</td>
</tr>
<tr>
<td>14</td>
<td>Paired Samples Statistics - Pre-test – Post-test</td>
<td>52</td>
</tr>
<tr>
<td>15</td>
<td>Adjusted and Unadjusted Group Means for Class Types</td>
<td>53</td>
</tr>
<tr>
<td>16</td>
<td>ANCOVA Summary Table</td>
<td>53</td>
</tr>
<tr>
<td>17</td>
<td>Group Statistics-CSR Status by iSteep Reading Assessment</td>
<td>54</td>
</tr>
<tr>
<td>18</td>
<td>Independent Samples t-Test-CSR Status by iSteep Reading Assessments</td>
<td>55</td>
</tr>
<tr>
<td>19</td>
<td>ANCOVA Results</td>
<td>56</td>
</tr>
<tr>
<td>20</td>
<td>Adjusted and Unadjusted Mean for Class Types</td>
<td>56</td>
</tr>
</tbody>
</table>
21 Group Statistics-CSR Status by iSteep Mathematics Assessment .......................57
22 Independent Samples t-Test-CSR Status by iSteep Mathematics Assessment .................................................................58
23 Summary of the ANCOVA results ..................................................................................58
24 Adjusted and Unadjusted Mean for Class Type .................................................................58
LIST OF FIGURES

1  Class Size Framework .......................................................................................... 11
CHAPTER I
INTRODUCTION

The goal of America’s educational system is to ensure that students graduate from high school equipped for college and/or a career. Upon completion of high school, students should be offered meaningful employment opportunities. According to the United States Department of Education (USDE, 2010), the vehicle by which this change could occur is through the implementation of Common Core State Standards (CCSS). These standards have been adopted by 45 states. This new initiative is more rigorous and will increase students’ chances of succeeding as compared to the previous curriculum.

The CCSS were released in 2010 to represent a change from the content guidelines across individual states in English language arts and mathematics (Porter, McMaken, Hwang, & Yang, 2011). The CCSS were developed in cooperation with the National Governors Association (NGA) Center for Best Practices and the Council of Chief State School Officers (CCSSO). The CCSS Initiative developed standards as an effort to establish consensus on expectations for student knowledge and skill.

The CCSS for both mathematics and English language arts and literacy are very specific in the focus on what students are to learn. Porter et al. (2011) noted these standards are internationally benchmarked and grade specific. The mathematics standards indicate that grade placement for specific topics have been made on the basis of state and international comparisons and the collective experience of the writers of CCSS initiative.
Essentially, the intended outcome for these standards is to prepare students to meet the requirements of college and career readiness.

This initiative builds on the significant reforms already made in response to the American Recovery and Reinvestment Act of 2009. The four areas influenced by this initiative are improving teacher and leader quality, providing information to families to help them improve their child’s school, implementing college and career readiness standards, and improving student learning and performance in the lowest performing schools by providing intensive support and effective interventions. However, for the purpose of this present study, the researcher explored the impact of class size on student performance while implementing the CCSS.

School leaders are scrutinized as never before. The public sector has grown increasingly vocal as it relates to education. According to Maxwell (2005), good leaders rarely think in terms of boundaries; instead, they think in terms of opportunities. The CCSS initiative presents a unique opportunity for school leaders to focus on teacher effectiveness and improve learning outcomes so that students will be able to learn the same standards from state to state.

United States school systems have long maintained a mode of learning that involves groups of students of about the same age interacting with a single individual leading activities in a confined space (Ehrenberg, Brewer, Gamoran, & Willms, 2001). To put it simply, students of similar ages are placed together in classes. What seems to vary in each class is the number of students. Research studies on class size have produced mixed results. The findings indicated that smaller classes resulted in increased achievement.
The number of students in a class has the potential to affect what is learned as well as how much is learned. Class size can affect how students socialize with one another. Students who cooperate with rules can reduce disciplinary problems, which can allow the teacher to spend more time addressing specific students’ needs. By having smaller classes to work with, the teacher will likely have more time to give individual attention to struggling students. Class size may also affect the teacher’s allocation of time as well as how much material will be covered. Teachers may also utilize other methods of teaching and assessment when they have smaller classes. Exposure to a specific learning atmosphere for an extended period of time could increase a student’s self-esteem as well as cognitive development (Ehrenberg et al., 2001).

America was once in the forefront of education. At one time, America led all nations in producing college graduates. Now, 10 countries have surpassed the United States (USDE, 2010). The reauthorization of the Elementary and Secondary Education Act was designed to enable the United States to lead the world again in the field of education. The CCSS initiative required more of principals, teachers, and other school leaders. As a result of the CCSS, expectations were raised and educators have been charged with the task of preparing students for college and careers. Reducing class size and implementing the CCSS could be a possible remedy to improving student’s performance.

In the past few years, the USDE has begun to shift its attention on what to do to focus more the best way to do. The government has also put a considerable amount of resources into the adoption and implementation of the CCSS. Even though the USDE was not directly involved in the development of the standards, developing and
implementing a common set of standards is included among the criteria in the scoring of the Race to the Top competition (Porter et al., 2011). The USDE also contributed $330 million in Race to the Top funds to the two consortia involved in developing CCSS. The Race to the Top initiative provides incentives for excellence by encouraging state and local leaders to work together on ambitious reforms, make tough choices, and develop comprehensive plans that change policies and practices to improve outcomes for students (USDE, 2010).

The Class-Size CSR Program (CSR) provides resources to state educational agencies (SEAs) and local educational agencies (LEAs), and schools committed to implementing research tested techniques to improve teaching and learning (USDE, 2004). The goal of reducing class size is to allow schools to improve student performance by employing highly qualified teachers. Additionally, this program aims to ensure that class size in the early grades is no more than 18 students per class. The question of whether smaller classes are better than larger classes continues to be discussed among teachers, administrators, and parents. The issue persists because of the powerful common sense appeal of small classes to alleviate problems (such as behavioral problems and one to one instruction) existing in the classrooms. A number of studies have documented greater achievement gains for students in small classes compared to peers in larger classes.

Public schools are a reflection of our society and, like our society, the public schools deal with a number of problems. Today’s children come to school with a multitude of problems such as abuse, poor health care, and dysfunctional families. The CCSS is forecasted to foster comparability and equity for all students. Additionally, support systems and resources for leaders and teachers will help to promote student
success. Another possible way to bring about the above mentioned change is to reduce the number of students in classrooms.

**Statement of Problem**

Data driven decisions are vital to school improvement. One decision that administrators must consider is the ratio of students to teachers in classrooms. According to the Mississippi accountability standard MS Code 37-151-77 code 34.2, the pupil teacher ratio (PTR) for first grade cannot exceed 27 to 1 unless approved by the State Board of Education (Mississippi Department of Education, 2012).

The primary problem that supports the need for this study is low student performance. In an effort to increase student performance, this district has allotted funds to reduce class size. First grade classes were selected to reduce the number of students from 27 to 15 or fewer. There is little to no evidence to support whether or not class size had a positive impact on student performance.

**Purpose of the Study**

The purpose of this study was to explore the impact of class size reduction on student performance while implementing CCSS. This study examined test scores specifically in first grade classrooms during the first year of implementation of CCSS. The results of this study can be used to assist school leaders in identifying ways to motivate teachers to perform at the highest level and focus on student outcomes. Additionally, the results can be used to expand the literature about the impact of class size reduction on student performance.
Research Questions

Given that a substantial number of public school classes in the district studied are composed of at least 23 students, it is important to determine if small class size is applicable to today’s public school classroom. The research questions formulated to guide this study are:

1. Is there a significant difference in the semester scores of first grade students in CSR classes and first grade students not in CSR?
2. Is there a significant difference in the post-test scores on the Trophies Placement and Diagnostic Assessment between first grade students in CSR classes and first grade students not in CSR classes when controlling for the Trophies Placement and Diagnostic Assessment pre-test scores?
3. Is there a significant difference in the spring iSteep Assessment scores of first grade students in CSR classes and first grade students not in CSR classes when controlling for fall iSteep test scores?

Need for the Study

As the CCSS initiative continues to garner strength, school leaders in Mississippi are being asked to implement these standards in Grades K-2 for the 2011-2012 school year. The Mississippi Department of Education (MDE) began with these grades because high stakes testing does not occur at the K-2 level. The kindergarten students of the 2011-2012 school term will be the third grade students of the 2014-2015 school year to be assessed by the new CCSS. It is important for school leaders to make sure teachers are teaching at the level of rigor needed to prepare students for CCSS. A main element of effective organizations is communication (Bennis & Nanus, 2007). School leaders must
get the message across explicitly at every level so that everyone understands how important it is that every student receives a world class education as cited in USDE (2010).

When class size is reduced, students are able to receive more attention from the teacher and student’s performance should increase. There is a need to address class size reduction because student performance in the state of Mississippi ranks last as compared to other states.

The need for the study, as well as the researcher’s personal interest in this topic, is the impact that CCSS will have on school districts and school leaders. Additionally, another interest is if smaller classes make a difference in the first grade. The rural Mississippi Delta school district to be studied in this research has a class size reduction program and implemented the CCSS in Grades K-2 during the 2011-2012 school year. However, the CCSS has not been validated empirically and no metric has been set to monitor the outcomes on the educational system and children (Tienken, 2011). Research is lacking as to how school leaders will implement this initiative with little to no resources, at a higher level of rigor, or evaluate the program’s effectiveness. There is also very little research related to the impact of class size as it relates to CCSS. This study will also increase the knowledge base of class size reduction on student performance across the state of Mississippi.

Although this study specifically targeted the impact classes in a single school district, other school districts might use the findings of this study to formulate a plan to explore the impact of CCSS and class size reduction in their particular school districts.
The use of curriculum-based assessments for evaluating the progress of student performance can provide useful information for improvement in each of these initiatives.

**Theoretical Framework**

The framework for this study is grounded in the work of Achilles. Based on 44 years of educational experience, Achilles (2003) contributed greatly to research conducted during 1983-2001 on class size and student outcomes, most notably, Project STAR.

Achilles was one of four principal investigators of Project STAR. From this research, Achilles formed strong beliefs about education in America. Achilles’ research with Project STAR yielded one of the largest scaled randomized experiments conducted on class size. These beliefs were drawn primarily from his extensive research that was conducted on class size and student outcomes.

According to Achilles (2003), student performance improves in these four areas and leads to the development of competent and productive adults. His research consistently showed that on-going class size reduction reduces achievement gaps, allows teachers to teach more effectively, and increases student test scores. This can be seen when students are introduced to smaller classes in early years.
The findings from Project STAR gave an important piece of evidence about the effectiveness of smaller classes in increasing student performance. The effects of smaller classes did not diminish over time. The impact was seen by students being placed in smaller classes when entering school in either kindergarten or first grade. As the research has confirmed that small classes do produce benefits, policymakers and school leaders are asked to make practical decisions about making classes smaller or overextending the budget.

**Definition of Terms**

*Academic performance* is a student’s individual average in all subject areas.

*Common Core State Standards (CCSS)* is a clear and consistent framework to prepare children for college and the workforce (CCSS, 2010).

*Class Size Reduction (CSR)* includes the processes to achieve class sizes smaller than the ones presently in place, such as changing the class size from 25 to 16 (Achilles, 1999).

*iSteep* is a scientifically research based progress monitoring tool used to measure student performance.

*Large class size* is one teacher with 23 to 27 students enrolled in a class.

*Pupil Teacher Ratio (PTR)* is the number of students in a school or district compared to the number of teaching professionals.

*Small class size* is one teacher with 13 to 18 students in a class.

*Student performance* is based on students being able to master skills on their grade level.
Trophies is the basal reading series published by Houghton Mifflin Harcourt for first grade students (Harcourt School Publishers, 2005).

**Conceptual Framework**

This study examined the impact of CSR on student performance in first grade classes, while implementing CCSS in a rural Mississippi school district. According to Achilles (1999), size matters and small class size matters a great deal for the schooling of young children. CSR was evaluated to determine whether it is beneficial for classes to reduce the number of students as well as the PTR. With classes being reduced, the interaction between teacher and student will increase and enable teachers to improve their teaching practices. The lower student teacher ratio will increase student performance and give teachers and administrators options as to how to manage the new initiative CCSS and continue to improve student performance. Figure 1 below consists of the terms used throughout this research and their relationship.
The study was delimited in the following ways:

1. Data were collected from one rural elementary school in the Mississippi Delta.
2. Data related to achievement were collected for students enrolled in elementary school classes from the 2008-2009 academic year to 2011-2012 school year.
3. Other variables that might be examined in a study of this type were specifically excluded from this study.
CHAPTER II
REVIEW OF THE LITERATURE

When teachers are asked what can be done to improve their individual classroom performance as well as that of their students, many are likely to respond smaller classes. Many teachers share this same belief that on average there are too many students in today’s classrooms. Many may also argue that larger classes stifle opportunities for growth, instructional innovation, creativity, and individualization. From an educator’s perspective, many educators believe that reductions in class size could provide a cure for what ails American education.

During the last one hundred years an increasing amount of research has investigated the issue of class size. Studies included in this section were conducted as early as 1975. All studies included in this section are significant to the development of this class size debate. Despite what happens to be a great interest in this topic, there are still questions unanswered relative to the educational impact of class size.

Administrators know that creating a school culture that ensures positive outcomes for students is not an easy job. Creating school cultures requires administrators to address the curricula needs of students while sustaining the vision of the school. The Reauthorization of the Elementary and Secondary Education Act is the blueprint of education that will require administrators and teachers to reform their educational practices (USDE, 2010). By implementing the CCSS, principals and teachers will be
required to ensure that every student graduates from high school ready for college and a career. Educators will now have a more rigorous curriculum and improved assessments to utilize to increase student performance. The review of literature that is presented in this chapter discusses historical class size studies, educational policy, major projects to reduce class size, and the common core state standards.

**Historical Perspective of Class Size Studies**

The origins of the debate over what constitutes a desired class size can be traced back to ancient Greece. Socrates, a great teacher of his time, kept his classes to a manageable number of rich young men. However, his Spartan counterpart Herodotus felt the right number for class size was about 30 (Tomlinson, 1988). His view proved to have merit. His optimal number has survived the centuries as though it were law.

Ryan and Greenfield (1975) found that, as early as the 17th Century, educators Jan Comenius and John Locke disagreed about the ideal class size. Comenius argued that class size should be several hundred. Locke despised the thought of 50-100 students per teacher.

Past arguments about class size generated little attention. However, had it not been for the social and educational developments in 19th Century, this issue might not have been addressed. A social revolution began in the United States around the 1850s which led to the establishment of public schools. According to Tomlinson (1988), the idea that schooling could serve as a foundation for developing a thriving democratic society made a strong case for universal education. The cost of public school system increased along with enrollment. Educators were faced with balancing immediate costs of funding teachers and classrooms versus the long-term benefits of producing an
educated citizenry. To deal with the increasing costs of salaries and other budgeted costs, many educational leaders recommended that class size should be reduced. This way of thinking is an argument based on the economics of the classroom factory and not on the classroom as a family.

Glass and Smith (1978) separate class size and student performance research into four stages: the pre-experimental era (1895-1920), the primitive experimental era (1920-1940), the large-group technology era (1950-1970), and the individualization era (1970-1978). The sophistication of the research methodology grew at each new stage. The question of class size and its effect on achievement was scrutinized at each of these stages.

The pre-experimental era (1895-1920) produced the first empirical study on processes that impacted education which included an investigation of class size. No numbers were reported in this study. However, there was no relationship found between class size and achievement (Glass, Cahen, Smith, & Filby, 1982). One of the typical hallmarks during this period was research without figures, definitions, and few experimental controls, and generalizations were also difficult to understand.

During the primitive experimental era (1920-1940) other methods of research were used to investigate the class size and achievement debate. More and more studies surfaced that used placing of students in large and small classes based on ability and achievement (Glass & Smith, 1978). Class size research was inactive during the 1940s because educational researchers went to war. During the 1950s and 1960s, research was revitalized and the focus shifted to investigating college level classes and how effective they could be if classes were tripled in size.
In the individualization era (1970-1978) the research relevant to class size was concerned with establishing the benefits of individualization. Experiments were conducted that involved radically reduced instructional group sizes—one teacher with two or three pupils. This experiment conducted by Shaver and Nuhn in Utah exemplified this type of work according to Glass et al., (1982). Pupils from the fourth, seventh, and tenth grades were tutored or instructed in classes of one student, three students, or twenty students. Students were divided into sections. These sections included 46 students taught in tutorial session, 46 taught in groups of three and 60 students divided into three groups of twenty. Instruction was delivered for one hour each day for a year; the achievement of the pupils in reading and writing was assessed at the end of the year. The study found that the amount of learning by those tutored individually far exceeded that of the pupils taught in groups of three, who in turn exceeded substantially in their performance on test scores compared to those taught in classes of 20 (Glass et al., 1982). Essentially, smaller classes were better, and the smallest possible was the best of all.

After *A Nation at Risk* was published in 1983, education became more significant politically (Tomlinson, 1988). The debate over class size and student performance took on a greater sense of importance. Some states began to consider reducing the average class size as a means of improving student performance as well as attracting greater numbers of qualified teachers. Most teachers agreed with this change. On a larger scale, the National Education Association (NEA) had argued for a number of years for a reduction in class size. This organization believes that in order to promote excellence in the class, small classes in Grades K-12 would allow for the optimum development of a student’s potential. NEA asserts that class size should be 15 students.
When supporters of the class size debate describe the benefits for student performance, a great deal of their research cites Glass and Smith (1978). Glass and Smith’s work is referenced due to prior scientific evidence about class was questionable and Glass and Smith seemed to offer a measure of resolve to the argument.

Glass and Smith’s (as cited in Tomlinson 1988) conclusions were quickly challenged on the grounds that the studies they examined did not permit the interpretations they drew, especially about the relationship between achievement and small classes. Critics proposed that attributing the observed effects to class size solely would not only exaggerate the power of class size but ignore the role of key variables such as student ability, instructional format, and curricular content.

**Class Size and Policy**

Political economists have been successful in directing our attention to examining the values of educational policies that are both complicated and highly disputed. The most popular education policy discussions view education as a type of product whose value can be determined through tests of academic achievement. Mitchell and Mitchell (2003) viewed their research through varied perspectives and acknowledge that education should be valued not simply for its production of a good but as a means of producing a direct service, a civic cultural legacy.

To examine their concerns, Mitchell and Mitchell (2003) focused on the state level CSR policy. The controversy surrounding CSR is more dramatic and relevant than the scientific results regarding its impact on student performance. Mitchell and Mitchell have noted that the productivity rationale does not appropriately serve as a comprehensive framework for interpreting reduction policy. Essentially, CSR policies
have been adopted in cycles similar to business cycles and have been accompanied by a number of funding and regulatory provisions that have no merit if the policy is meant to enhance student performance. Their research examines the extent to which CSR policy dialogue has been driven by circumstances not related to the prevailing debates regarding teacher efficacy and student performance. Mitchell and Mitchell (2003) note five specific paradoxes surrounding CSR adoption and implementation. These paradoxes can only be applied by reconceptualizing the political and social merit toward which the class size CSR policy is aimed.

Mitchell and Mitchell (2003) contended that there is much about education policy that is not easily understood. The political economy research helps to examine the goals and the significance of policies that are proposed or adopted. The political economy perspective is advantageous in revealing the extent to which contradictions or paradoxes in the formulation and implementation of education policy are grounded in divergent understandings of what schools are expected to produce as well as how they are expected to produce (Mitchell & Mitchell, 2003).

For generations, the nation has struggled with how to improve education. Concerns have risen about threats to the nation’s economic supremacy and wealth. Ehrenberg et al. (2001) noted that trends on national achievement tests have been stagnant since 1970 and the comparison with international counterparts indicated that the students in the United States in upper grades did not fare well. The height of these demands came to a climax with the publication of *A Nation at Risk* in 1983. Since this publication was released, a number of reforms have been tried. These reforms include but are not limited to testing and assessment accountability systems for teachers, students,
and schools; new school financing organization; and changes in curriculum. It has been a
difficult task to produce lasting and far-reaching change. Converting seemingly practical
schemes into classroom level change breaks down at implementation. It is believed that
public schools cannot be reformed and have turned to solutions that remedy the
underlying structure of the system. This could be in the form of providing parents with
vouchers that allow their children the opportunity to attend public or private schools.

Major Projects to Reduce Class Size

Tennessee’s Project STAR

In 1985, the Tennessee state legislature funded an experiment, Project STAR
(Student/Teacher Achievement Ratio), to give a more conclusive picture of smaller
classes. It was a controlled scientific experiment; students entering kindergarten were
assigned at random to a small class (13-17 students), a regular class (22-26 students), or a
regular class with full time teacher aide within each participating school (Finn &
Achilles, 1999). The within-school differences included differences in the populations
served, differences in per pupil expenditures and instructional resources, and differences
in the composition of the school staff. Teachers were assigned to the classrooms at
random. The composition of the classrooms was maintained throughout the day as well
as throughout the school year (Finn, Gerber, Achilles, & Zaharias, 2001). There was no
intervention other than class size and teacher aides.

Over 6,000 students in 329 classrooms (representing 79 schools and 46 districts)
participated in the first year, and almost 12,000 students were involved in the course of
the 4-year intervention (Finn & Achilles, 1999). The children who were assigned to one
of the three class types were kept in the same experimental condition for 4 years through
Grade 3. A different teacher was assigned to the class each year. The students returned to regular classes in grade 4 when the experiment ended. Researchers were still able to teach the participants that matriculated to other grades.

Researchers gathered an array of outcome measures at the most appropriate levels, namely individual pupils, their teachers, and their schools. Norm-referenced and criterion-referenced achievement tests were given at the end of each school year. “The Stanford Achievement battery were given annually in Grades K-3, the Comprehensive Test of Basic Skills were given in later grades, and the state’s Basic Skills first curriculum-referenced test in mathematics and reading were administered in Grades 1-3” (Finn & Achilles, 1999, p. 98). The students learning behaviors were assessed in fourth and eighth grade and school experiences were recorded each year. The teachers and their assistants completed questionnaires and time logs to document their perceptions and experiences.

Project STAR demonstrated that small classes provided higher student outcomes and better student behaviors than either regular or regular-with-aide classes (Achilles, Finn, & Bain, 1998). The variables used in the STAR database to code students were pupil ethnicity, gender, and socioeconomic status as determined by free and reduced lunch status. These entries allowed researchers to consider gaps as they related to these characteristics.

The STAR and Lasting Benefits studies provided significant evidence about the effectiveness of smaller classes. The importance of the effects in this study is consistent with the results yielded in other small scale studies conducted in other states (i.e., Student Achievement in Education (SAGE), Indiana’s Prime Time, California CSR). This study
proved that the effects of being in a smaller class did not fade over time, but gave
students from smaller classes in the early grades achievement benefits that lasted until
high school. Collectively, the evidence supports the positive effects of small classes on
achievement that large enough and of sufficient duration to support policies of reduction
of class size to result in small sized (15-17) classes in the primary grades (Nye, Hedges,
& Konstantopoulos, 1999).

Project STAR also showed that students who had more years of small classes in
kindergarten through Grade 3 have higher levels of achievement 5 years later than
students who had fewer years of smaller classes. This evidence does not represent a
definitive answer for smaller classes. However, it does suggest that the effects of smaller
classes have lasting benefits for students who are exposed to multiple years.

The effects of STAR have been duplicated in several other states. Those include
Wisconsin’s SAGE program (Maier, Molnar, Percy, Smith, & Zahoirk, 1997), as well as
the Burke County, North Carolina program (Achilles, Harman, & Egelson, 1995). The
results of the Project STAR experiment have been widely publicized. Students placed in
small classes outperformed those in regular classes or regular classes with aides in
kindergarten and the achievement gained by being in smaller classes remained through
the third grade.

California Class Size Reduction

In 1996, California enacted SB1777, providing a substantial incentive for school
districts to reduce their class size from an average of roughly 30 students per class to 20
or fewer (Bohrnstedt, Stecher, & Wiley, 2000). This bill provided districts with nearly $1
billion in education to reduce class sizes in Grades K-3. This funding increased in the
second year (1997-98) to roughly $1.5 billion. This will continue at this level or higher for the lifetime of the program. This represents what may be considered the single largest investment any state has made in an educational program.

The relationship of class size to student performance is the foundation upon which the California CSR program is built (Bohrnstedt, et al., 2000). Findings from the early class size programs are mixed, but the results from STAR have tipped the scales in favor of smaller classes. Short-term achievement gains were realized as well long-term achievement effects for being in smaller class sizes in K-3. Most importantly, in all cases the gains were shown to be greater for minority and lower socio-economic students than for others (Bohrnstedt et al., 2000).

The decision to implement reduced sizes in California was the result of a combination of factors: large class sizes in the lower elementary grades, a desire to improve the literacy of students at these grade levels, a windfall of tax revenues, and politics (Bohrnstedt et al., 2000). California’s need to justify an investment of this magnitude came from the findings from the Tennessee STAR project. Many of the supporters of California’s CSR program believed that this program had the potential to turn around years of decline and serve as a model for other states.

The implementation of a CSR program had never been implemented on such a large scale as California envisioned. Neither had a program been implemented in a state with a wide array of cultural diversity. Great demands were placed on school districts to find space and to hire new teachers, which increased due to shortages that existed before the program was introduced. CSR was introduced at a time when the number of children who spoke English as a second language was at an all-time record number. The CSR
initiative was met with a great challenge in trying to meet the language instruction and other special needs of the state’s school children. The introduction of California’s CSR program appeared on the surface to structure itself to attract the best-qualified teachers to seek jobs in small classes in schools whose students were already best prepared to learn (Wexler et al., 1998). The incentives all but guaranteed that the allocation of teachers to schools would be anything but random unlike Tennessee STAR.

Similar to the Tennessee STAR study, the California CSR reform showed small achievement effects however it did not show significant gains as the Tennessee STAR study. There were small but statistically significant differences in reading, language, and mathematics.

**Indiana’s Prime Time**

The funding source Indiana Prime Time was designed to reduce classes or reduce the PTR (Lapsley, Daytner, Kelly, & Maxwell, 2002). This program was based on the assumption that CSR and lower PTR would yield better student outcomes. Since the phase-in implementation in 1984-85, funding was provided to local school corporations to hire additional teachers in order to assist schools in moving toward the target pupil-teacher ratio.

The initial goal of funding was to achieve an average of 18 students per teacher (18:1) in kindergarten and first grade and an average of 20 students per teacher (20:1) in second and third grade (Lapsley et al., 2002). However, during the 1999 Legislative session, the formula for funding was changed. The new formula required that each school have a target pupil-teacher kindergarten through third grade ratio that ranges from 15:1 to 18:1. However this depended on the school’s at-risk index and the amount of
tuition support that the colleges receive. Additionally, the monies are included in the basic grant that the school receives from the state. These monies are still used for hiring teachers or instructional assistants in order to reach these target ratios. Prime Time was one of the first state-wide efforts to address the problem of large enrollments in the primary grades and along with Tennessee’s Project STAR, was considered widely a national model of innovative educational programming (Pete-Bain & Achilles, 1986).

In the years since its implementation, there have been few studies of the effectiveness of Prime Time and none that have evaluated the program using state-wide representative samples (Gilman, Tillitski, Swan, & Stone, 1987). In the first evaluation of Prime Time using samples throughout Indiana, 680 teachers and 239 building principals were surveyed in regards to their use of assistants. Teachers reported that they changed their instructional practices in order to benefit the more positive PTR that results from having an aide. Teachers also reported spending less time disciplining students and doing paperwork when they had an aide and more time using educational technology, planning for lessons, and organizing learning centers.

Most of the teachers with Prime Time aides reported that their teaching was improved and that having an aide required them to “greatly” or “moderately” alter their instructional practices (Lapsley et al., 2002). Principals indicated that most teachers who were assigned assistants changed their instruction accordingly. The findings also noted that students who had access to Prime Time assistants showed better academic performance after third grade. The presence of aides was associated with improved classroom management as well as better discipline and teacher morale.
Although Project STAR is an example of a class size CSR initiative, the status of Prime Time is more difficult to classify (Lapsley et al., 2002). Upon its initiation, Prime Time was described as an effort to reduce class size by providing money to hire more teachers. Prime Time evolved into a PTR initiative rather than a pure CSR program. Essentially, Prime Time is largely directed towards reducing pupil-teacher ratio by adding instructional assistants to classrooms with large enrollments rather than hiring teachers to create more classrooms with smaller enrollments.

**Student Achievement Guarantee in Education (SAGE)**

The SAGE program is a statewide effort in Wisconsin to increase the academic achievement of children living in poverty by reducing the student-teacher ratio in kindergarten through Grade 3 to 15:1 (Smith, Molnar, & Zahorik, 2003). This program was implemented in 1995 in 30 schools in 21 districts. Over the course of the year, it involved 3,614 students and 220 teachers in 190 kindergarten and first grade classrooms. During 1995-1996, this program required participating schools to (a) reduce class size to 15 in kindergarten and Grade 1 in 1996-1997, Grades kindergarten through 2 in 1997-98, and Grades kindergarten through 3 in 1998-99 to 2000-01; (b) stay open from early in the morning to late in the day and collaborate with community organizations to provide educational, recreational, community, and social services; (c) provide a rigorous academic curriculum to improve academic achievement; and (d) establish staff development and accountability mechanism (Smith et al., 2003).

The program was evaluated through teacher questionnaires and observations. The teacher interviews, classroom observations, teacher activity logs, and teacher questionnaires, provided a picture of teaching and learning in a 15:1 student teacher ratio.
classroom. These findings show the major change that takes place in teaching when teachers teach reduced-size classes is not a total adoption of more student-centered teaching but a focus on students as individuals. Numerous methods that teachers may use in small classrooms may be the same methods that have been used in normal size classrooms. However, the difference is that now the methods are directed at individuals much more frequently. Teachers know each student’s learning needs, correct misunderstanding instantly, and move ahead when the time is appropriate. After two years, the impact reduced class size in Wisconsin’s SAGE program appears to be consistent with the results reported by the Tennessee STAR study (Molnar et al., 1999). The evidence that the SAGE program significantly increases student performance is clear. The results of analyses of classroom-level qualitative data suggest that teachers in SAGE classrooms have greater knowledge of each of their students, spend little time managing their classes, have more time for instruction, are more enthusiastic about teaching and individualize instruction utilizing a primarily teacher-centered approach (Molnar, Smith, & Zahorik, 2000).

Reduced class size configurations stressed individualization (Molnar, et al., 2000). Schools do not need more classroom space to enforce successfully a reduced class size program. In spite of classroom design, SAGE teachers taught students through tutoring and small needs-based groups. This was also done through total group situations where student-teacher interaction in reduced size classes is pervasive.

In general, the SAGE findings support what most people consider common sense. Fewer students mean more teacher attention for each student. Smith et al., (2003) “claimed more teacher attention translates into fewer students slipping between the
cracks, more students getting personal help with their work, and better relationships between teachers and students” (p. 74). Teachers of small classes also have more time to talk with parents about their children’s performance and involve them in supporting their children’s learning.

**Burke County, North Carolina**

Burke County, with 14,500 students, is the largest of 117 school systems in North Carolina. Burke County is a low-wealth community located in the foothills of the Great Smoky Mountains. As it has grown, this system has experienced an influx of limited English proficient (LEP), English as a Second Language (ESL), and low socioeconomic status (SES) students. To actively deal with low student test scores, Burke County Schools (BCS) initiated class size reductions. A small class size pilot program in first-grade classrooms was launched in four schools during the 1991-92 school year to increase student performance in reading and mathematics (Egelson & Harmon, 2000). Even though the results were favorable, the overall student performance in the system remained a concern.

Small class size in BCS was expanded in 1992-1993 to include the first grades in all of the elementary schools and the second grades in the four pilot schools. During the 1993-1994 school year, all first grade classes were included in addition to 7 second grade classes and the third grade classes in the four pilot schools. By 1995-1996, the project was expanded to include the third grades at two additional elementary schools (Egelson & Harmon, 2000). This phase-in small classes was done with local funds by using creative reallocations and reassignments (Achilles & Finn, 2002). According to Achilles
and Finn (2002), small class size exists in all first, second, and third grade classrooms at the 17 elementary schools in BCS.

The findings from studies conducted to examine the effect of class size reduction show positive and consistent changes. The Southeastern Regional Vision for Educators (SERVE) researchers found in April 1995 that time on task was greater in small class size rooms (1 teacher to less than 18 students) than in regular class size classrooms (1 teacher to 24 students) in a comparison of third grade classrooms in four elementary schools (as cited in Egelson and Harmon, 2000). In October 1999, SERVE returned to BCS to observe first, second, and third grade classrooms in five elementary schools. These observations were conducted to determine the routine instructional strategies used throughout the district in these types of classrooms. A common denominator in all of the schools was there the emphasis on teacher-student interaction in the form of teacher as coach and instructional feedback. These levels were measured using an estimated percentage of time spent by students in learning activities and the extent of focus each student had on the activity. These results are significant due to the previous results of classroom observations. Egelson and Harmon (2000) found in a longitudinal analyses of the first cohort of small class size students showed that the academic benefits gained in first through third grade were maintained through the end of seventh grade for the original matched pairs both reading and math.

**Common Core State Standards**

The CCSS initiative is an educational initiative sponsored by the NGA and the CCSSO. The CCSS were developed to provide a clear and consistent framework to prepare our children for college and the workforce. These standards define the
knowledge and skills that students have within their K-12 education careers. These standards were developed collaboratively by school administrators, teachers, and experts. According to the framers of CCSS (2010), the standards are aligned with college and work expectations, include rigorous content, build upon strengths and lessons of current state standards, are informed by other top performing countries, and evidence-based.

On June 2, 2010, the CCSS were released for language arts and mathematics. The majority of the states adopted the standards with the exception of Texas, Virginia, Nebraska, Minnesota, and Hawaii (CCSS, 2010). These standards will allow states to ensure that students no matter where they live will receive the best education possible.

Both the mathematics and English language arts/literacy standards show logical progressions through the grades so that teachers will know how to teach the standards on specific days and how they link up in other grades. Essentially, teachers will be able to understand how their daily instructional practices will help promote college and career readiness.

In implementing the CCSS in English language arts, students will be required to analyze a variety of complex texts, conduct research, use academic research, use academic vocabulary in speaking and listening, and create articulate arguments with evidence. By including text complexity in the CCSS, districts, schools, and teachers will change what they use in their classrooms. Schools will be asked to look at their current textbooks and resources and determine what changes will need to be made. Additionally, a vertical appraisal from K-12 must take place to understand the range of texts students will be utilizing throughout their matriculation. The diversity and rigor of what students read does matter.
The CCSS for mathematics also calls for a significant change in mathematics curriculum, teaching, learning, and assessment. Districts and teachers must understand that it will not be business as usual. The mathematics portion of the standards will require minor adjustments in grade levels at which certain content is taught. The focus on rigor, emphasis on conceptual understanding as well as fluency and the mathematical practices is a major shift from the current practices in most districts.

Raising literacy and mathematics achievement cannot be the work of a small group of teachers and cannot be done in one content area. English teachers cannot be solely responsible for teaching reading and writing skills. With the implementation of CCSS, literacy instruction is a shared responsibility of all teachers and not just the English teachers.

The MDE adopted the CCSS on June 28, 2010. A suggested timeline was provided by MDE for school districts to begin phasing in the new standards. The timeline suggested for 2011-2012 school year grades kindergarten through second begin phasing in CCSS, 2012-2013, Grades 3 through 8, and 2013-2014 Grades 9 through 12. CCSS assessments will be administered during the 2014-2015 school year. MDE is also providing training for teachers and administrators throughout the implementation timeline to build capacity as well to allow teachers to share their concerns with state department officials.

**Summary**

Class size is a major issue of concern to teachers, school administrators, school boards, parents, legislators, and researchers. The motivations surrounding this interest are mixed even though there may be a common thread. Also the CCSS generates
additional concerns as the state of Mississippi is implementing these standards in classrooms for the 2011-2012 school year.

Project STAR's study provided an important evidence about the effectiveness of small classes in supporting achievement. The magnitude of effects in the STAR study are equivalent with those achieved in small-scale randomized experiments. The study provided evidence that the effects of class size to not fade over time, but rather gives students from small classes in early grades with achievement benefits that last through high school. Also this study revealed that students who experience more years of small classes in kindergarten through Grade 3 have higher levels of achievement five years than students who have fewer years of small classes.

The California CSR initiative investigated the relationship between reduced class size and student achievement. Teacher background and experience, specific professional development, classroom resources, teaching practices and instructional activities in mathematics and language arts, student behavior, and teacher opinions about the benefits of smaller classes are all factors that were investigated. Reduced and non-reduced classes were more alike in this study. At the conclusion of the study classroom practices in California uncovered gradual change. It was shown that teachers need to be trained in instructional techniques that are effective in smaller classes. Teachers in reduced classes lacked the training needed to take advantage of the opportunity to work with fewer students.

Indiana’s Prime Time effort focused on reducing class size or pupil teacher ratio in the early grades. Teachers reported altering their instructional practices in order to capitalize on the more positive PTR that result from having an assistant. Teachers also
reported spending less time disciplining students and doing paperwork when an assistant was present. Time was also spent using educational technology tools, instructional planning, and coordinating learning centers. The Prime Time strategy of supplementing teachers with aides might be as promising way to encourage pedagogical best practice as simply reducing class size. The presence of an aide may encourage better instructional practices, there is little evidence that lowering PTR pays off in academic achievement.

In Wisconsin, the SAGE program began to improve the academic performance of students living in poverty by establishing K-3 classrooms with a student teacher ratio of 15 to 1. The test scores indicated a correlation between higher academic achievement and lower class size. Smaller classes allowed for changes in teaching practices that contributed to students’ achievement in the higher performing classrooms. Teachers in smaller classrooms spend more time teaching, provide students with more individual attention, and know more about the needs and interests of their students as opposed to teachers of larger classes.

Reducing class size helped BCS District stay on track, even when its student demographic changed with more students speaking English as a second language and more students qualifying for free- and reduced-priced lunch. Class size reduction in the early grades had a positive result on student performance. This district’s commitment to improving the quality of instruction made it possible for this program to be a success.

This review of literature reflects the studies that have been conducted to determine if reduced class sizes has an impact on student performance. There has been more written about the effects of class size on student performance. Despite the number of studies, both experimental and observational, and the number of reviews of such
studies, there is still no clear agreement about the extent to which classes of different sizes promote student learning. Therefore, the results of the current study will provide insight regarding the impact of class size reduction on student performance while implementing the common core state standards.
CHAPTER III
METHODOLOGY

The purpose of this study was to examine the impact of class size reduction first
grade student performance while implementing the common core state standards. This
study examined the class size reduction program of first grade students in a rural
Mississippi Delta school. This chapter presents the research design, instrumentation, and
student data. In addition, the procedures for collecting and analyzing the data are
described.

Research Design

The research design selected for this study was causal-comparative. By utilizing
this design, the researcher attempts to determine the cause of differences that exist
between groups. This research is referred to as ex post facto since both the effect and the
alleged cause have already occurred and must be studied in retrospect. The basic causal-
comparative approach involves starting with an effect and seeking possible causes
(Fraenkel & Wallen, 2009).

According to Fraenkel and Wallen (2009), the group difference variable in a
causal comparative study is either a variable that cannot be manipulated (dependent
variable) or one that may have been manipulated but for one reason or another has not
been (independent variable). This researcher sought to examine the CSR program in a
Mississippi Delta school district. The researcher explored the impact of class size on first grade classes as they matriculated. This approach aided the researcher in examining the differences between two groups and look for possible causes for, or consequences of, this difference (Fraenkel & Wallen, 2009).

A casual-comparative research design was used to obtain information regarding the current status of the phenomena to describe what exists with respect to variables or conditions in the situation. This design was chosen because it is the most effective research method where the researcher could examine the students in small classes versus those in larger classes. Additionally, the researcher was not able to manipulate the independent variable of student assignment to the small class or the large class size.

**Instrumentation**

All data collected for this study were existing data. This district utilized the Mississippi Frameworks from MDE for the delivery of instruction. This framework included specific skills that must be taught at each grade level. Additionally, teachers used the Harcourt Trophies Reading series to instruct the students in reading and iSteep assessment to screen students three times a year. Both the Harcourt Trophies reading series and iSteep assessments are approved by the MDE. The existing data collected in this study came from these two instruments.

The instrument used in this research was the Trophies Placement and Diagnostic Assessment which measures the vocabulary skills and strategies taught in reading. This instrument was published by Houghton Mifflin Harcourt. The instrument was developed in close alignment with the content of the Trophies program. Raw scores were used for data analysis.
The Harcourt Trophies reading series was selected because it contains components that augment the implementation of strategies by elementary schools that are working hard to implement new reading programs. The publishers have developed research-based materials to support effective reading instruction (Harcourt, 2005). The program used in this contains resources aligned to the school program that can be used by administrators and classroom teachers to assist with this implementation.

Additionally, iSteep assessment was conducted in this district to screen all students. All districts in the state of Mississippi are required to screen students to determine who is at risk for not performing well in reading and math. In selecting programs to screen student, school districts selected programs that were scientifically research based and effective. This program was researched based and also research proven with multiple peer reviewed papers. The iSteep universal screener was conducted using curriculum-based measurement (CBM) probes in reading and math (Retrieved from http://www.isteep.com/steep_research.html#1). This assessment allowed teachers to set individual goals for students based on their individual performance on the universal screener. This assessment was given in the fall, winter, and spring.

**Student Data**

This study included the records of 137 students. These records indicate that these students were from low socioeconomic backgrounds of a rural Mississippi school district. Students were randomly assigned to class type conditions with the Student Administrator Manager (SAM). The school principal used SAM to randomly assign students to class type conditions. The total number of students in this study was 137 students, 66 males and 71 females. However, some students were absent during certain administrations and
not accounted for in all assessments administered. The variations in the total number (n) of students in each of the data sources represented the actual number of students assessed for each pre-test, post-test, and each of the three iSteep administrations. Additionally, subject area scores reflected the total number of students with fall and spring semester averages and a final grade for each of the semesters reported.

**Procedure**

The researcher sent a letter to the superintendent of the school district to provide an explanation and purpose of the study, the benefits of participating in the study, and seeking permission to collect data. This letter also indicated how the participants’ identity would remain confidential.

Upon approval of the Mississippi State University Institutional Review Board (IRB) for the Protection of Human Subjects in Research (see Appendix A), contact was made with the data clerk to collect the necessary data needed for the study. The data were obtained from the district’s central office SAM. This study included 9 teachers and 137 students. Once the sample of students was linked to the teachers for the specific school year, the data were assigned labels to maintain confidentiality. All of the original data were destroyed so that they could not be linked to a specific teacher or student.

**Data Analysis**

The statistical analyses used to address the research questions are listed below and arranged by each individual research question.
Research Question 1

Is there a significant difference in the semester scores of first grade students in CSR classes and first grade students not in CSR classes? The independent samples t-test was computed to examine differences between the reduction group and the non-reduction group.

Research Question 2

Is there a significant difference in the pre-test and post-test scores on the Trophies Placement and Diagnostic Assessment between first grade students in CSR classrooms and first grade students not in CSR classrooms when controlling for Trophies Placement and Diagnostic Assessment pre-test scores? The independent samples t-test was computed to examine differences between the reduction and non-reduction groups on the pre-test and post-test scores on the Trophies Placement and Diagnostic Assessment. A one-way analysis of covariance (ANCOVA) was computed to determine the effect of class type on the post-test of the Trophies Placement and Diagnostic Assessment when controlling for pre-test differences on the Trophies test.

Research Question 3

Is there a significant difference in iSteep scores of first grade students in CSR classrooms and first grade students not in CSR classrooms when controlling for fall iSteep test scores? The independent samples t-test was computed to examine differences between the reduction group and the non-reduction group on the iSteep Assessment reading scores. An ANCOVA was computed on spring iSteep scores in reading and
mathematics. The covariate for this analysis was the fall iSteep scores. The independent variable for this analysis was class type (class size reduction and not class size reduction
CHAPTER IV

RESULTS

Chapter IV is a presentation of the findings from the analyses computed to address the problem of this study. The purpose of this study was to explore the impact of class size reduction on student performance while implementing the common core state standards. Since the CCSS is predicted to be more rigorous, educators believe that achievement/performance will be impacted. This study examined education in small classes specifically in first grade classrooms during the first year of implementation of CCSS. The study explored the impact of CCSS and class size reduction in one particular school district. The problem of this study is low student performance. Research on class size indicates that students in smaller classes produce higher scores on basic skills tests than students in larger classes.

Research Questions

The research questions formulated to guide this study are:

1. Is there a significant difference in the semester scores of first grade students in CSR classes and first grade students not in CSR classes?

2. Is there a significant difference in the post-test scores on the Trophies Placement and Diagnostic Assessment between first grade students in CSR
classes and first grade students not in CSR classes when controlling for the Trophies Placement and Diagnostic Assessment pre-test scores?

3. Is there a significant difference in the spring iSteep Assessment scores of first grade students in CSR classes and first grade students not in CSR classes when controlling for the fall iSteep test scores?

The teachers used the Harcourt Trophies Reading series to instruct the students in Reading. The teachers used the Trophies Placement and Diagnostic Assessment to measure the vocabulary skills and strategies taught in the program. The tables that follow present the results of the analyses for each research question. Table 1 is a presentation of the reduction status of the students who participated in this study. As seen in the table, 78.1% of the students were in non-reduction classes and 21.9% of the students were placed in reduction size classes

Table 1

Students’ CSR Status

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR Size</td>
<td>107</td>
<td>78.1</td>
</tr>
<tr>
<td>CSR Size</td>
<td>30</td>
<td>21.9</td>
</tr>
<tr>
<td>Total</td>
<td>137</td>
<td>100.0</td>
</tr>
</tbody>
</table>
To answer Research Question 1, a series of independent samples t-tests were computed on semester and final averages of students in the CSR conditions and students who were not in the CSR condition. The first series of t-tests compared reading averages. An independent samples t-test was calculated comparing the mean score of the non-CSR class to the mean score of the CSR class for the first semester. No significant difference was found ($t (127) = 1.12, p > .05$). The mean of the CSR class ($m = 84.65, sd = 13.14$) was not significantly different from the mean of the CSR group ($m = 87.55, sd = 8.46$). The results of the second semester reading averages found no significant difference was found ($t (127) = .484, p > .05$). The mean of the non-CSR class ($m = 86.99, sd = 12.40$) was not significantly different from the mean of the CSR class ($m = 88.21, sd = 10.07$). The results of the final reading scores comparing the mean scores of the non-CSR class to the mean of the CSR class found that no significant difference ($t (127) = .831, p > .05$). The mean score of the non-CSR class ($m = 85.99, sd = 12.38$) was not significantly different from the mean of the CSR class ($m = 88.03, sd = 8.71$) Reading S1 was the first semester average, Reading S2 was the second semester average and Reading Final was the final average for the school year. Seven of the non-CSR students did not have reading scores and one CSR student did not have reading scores.
Table 2

*Group Statistics-CSR Status by Reading Scores*

<table>
<thead>
<tr>
<th></th>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading S1</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>84.65</td>
<td>13.149</td>
</tr>
<tr>
<td></td>
<td>CSR Size</td>
<td>29</td>
<td>87.55</td>
<td>8.462</td>
</tr>
<tr>
<td>Reading S2</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>86.99</td>
<td>12.406</td>
</tr>
<tr>
<td></td>
<td>CSR Size</td>
<td>29</td>
<td>88.21</td>
<td>10.073</td>
</tr>
<tr>
<td>Reading Final</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>85.99</td>
<td>12.382</td>
</tr>
<tr>
<td></td>
<td>CSR Size</td>
<td>29</td>
<td>88.03</td>
<td>8.712</td>
</tr>
</tbody>
</table>

Table 3 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on their reading scores. As seen in the table, there was no significant difference between the CSR group and the non-CSR group in their performance in reading during each of the examination periods, Reading S1, Reading S2, and Reading S3 (p > .05)

Table 3

*Independent Samples t-test CSR Status by Reading Scores*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading S1</td>
<td>Non-CSR</td>
<td>100</td>
<td>84.65</td>
<td>13.14</td>
<td>-1.121</td>
<td>127</td>
<td>.264</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>87.55</td>
<td>8.462</td>
<td>-1.121</td>
<td>127</td>
<td>.264</td>
</tr>
<tr>
<td>Reading S2</td>
<td>Non-CSR</td>
<td>100</td>
<td>86.99</td>
<td>12.41</td>
<td>-.484</td>
<td>127</td>
<td>.630</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>88.21</td>
<td>10.07</td>
<td>-.484</td>
<td>127</td>
<td>.630</td>
</tr>
<tr>
<td>Reading Final</td>
<td>Non-CSR</td>
<td>100</td>
<td>85.99</td>
<td>12.38</td>
<td>-.831</td>
<td>127</td>
<td>.408</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>88.03</td>
<td>8.71</td>
<td>-.831</td>
<td>127</td>
<td>.408</td>
</tr>
</tbody>
</table>

Table 4 is a presentation of the examination of class reduction status by language scores. As seen in the table, students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the periods examined (Language Arts1, Language Arts2, and Language Arts Final). Language Arts 1 was the
average for the first semester, Language Arts 2 was the average for the second semester, and Language Arts Final was the final average for the school term. Seven of the non-CSR students did not have language art scores and one CSR student did not have language arts scores.

Table 4

*Group Statistics-CSR Status by Language Scores*

<table>
<thead>
<tr>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Language Arts 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>86.43</td>
<td>12.283</td>
<td>1.228</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>90.62</td>
<td>7.669</td>
<td>1.424</td>
</tr>
<tr>
<td><strong>Language Arts 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>86.36</td>
<td>11.305</td>
<td>1.131</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>91.17</td>
<td>8.685</td>
<td>1.613</td>
</tr>
<tr>
<td><strong>Language Arts Final</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>86.50</td>
<td>11.388</td>
<td>1.139</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>90.97</td>
<td>7.894</td>
<td>1.466</td>
</tr>
</tbody>
</table>

To answer Research Question 1, a series of independent samples t-test were computed on semester and final averages for language arts of students in the CSR condition and students who were not in the CSR condition. The first series of t-tests compared language arts averages for the first semester. An independent samples t-test was computed to compare the first semester of language arts averages of students in the two groups. No significant difference was found (t (127) = 1.73, p > .05). The mean of the non-CSR class (m = 86.43, sd = 12.28) was not significantly different from the mean of the CSR class (m = 90.62, sd = 7.66). An independent-samples t-test comparing the mean scores of the non-CSR class and the CSR class found a significant difference between the means of the two groups (t (127 = 2.116, p < .05). The mean of the non-
CSR class was significantly lower (m = 86.36, sd = 11.30) than the mean of the CSR class (m = 91.17, sd = 8.68). Additionally, there was not a significant difference between the non-CSR class size and the CSR class (t (127) = 1.97, p < .05). The mean of the non-CSR class was significantly lower (m = 86.50, sd = 11.38) than the mean of the CSR class (m = 90.97, sd = 7.89).

Table 5 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on their language arts scores. As seen in the table, there was no significant difference between the CSR group and the non-CSR group in their performance in language arts during the examination periods, Language Arts 1 (p > .05). However, there was a significant difference between the CSR group and the non-CSR group in their performance in language arts during the examination periods Language Arts 2, and Language Arts Final (p < .05).

Table 5

*Independent Samples t-Test-CSR Status by Language Scores*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts 1</td>
<td>Non-CSR</td>
<td>100</td>
<td>86.43</td>
<td>12.28</td>
<td>-1.73</td>
<td>127</td>
<td>.084</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>90.62</td>
<td>7.67</td>
<td>-1.73</td>
<td>127</td>
<td>.084</td>
</tr>
<tr>
<td>Language Arts 2</td>
<td>Non-CSR</td>
<td>100</td>
<td>86.36</td>
<td>11.31</td>
<td>-2.12</td>
<td>127</td>
<td>.036</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>91.17</td>
<td>8.69</td>
<td>-2.12</td>
<td>127</td>
<td>.036</td>
</tr>
<tr>
<td>Language Arts Final</td>
<td>Non-CSR</td>
<td>100</td>
<td>86.50</td>
<td>11.39</td>
<td>-1.98</td>
<td>127</td>
<td>.050</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>90.97</td>
<td>7.89</td>
<td>-1.98</td>
<td>127</td>
<td>.050</td>
</tr>
</tbody>
</table>

Table 6 is a presentation of the examination of CSR status by mathematics scores. As seen in the table, students enrolled in CSR classes had lower scores than students who were enrolled in non-CSR classes for each of the periods examined (Math S1, Math S2, ...
and Math S3). Math S1 was the average of the first semester math scores, Math S2 was the average of second semester math scores, and Math Final was the average for the school year. Seven of the non-CSR students did not have mathematics scores and one CSR student did not have mathematics scores.

Table 6

*Group Statistics-CSR Status by Mathematics Scores*

<table>
<thead>
<tr>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math S1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CRS Size</td>
<td>100</td>
<td>85.90</td>
<td>11.473</td>
<td>1.147</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>84.97</td>
<td>11.381</td>
<td>2.113</td>
</tr>
<tr>
<td>Math S2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CRS Size</td>
<td>100</td>
<td>89.04</td>
<td>9.577</td>
<td>.958</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>86.83</td>
<td>8.561</td>
<td>1.590</td>
</tr>
<tr>
<td>Math Final</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CRS Size</td>
<td>100</td>
<td>87.58</td>
<td>10.147</td>
<td>1.015</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>85.97</td>
<td>9.379</td>
<td>1.742</td>
</tr>
</tbody>
</table>

Table 7 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on their mathematics scores. The results of this analysis found no significant difference in the first semester math scores of non-CSR class and the CSR class \((t(127) = .387, p > .05)\). The mean of the non-CSR class \((m = 85.90, sd = 11.47)\) was not significantly different from the mean of the CSR class size \((m = 84.97, sd = 11.38)\). There was no significant difference in the second semester mathematics scores of the non-CSR class size \((t (127)= 1.12, p > .05)\). The mean of the non-CSR class size \((m = 89.04, sd = 9.57)\) was not significantly different from the mean of the CSR class size \((m = 86.83, sd = 8.56)\). The final scores for mathematics found no significant difference in the results of the non-CSR
class and the CSR class size (t (127) = .767, p > .05). The mean of the non-CSR class (m = 87.58, sd = 10.14) was not significantly different from the mean of the CSR class size (m = 85.97, sd = 9.37).

Table 7

*Independent Samples t-Test-CSR Status by Mathematics Scores*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Type</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math S1</td>
<td>Non-CSR</td>
<td>100</td>
<td>85.90</td>
<td>11.47</td>
<td>.387</td>
<td>127</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>84.97</td>
<td>11.38</td>
<td>.387</td>
<td>127</td>
<td>.69</td>
</tr>
<tr>
<td>Math S2</td>
<td>Non-CSR</td>
<td>100</td>
<td>89.04</td>
<td>9.58</td>
<td>.265</td>
<td>127</td>
<td>.26</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>86.83</td>
<td>8.56</td>
<td>.265</td>
<td>127</td>
<td>.26</td>
</tr>
<tr>
<td>Math Final</td>
<td>Non-CSR</td>
<td>100</td>
<td>87.58</td>
<td>10.15</td>
<td>.445</td>
<td>127</td>
<td>.44</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>85.97</td>
<td>9.38</td>
<td>.445</td>
<td>127</td>
<td>.44</td>
</tr>
</tbody>
</table>

Table 8 is a presentation of the examination of CSR status by science scores. As seen in the table, students enrolled in CSR classes had lower scores than students who were enrolled in non-CSR classes for the periods examined Science S1 and Science S3. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for the periods examined Science S2. Science S1 was the average of the first semester science scores, Science S2 was the average of the second semester science scores, and Science Final was the final average of the science scores for the school year. Seven of the non-CSR students did not have science scores and one CSR student did not have science scores.
Table 8

*Group Statistics-CSR Status by Science Scores*

<table>
<thead>
<tr>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science S1</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>92.17</td>
<td>7.080</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>90.72</td>
<td>8.137</td>
<td>1.511</td>
</tr>
<tr>
<td>Science S2</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>91.56</td>
<td>11.860</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>92.34</td>
<td>5.380</td>
<td>.999</td>
</tr>
<tr>
<td>Science F</td>
<td>Non-CSR Size</td>
<td>100</td>
<td>92.42</td>
<td>7.367</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>91.69</td>
<td>6.432</td>
<td>1.194</td>
</tr>
</tbody>
</table>

Table 9 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on their science scores. The results of the first semester science scores found no significant difference ($t$ (127) = .936, $p > .05$). The mean of the non-CSR class ($m = 92.17$, $sd = 7.08$) was not significantly different from the mean of the CSR class ($m = 90.72$, $sd = 8.13$). The calculations of the second semester science scores yielded no significant difference between the two groups ($t$ (127) = .345, $p > .05$). The mean of the non-CSR class ($m = 91.56$, $sd = 11.86$) was not significantly different from the mean of the CSR class size ($m = 92.34$, $sd = 5.38$). The calculations for the final average also produced no significant difference in scores of the two groups ($t$ (127) = .483, $p > .05$). The mean of the non-CSR group ($m = 92.42$, $sd = 7.36$) was not significantly different from the mean of the CSR class size ($m = 91.69$, $sd = 6.43$).
### Table 9

**Independent Samples t-Test-CSR Status by Science Scores**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science</td>
<td>Non-CSR</td>
<td>100</td>
<td>92.17</td>
<td>7.08</td>
<td>.936</td>
<td>127</td>
<td>.351</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>90.72</td>
<td>8.14</td>
<td>.936</td>
<td>127</td>
<td>.351</td>
</tr>
<tr>
<td>Science</td>
<td>Non-CSR</td>
<td>100</td>
<td>91.56</td>
<td>11.86</td>
<td>.345</td>
<td>127</td>
<td>.730</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>92.34</td>
<td>5.38</td>
<td>.345</td>
<td>127</td>
<td>.730</td>
</tr>
<tr>
<td>Science</td>
<td>Non-CSR</td>
<td>100</td>
<td>92.42</td>
<td>7.37</td>
<td>.483</td>
<td>127</td>
<td>.630</td>
</tr>
<tr>
<td>Final</td>
<td>CSR</td>
<td>29</td>
<td>91.69</td>
<td>6.43</td>
<td>.483</td>
<td>127</td>
<td>.630</td>
</tr>
</tbody>
</table>

Table 10 is a presentation of the examination of CSR status by social studies scores. As seen in the table, students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the following periods examined Social Studies S1 and Social Studies Final. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for Social Studies S2. Social Studies S1 was the average of first semester social studies scores, Social Studies S2 was the average of second semester social studies scores, and Social Studies Final was the average for the school year. Seven of the non-CSR students did not have social studies scores and one CSR student did not have social studies scores.
Table 10

*Group Statistics-CSR Status by Social Studies*

<table>
<thead>
<tr>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>92.45</td>
<td>7.193</td>
<td>.719</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>93.21</td>
<td>6.032</td>
<td>1.120</td>
</tr>
<tr>
<td>Social Studies 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>92.34</td>
<td>8.071</td>
<td>.807</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>91.66</td>
<td>6.857</td>
<td>1.273</td>
</tr>
<tr>
<td>Social Studies Final</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>100</td>
<td>92.58</td>
<td>7.137</td>
<td>.714</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>92.62</td>
<td>6.114</td>
<td>1.135</td>
</tr>
</tbody>
</table>

Table 11 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on their social studies scores. The first semester social studies averages yielded no significant difference between the two groups \((t (127) = .028, p > .05)\). The mean of the non-CSR class \((m = 92.45, sd = 7.19)\) was not significantly different from the mean of the CSR class size \((m = 93.21, sd = 6.03)\). The second semester social studies averages also yielded no significant difference between the two groups \((t (127) = .415, p > .05)\). The mean of the non-CSR class \((m = 92.34, sd = 8.07)\) was not significantly different from the mean of the CSR class size \((m = 92.58, sd = 6.85)\). Lastly, the final social studies averages were not significant between the two groups \((t (127) = .028, p > .05)\). The mean of the non-CSR class size \((m = 92.58, sd = 7.13)\) was not significantly different from the mean of the CSR class size \((m = 92.62, sd = 6.11)\).
Table 11

*Independent Samples t-test-CSR Status by Social Studies*

<table>
<thead>
<tr>
<th>Subject</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Studies S1</td>
<td>Non-CSR</td>
<td>100</td>
<td>92.45</td>
<td>7.19</td>
<td>-.516</td>
<td>127</td>
<td>.607</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>93.21</td>
<td>6.03</td>
<td>-.516</td>
<td>127</td>
<td>.607</td>
</tr>
<tr>
<td>Social Studies S2</td>
<td>Non-CSR</td>
<td>100</td>
<td>92.34</td>
<td>8.07</td>
<td>-.415</td>
<td>127</td>
<td>.679</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>91.66</td>
<td>6.85</td>
<td>-.415</td>
<td>127</td>
<td>.679</td>
</tr>
<tr>
<td>Social Studies Final</td>
<td>Non-CSR</td>
<td>100</td>
<td>92.58</td>
<td>7.14</td>
<td>-.028</td>
<td>127</td>
<td>.978</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>92.62</td>
<td>6.11</td>
<td>-.028</td>
<td>127</td>
<td>.978</td>
</tr>
</tbody>
</table>

To answer Research Question 2, a series of independent samples t-tests were computed on the pre-test and post-test scores on the Trophies Placement and Diagnostic Assessment of first grade students in CSR classes and first grade students not in CSR classes when controlling for Trophies Placement and Diagnostic Assessment pre-test scores. The first series of t-tests compared the pre-test scores to the post-test scores of the students in CSR classes and first grade students not in CSR classes. The results of this analysis found that no significant difference (t (126) = 1.02, p > .05). The mean of the non-CSR class (m = 39.03, sd = 7.25) was not significantly different from the mean of the CSR class size (m = 40.48, sd = 4.50). The analysis of the post-test scores of the two groups found a significant difference between the means of the two groups (t (126) = 1.95, p < .05). The mean of the non-CSR group was significantly lower (m = 43.62, sd = 4.82) than the mean of the CSR group (m = 45.44, sd = 2.54). Eight of the non-CSR students had no pre-test scores and one CSR student did not have a pre-test score.
Table 12

*Group Statistics-CSR Status by Pre-test and Post-test Scores*

<table>
<thead>
<tr>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>99</td>
<td>39.0303</td>
<td>7.25829</td>
<td>.72949</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>40.4828</td>
<td>4.50096</td>
<td>.83581</td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-CSR Size</td>
<td>99</td>
<td>43.6263</td>
<td>4.82254</td>
<td>.48468</td>
</tr>
<tr>
<td>CSR Size</td>
<td>29</td>
<td>45.4483</td>
<td>2.54371</td>
<td>.47235</td>
</tr>
</tbody>
</table>

Table 13 is a presentation of the independent samples t-test that was computed to examine the differences in the pre-test and post-test scores of the CSR group and the non-CSR group. As seen in the table, there was no significant difference between the CSR group and the non-CSR group in their performance on the pre-test (p > .05). However, there was a significant difference between the CSR group and the non-CSR group on their post-test scores (p < .05). Students in the CSR group scored significantly higher in the post-test Trophies Placement and Diagnostic Assessment than students in the non-CSR group.
Table 13

Independent Samples t-Test-CSR Status by Pre-test and Post-test Scores

<table>
<thead>
<tr>
<th>Test</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>Non-CSR</td>
<td>99</td>
<td>39.03</td>
<td>7.25</td>
<td>-1.02</td>
<td>126</td>
<td>.310</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>40.48</td>
<td>4.50</td>
<td>-1.02</td>
<td>126</td>
<td>.310</td>
</tr>
<tr>
<td>Post-test</td>
<td>Non-CSR</td>
<td>99</td>
<td>43.62</td>
<td>4.82</td>
<td>-1.95</td>
<td>126</td>
<td>.053</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>45.44</td>
<td>2.54</td>
<td>-1.95</td>
<td>126</td>
<td>.053</td>
</tr>
</tbody>
</table>

Table 14 is a presentation of the examination of pre-test and post-test scores of the students who participated in this study. Table 14 is a presentation of the statistics regarding the pre-test and post-test scores. As seen in the table, the post-test scores were higher than the pre-test scores.

Table 14

Paired Samples Statistics - Pre-test – Post-test

<table>
<thead>
<tr>
<th>Pair 1</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>39.3594</td>
<td>128</td>
<td>6.74477</td>
<td>.59616</td>
</tr>
<tr>
<td>Post-test</td>
<td>44.0391</td>
<td>128</td>
<td>4.46756</td>
<td>.39488</td>
</tr>
</tbody>
</table>

A one-way ANCOVA was conducted to determine the effect of class type on the post-test of the Trophies Placement and Diagnostic Assessment when controlling for pre-test differences on the Trophies Placement and Diagnostic Assessment. The Levene’s test revealed that the assumption of homogeneity of variance was met F (1, 126) = .866, p = .354. ANCOVA results indicate a significant effect for class type, F (1, 125) = 4.00  p = .047. The covariate of pre-test significantly influenced the dependent variable of post-test, F (1, 125) = 257.06, p = .000. Students assigned to the CSR condition (adj M =
93.59, se = .99) scored significantly higher than the students assigned to the non-CSR condition (adj m = 91.32, se = .54). Table 15 presents the adjusted and unadjusted descriptive statistics for the two groups and table16 displays the ANCOVA summary table.

Table 15

Adjusted and Unadjusted Group Means for Class Types

<table>
<thead>
<tr>
<th>Class Type</th>
<th>n</th>
<th>Adjusted M</th>
<th>SE</th>
<th>Unadjusted M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>99</td>
<td>91.32</td>
<td>.54</td>
<td>90.96</td>
<td>10.14</td>
</tr>
<tr>
<td>CSR</td>
<td>29</td>
<td>93.59</td>
<td>.99</td>
<td>94.83</td>
<td>5.28</td>
</tr>
</tbody>
</table>

Table 16

ANCOVA Summary Table

<table>
<thead>
<tr>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>99</td>
<td>90.96</td>
<td>91.32</td>
<td>.54</td>
</tr>
<tr>
<td>CSR</td>
<td>29</td>
<td>94.83</td>
<td>93.59</td>
<td>.99</td>
</tr>
</tbody>
</table>

To answer Research Question 3, a series of independent samples t-tests were computed on semester and final averages of students in the CSR conditions and students who were not in the CSR condition. An ANCOVA was also conducted on spring iSteep reading scores. The first series of t-tests compared iSteep results in reading. An independent samples t-test was computed to examine differences between the CSR group and the non-CSR group on the iSteep Assessment reading scores. The data in Tables 17-24 serve to address this research question. Table 17 is a presentation of the group statistics that examine CSR status by iSteep Assessment scores for reading. As seen in the table, students in the CSR group had higher scores in the winter iSteep reading
Assessment and the spring iSteep Reading Assessment. The non-CSR group had higher scores on the fall iSteep Reading Assessment. Each of the three administrations of the iSteep assessments, the n-count changed. Thirty-two of the non-CSR students did not have a fall score, one did not have a score for the winter assessment, and four did not have a score for the spring assessment. All 30 of the CSR students had scores for each of the three administrations of iSteep.

Table 17

*Group Statistics-CSR Status by iSteep Reading Assessment*

<table>
<thead>
<tr>
<th></th>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall iSteep R</td>
<td>Non-CSR Size</td>
<td>75</td>
<td>99.76</td>
<td>58.891</td>
<td>6.755</td>
</tr>
<tr>
<td>Winter iSteep R</td>
<td>CSR Size</td>
<td>30</td>
<td>97.07</td>
<td>51.524</td>
<td>9.407</td>
</tr>
<tr>
<td>Spring iSteep R</td>
<td>Non-CSR Size</td>
<td>106</td>
<td>104.10</td>
<td>52.815</td>
<td>5.130</td>
</tr>
<tr>
<td></td>
<td>CSR Size</td>
<td>30</td>
<td>109.60</td>
<td>44.150</td>
<td>8.061</td>
</tr>
</tbody>
</table>

Table 17 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on the iSteep Assessment reading scores. As seen in the table, no significant difference was found for the fall iSteep reading assessment (t (104) = .220, p > .05). The mean of the non-CSR class (m = 99.76, sd = 58.89) was not significantly different from the mean of the CSR class size (m = 97.07, sd = 51.52). The winter iSteep assessment produced no significant difference (t (134)= .520, p > .05). The mean score of the non-CSR class (m = 104.10, sd = 52.81) was not significantly different from the mean of the CSR class (m = 109.60, sd = 44.15).
= 44.15). Additionally, the spring iSteep reading assessment did not produce a significant difference in scores (t (131) = .628, p > .05). The mean of the non-CSR class (m = 121.01, sd = 50.34) was not significantly different from the mean of the CSR class (m = 127.23, sd = 37.21).

Table 18

*Independent Samples t-Test-CSR Status by iSteep Reading Assessments*

<table>
<thead>
<tr>
<th>Test</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall iSteep R</td>
<td>Non-CSR</td>
<td>75</td>
<td>99.76</td>
<td>58.89</td>
<td>.220</td>
<td>104</td>
<td>.827</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>30</td>
<td>97.07</td>
<td>51.52</td>
<td>.220</td>
<td>104</td>
<td>.827</td>
</tr>
<tr>
<td>Winter iSteep R</td>
<td>Non-CSR</td>
<td>106</td>
<td>104.10</td>
<td>52.82</td>
<td>-.520</td>
<td>134</td>
<td>.604</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>30</td>
<td>109.60</td>
<td>44.15</td>
<td>-.520</td>
<td>134</td>
<td>.604</td>
</tr>
<tr>
<td>Spring iSteep R</td>
<td>Non-CSR</td>
<td>89</td>
<td>121.01</td>
<td>50.34</td>
<td>-.628</td>
<td>131</td>
<td>.531</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>29</td>
<td>127.23</td>
<td>37.22</td>
<td>-.628</td>
<td>131</td>
<td>.531</td>
</tr>
</tbody>
</table>

An ANCOVA was conducted on spring iSteep reading scores. The covariate for this analysis were the fall iSteep reading scores. The independent variable for this analysis was class type (CSR and not CSR). After adjustment by the covariate, the spring iSteep reading scores did not vary significantly with the type of class size, F(1, 102) = .32, p = .57. Students in the CSR classes (adj. M = 129.28, SE = 3.03) did not score significantly different than the students in the non-CSR classes (adj. M = 131.30, SE = 1.92). Therefore it appears that the reduced class sizes did not have an effect on the iSteep reading test. Table 19 presents a summary of the ANCOVA results and Table 20 displays the descriptive statistics for this analysis.
Table 19

**ANCOVA Results**

<table>
<thead>
<tr>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>89</td>
<td>90.96</td>
<td>91.32</td>
<td>.54</td>
</tr>
<tr>
<td>CSR</td>
<td>29</td>
<td>94.83</td>
<td>93.59</td>
<td>.99</td>
</tr>
</tbody>
</table>

Table 20

**Adjusted and Unadjusted Mean for Class Types**

<table>
<thead>
<tr>
<th>Class Type</th>
<th>n</th>
<th>Adjusted M</th>
<th>SE</th>
<th>Unadjusted M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>75</td>
<td>131.30</td>
<td>1.92</td>
<td>132.12</td>
<td>52.23</td>
</tr>
<tr>
<td>CSR</td>
<td>30</td>
<td>129.28</td>
<td>3.03</td>
<td>127.23</td>
<td>37.22</td>
</tr>
</tbody>
</table>

Table 21 is a presentation of the group statistics that examine CSR status by iSteep Assessment scores for mathematics. As seen in the table, students in the non-CSR group had higher scores in the fall iSteep mathematics assessment and the winter iSteep mathematics assessment. The reduction group had higher scores on the spring iSteep mathematics assessment. Thirty-one of the non-CSR students did not have scores for the fall iSteep assessment, five students did not have scores for the winter assessment and six did not have scores for the spring assessment. All 30 of the CSR students were assessed each of the three times on the iSteep assessment.
Table 21

Group Statistics-CSR Status by iSteep Mathematics Assessment

<table>
<thead>
<tr>
<th></th>
<th>CSR Status</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall iSteep M</td>
<td>Non-CSR Size</td>
<td>76</td>
<td>85.95</td>
<td>71.947</td>
<td>8.253</td>
</tr>
<tr>
<td>Fall iSteep M</td>
<td>CSR Size</td>
<td>30</td>
<td>70.13</td>
<td>72.045</td>
<td>13.154</td>
</tr>
<tr>
<td>Winter iSteep M</td>
<td>Non-CSR Size</td>
<td>102</td>
<td>80.12</td>
<td>65.837</td>
<td>6.519</td>
</tr>
<tr>
<td>Winter iSteep M</td>
<td>CSR Size</td>
<td>30</td>
<td>74.93</td>
<td>66.124</td>
<td>12.072</td>
</tr>
<tr>
<td>Spring iSteep M</td>
<td>Non-CSR Size</td>
<td>101</td>
<td>84.70</td>
<td>70.135</td>
<td>6.979</td>
</tr>
<tr>
<td>Spring iSteep M</td>
<td>CSR Size</td>
<td>30</td>
<td>85.57</td>
<td>66.424</td>
<td>12.127</td>
</tr>
</tbody>
</table>

Table 22 is a presentation of the independent samples t-test that was computed to examine the differences between the CSR group and the non-CSR group on the iSteep assessment mathematics scores. As seen in the table, there was no significant difference between the non-CSR group and the CSR group in their performance on the fall iSteep mathematics assessment (t(104) = 1.01, p > .05). The mean of the non-CSR group (m = 85.95, sd = 71.94) was not significantly different from the mean of the CSR group (m = 70.13, sd = 72.04). The Winter iSteep also produced no significant difference in scores (t(130) = .379, p > .05). The mean of the non-CSR group (m = 80.12, sd = 65.83) was not significantly different from the CSR class (m = 74.93, sd = 66.12). The spring iSteep mathematics assessment produced no significant difference between the two groups (t(129) = .060, p > .05). The mean of the non-CSR class (m = 84.70, sd = 70.13) was not significantly different from the mean of the CSR class (m = 85.57, sd = 66.42).
Table 22

*Independent Samples t-Test-CSR Status by iSteep Mathematics Assessment*

<table>
<thead>
<tr>
<th>Test</th>
<th>Class Type</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t-cal</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall iSteep M</td>
<td>Non-CSR</td>
<td>76</td>
<td>85.95</td>
<td>71.95</td>
<td>1.02</td>
<td>104</td>
<td>.311</td>
</tr>
<tr>
<td>Winter iSteep M</td>
<td>CSR</td>
<td>30</td>
<td>70.13</td>
<td>72.05</td>
<td>1.02</td>
<td>104</td>
<td>.311</td>
</tr>
<tr>
<td>Spring iSteep M</td>
<td>Non-CSR</td>
<td>102</td>
<td>80.12</td>
<td>65.84</td>
<td>.380</td>
<td>130</td>
<td>.705</td>
</tr>
<tr>
<td></td>
<td>CSR</td>
<td>30</td>
<td>74.93</td>
<td>66.12</td>
<td>.380</td>
<td>130</td>
<td>.705</td>
</tr>
</tbody>
</table>

An ANCOVA was conducted on spring iSteep math scores. The covariate for this analysis were the fall iSteep math scores. The independent variable for this analysis was class type (CSR and not CSR). After adjustment by the covariate, the spring iSteep math scores did vary significantly with the type of class, F(1, 42) = 4.14, p = .4. Students in the CSR classes (adj. M = 170.92, SE = 2.86) did score significantly different than the students in the non-CSR classes (adj. M = 177.1, SE = 1.63). Therefore it appears that the CSR did have an effect on the iSteep math test. Table 22 presents a summary of the ANCOVA results and Table 23 displays the descriptive statistics for this analysis.

Table 23

*Summary of the ANCOVA results*

<table>
<thead>
<tr>
<th>Class Type</th>
<th>n</th>
<th>Mean</th>
<th>Adjusted Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>34</td>
<td>177.82</td>
<td>177.61</td>
<td>1.63</td>
</tr>
<tr>
<td>CSR</td>
<td>11</td>
<td>170.27</td>
<td>170.92</td>
<td>2.86</td>
</tr>
</tbody>
</table>

Table 24

*Adjusted and Unadjusted Mean for Class Type*

<table>
<thead>
<tr>
<th>Class Type</th>
<th>n</th>
<th>Adjusted M</th>
<th>SE</th>
<th>Unadjusted M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-CSR</td>
<td>34</td>
<td>177.61</td>
<td>1.63</td>
<td>177.82</td>
<td>14.46</td>
</tr>
<tr>
<td>CSR</td>
<td>11</td>
<td>170.92</td>
<td>2.86</td>
<td>170.27</td>
<td>11.81</td>
</tr>
</tbody>
</table>
Summary

Chapter four was a presentation of the results from the analyses that were computed to address the three research questions that were formulated to guide this study. At the beginning of the first 9 week instructional period, each class was administered a pre-test. The CSR group received small group instruction from the Trophies reading series. The non-CSR group received the large group instruction from the Trophies reading series. At the end of the fourth 9 weeks, students took a post-test to measure gains in performance. The independent samples t-test was computed to examine differences between the CSR group and the non-CSR group.

There was no significant difference between the CSR group and the non-CSR group in their performance in language arts during the examination periods, Language Arts 1. However, there was a significant difference between the CSR group and the non-CSR group in their performance in language arts during the examination periods Language Arts 2, and Language Arts Final.

There was no significant difference between the CSR group and the non-CSR group in their performance in mathematics during each of the examination periods, Math S1, Math S2, and Math S3. However, students enrolled in CSR classes had lower scores than students who were enrolled in non-CSR classes for each of the periods examined (Math S1, Math S2, and Math S3).

Pre-test and post-test scores were collected on the Trophies Placement and Diagnostic Assessment for students exposed to small class instruction versus large class size instruction. There was a significant difference between the pre-test and the post-test scores. Post-test scores were higher than pre-test scores. The covariate of the pre-test
significantly influenced the dependent variable of post-test. The students assigned to the CSR class scored higher than the students in the non-CSR class.

Scores were collected from the iSteep assessment for students exposed to small class instruction versus large class size instruction. There was no significant difference in the class types from the fall administration of the assessment in reading and mathematics to the spring assessment.
Chapter five is a presentation of the summary, conclusions, and recommendations. The purpose of this study was to explore the impact of CSR on student performance while implementing CCSS. This research also examined if class size has an impact on student performance in the implementation of CCSS. The following research questions were developed to guide this study:

1. Is there a significant difference in the semester scores of first grade students in CSR classes and first grade students not in CSR classes?

2. Is there a significant difference in the post-test scores on the Trophies Placement and Diagnostic Assessment between first grade students in CSR classes and first grade students not in CSR classes when controlling for the Trophies Placement and Diagnostic Assessment pre-test scores?

3. Is there a significant difference in the spring iSteep Assessment scores of first grade students in CSR classes and first grade students not in CSR classes when controlling for the fall iSteep test scores?

For research question one, students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the periods examined (Reading S1, Reading S2, and Reading S3). However, there was no significant difference between the CSR group and the non-CSR group in their performance in
reading during each of the examination periods, Reading S1, Reading S2, and Reading S3. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the periods examined (Language Arts1, Language Arts2, and Language Arts Final). Significant difference was found between the CSR group and the non-CSR group in their performance in language arts during the examination periods Language Arts2, and Language Arts Final.

Students enrolled in CSR classes had lower scores than students who were enrolled in non-CSR classes for each of the periods examined (Math S1, Math S2, and Math S3). There was no significant difference between the CSR group and the non-CSR group in their performance in mathematics during each of the examination periods, Math S1, Math S2, and Math S3. Students enrolled in CSR classes had lower scores than students who were enrolled in non-CSR classes for the periods examined Science S1 and Science S3. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for the periods examined Science S2. There was no significant difference between the CSR group and the non-CSR group in their performance in science during each of the examination periods, Science S1, Science S2, and Science S3.

Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the following periods examined Social Studies S1 and Social Studies Final. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for Social Studies S2. There was no significant difference between the CSR group and the non-CSR group in their
performance in social studies during each of the examination periods, Social Studies S1, Social Studies S2, and Social Studies Final S3.

For research question two, there was no significant difference between the CSR group and the non-CSR group in their performance on the pre-test. However, there was a significant difference between the CSR group and the non-CSR group on their post-test scores. Students in the CSR group scored significantly higher in the post-test Trophies Placement and Diagnostic Assessment than students in the non-CSR group. There was a significant difference between the pre-test and the post-test scores. The post-test scores were higher than the pre-test scores.

For research question three, students in the CSR group had higher scores in the winter iSteep reading assessment and the spring iSteep reading assessment. The non-CSR group had higher scores on the fall iSteep reading assessment. There was no significant difference between the CSR group and the non-CSR group in their performance on the iSteep reading assessment scores for the fall iSteep reading assessment scores, winter iSteep reading assessment scores, and spring iSteep reading assessment scores. Students in the non-CSR group had higher scores in the fall iSteep mathematics assessment and the winter iSteep mathematics assessment. The CSR group had higher scores on the spring iSteep mathematics assessment. However, there was no significant difference between the CSR group and the non-CSR group in their performance on the iSteep mathematics assessment scores for the fall iSteep mathematics assessment scores, winter iSteep mathematics assessment scores, and spring iSteep mathematics assessment scores.
Discussion

The major limitation of this study was the fact that student performance surveillance was conducted during a short timeframe. Even though there was some improvement noted that can be attributed to the instruction and classroom design, it would take a longitudinal study to fully comprehend the impact of the CSR setting versus the non-CSR setting. There were some areas, however, where improvements in student performance could be noted. They are the following:

1. Students enrolled in CSR classes had higher scores than students who were enrolled in non-CSR classes for each of the periods examined (Language Arts1, Language Arts2, and Language Arts Final). Significant difference was found between the CSR group and the non-CSR group in their performance in language arts during the examination periods Language Arts2, and Language Arts Final.

2. There was a significant difference between the CSR group and the non-CSR group on their post-test scores. Students in the CSR group scored significantly higher in the post-test Trophies Placement and Diagnostic Assessment than students in the non-CSR group.

3. There was a significant difference between the pre-test and the post-test scores. The post-test scores were higher than the pre-test scores on the Trophies Placement and Diagnostic Assessment.

Some previous studies (i.e., STAR and SAGE) have shown that students who had more years of small classes in kindergarten through Grade 3 have higher levels of achievement 5 years later than students who had fewer years of smaller classes. Even though the data in this study do not fully support the implementation of smaller classes,
there is evidence that smaller classes have benefits for students, and further study is needed to fully understand the true impact.

Although the findings for the current study were consistent with the present literature, the present study expands the literature in the following ways. The studies discussed in the literature described states that utilized state developed curriculum. However, this study utilized a curriculum that has been adapted by 45 states. This curriculum was not developed by any one state but was developed by administrators, teachers, and other educational personnel from across the country. This curriculum is believed to be more rigorous than the other states curriculum as well as Mississippi’s current frameworks. Secondly, this current study advances the class size reduction literature because unlike the participants of the studies cited, students’ scores in this study were higher but not statistically significant. Additionally, based on a thorough search of the literature related to class size reduction, no studies were found to be conducted in the state of Mississippi. This present study expands the literature in this manner.

As the CCSS become fully implemented, the expectation is that additional studies could reveal exactly how the changes would impact student performance. This new initiative is more rigorous and will offer students a reasonable chance to succeed (USDE, 2010). The intended outcome for these standards is to prepare students to meet the requirements of college and career readiness. Educators believe that the number of students in a class has the potential to impact teaching, learning and student performance and achievement. It is believed that could also affect how students socialize with one another. Teachers working in smaller classes can devote more time to give individual attention to struggling students.

65
Recommendations

School leaders should consider reducing class size while implementing the CCSS. School leaders have to find a way to balance between the CCSS and the Mississippi Frameworks. This is a challenge that will require the full support and understanding of the entire learning community. This task must be shared and developed with other key members of the organization, even though the principal has the primary responsibility to ensure the new initiative is put into practice at a high level of rigor to ensure college and career ready students.

Recommendations for Further Study

It is recommended that a longitudinal study be conducted to follow a group of students as they matriculate through second and third grades, and beyond. This study will enable a researcher to fully explore the exposure to class CSR, and provide data that could examine the full impact of their exposure to CSR classes over time.
REFERENCES


Achilles, C. M., & Finn, J. D. (2002). The varieties of small classes and their outcomes. In M. C. Wang & J. D. Finn (Eds.), *Taking small classes one step further* (pp.121-146). Greenwich, CT: Information Age.


classes: A five-year follow-up of the Tennessee class size

Kappan, 67*, 662-665.

standard: Opportunities for improving measures of instruction. *Educational
Researcher, 40*(4), 186-188.

Ryan, D. W., & Greenfield, T. B. (1975). *Review of class size research: The class size
question*. Toronto, Ontario, Canada: Ontario Institute for Studies in Education.


*Kappa Delta Pi Record, 47*(2), 58-62.


and Improvement.

United States Department of Education. (2004). Retrieved from
http://www.gov/offices/OESE/ClassSize

United States Department of Education. (2010). *A blueprint for reform: The
reauthorization of the elementary and secondary education act*. Retrieved from
APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER)
April 16, 2012

Toya Harrell-Matthews  
602 Catalpa  
Clarksdale, MS 38614

RE: IRB Study #12-096: A Study of First Grade Class Size Reduction Classes and College Career Readiness Standards Implementation in a Rural Mississippi Delta School District

Dear Mrs. Harrell-Matthews:
This email serves as official documentation that the above referenced project was reviewed and approved via administrative review on 4/16/2012 in accordance with 45 CFR 46.101(b)(4). Continuing review is not necessary for this project. However, any modification to the project must be reviewed and approved by the IRB prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project. The IRB reserves the right, at anytime during the project period, to observe you and the additional researchers on this project.

Please note that the MSU IRB is in the process of seeking accreditation for our human subjects protection program. As a result of these efforts, you will likely notice many changes in the IRB's policies and procedures in the coming months. These changes will be posted online at http://www.orc.msstate.edu/human/aahrpp.php.

Please refer to your IRB number (#12-096) when contacting our office regarding this application.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at nmorse@research.msstate.edu or call 662-325-3994. In addition, we would greatly appreciate your feedback on the IRB approval process. Please take a few minutes to complete our survey at http://www.surveymonkey.com/s/YZC7QQD.

Sincerely,

Nicole Morse  
Assistant Compliance Administrator

cc: Linda Coats (Advisor)