

**Reading and Language Arts Achievement for Traditional Versus  
State-Mandated Common Core fourth grade Instruction across  
Student Ability Levels**

Asma Almgren  
Tennessee Technological University

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اسماء محمد المقرن

معيدة فى قسم التربية الخاصة – كلية التربية – جامعة القصيم

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**Abstract**

The Common Core State Standards initiative was released in 2010 in several states to replace the ~~common core~~ individual state standards that have reflected on the instructional adaptations as well. The purpose of this study ~~is~~ was to determine if there is a difference in reading and language arts achievement between fourth grade students receiving state-mandated common core instruction versus traditional state based standards instructional methods, and to determine if any differences, between the two approaches ~~are~~ were similar for students of different ability levels. This study ~~utilizes~~ utilized a causal comparative design. A significant difference was found in favor of Common Core Standards.

In the period of pre-common core, each state had its own definition and understanding of skillfulness requirements for the educational outcomes at each grade level which has been addressed as a probable contributor to the lack of standardization. That, in some way, leaded to the reconsidering the construction of common core standards and their outcomes for the possible improvement.

To motivate the reform of education, the ~~federal~~ Federal Race to the Top grants ~~was~~ were announced to competitively encourage states in adopting the Common Core Standards initiative in 2009. These Common Core Standards were developed first into the college- and career-readiness standards, and then integrated into the final form K-12 standards. This initiative and its development of the Common Core Standards was driven by several parties including the nation's governors and education commissioners, through their representative organizations, the National Governors Association Center for Best Practices (NGA) and the Council of Chief State School Officers (CCSSO).

The task of developing the Common Core State Standards was not entirely excluded to the education leaders. Teachers, from their side, have played a significant role in developing the amended Common Core Standards. Teachers' ~~involving~~ involvement was in forms of serving on the Work Groups and Feedback Groups for the English Language Arts and math standards, being members of teams that states held to come up with the regular feedback on initial sketch of the standards, and providing input on the Common Core State Standards throughout the two public comment stages.

By the year 2014, forty three states have adopted the CCSS in English Language Arts/literacy and math and they are currently in the process of applying the standards locally. Consequently, there is a need to examine the outcomes of applying the CCSS by investigating the differences between the traditional methods and CCSS throughout students' achievement in language arts and reading and among different ability levels.

**- Research Questions:**

Is there a significant difference in end-of-year reading and language arts achievement scores between fourth graders receiving state-mandated common core instructional methods and fourth graders receiving tradition pre-common core instruction?

Is the difference in reading and language arts end-of-year achievement scores between students receiving the different instructional methods the same ~~scores for~~ low, middle, and high ability groups?

#### - Significance of the Study:

This study will be a significant attempt in providing information regarding the similarities and differences between the outcomes of the application of state-mandated Common Core instructional methods versus the traditional methods at the achievement level. For teachers, this study will be helpful in obtaining a deep understanding of the differences, if any, in the students' reading and language achievement under the implement of state-mandated common core instructional strategies in lieu of the traditional [state standards based](#) strategies. By this study, they will be able to come up with the effective instructional methods that reflect on the improvement of students' achievement. For decision makers, the study will be beneficial in providing supportive and contributory tool in evaluating the outcomes of the implementation of the state-mandated common core instruction in place of traditional instruction. Moreover, it will serve as a reference for future researchers on the subject of instructional methods. There is inadequacy in the literature filling the gaps in the research-based knowledge in terms of addressing the differences in students' achievement across the ability levels resulted from adopting CCSS in comparison to traditional standards.

#### - Hypothesis/Hypotheses:

There will be a difference in end-of-year reading and language arts achievement test scores for students receiving state-mandated common core instruction compared to students who received traditional [state-standards based](#) instruction.

The difference in achievement between the two differing treatments, if any, will not be the same between low, middle, and high, ability groups.

#### - Definition of Terms

##### Common Core Standards (CCSS)-

Are defined as "State education chiefs and governors in 48 states came together to develop the Common Core, a set of clear college- and career-ready standards for kindergarten through 12th grade in English language arts/literacy and mathematics" (Frequently Asked Questions, 2014).

Is a research design that seeks to find relationships between independent and dependent variables after an action or event has already occurred (Brewer & Kubn, 2013).

##### English Language Arts-

Are defined in the chapter 132 of Maine Department of Education Regulation as "The ability to construct meaning through reading, writing, listening, speaking, viewing, and the process of inquiring as well as the ability to present ideas through writing, speaking, and visual media are the bases of English language arts" (p.1).

**Achievement Scores-**

Refers to the tests that “are designed to measure the knowledge and skills students learned in school or to determine the academic progress they have made over a period of time.” (STANDARDIZED TEST, 2013). The Achievement testing used in this study is the TCAP (Tennessee Comprehensive Assessment Program)

**Tennessee Comprehensive Assessment Program (TCAP)-**

Is defined in the Tennessee Department of Education website as “TCAP Achievement test is a timed, multiple choices assessment that measures skills in reading, language arts, mathematics, science and social studies” (TDOE, 2014).

**Ability Levels-**

Is the ability grouping that defined as "some means of grouping students for instruction by ability or achievement so as to reduce their heterogeneity" (Aydin & Tugal, 2005).

Operationally, in this study it will be based upon the students' previous year TCAP scores. Students will be sorted based upon the previous TCAP scores and divided into three approximately equal sized groups.

**Chapter II - Review of Literature**

The implementation of the Common Core State Standards initiative in replacing the existing state standards is one of the most significant turning points in the history of the American educational reforms efforts. However, that restructuring of the educational basis is raising questioning-questions whether it is producing different level of achievement. As a result of this change, schools and teachers are changing the methods and approaches that have been used in the delivery of knowledge in an attempt-of-following-to-follow these new CCSS. There are several studies have been researching the two different instructional methods and others that are probing teachers visions of the CCSS.

**Pre-Common Core Standards**

Phajane (2014) discussed the traditional method of teaching reading during the initial years of school. The study focused on how the teachers teach reading and the methods they used from the teacher's perspective and observing the real-setting of instruction. The most significant component that have-has been pointed out by the teachers was the absence of engaging students in the teaching of beginning reading and empowering them to become literate.

Phajan (2014) included the discussion of the five components regarding the teaching methods were covered in the study. First, the methods used in the teaching of reading of children centered on the emphasizing on teaching small portions to the whole. In addition, there is an emphasizing on the isolation of teaching sounds and letters, then forming words and sentence, ending with reading a book. Second, the teacher-learner interaction included motivating students to ask questions regarding a story, imitating new vowels, and making words with the use of phonics approach. The teacher relied on a step-by-step forming by sequencing sounds first, then words, and sentences. Third, the lesson activities and methods were designed to take the students through various of activities working on anticipation and comprehension to reach the actual reading. For fluency assessment, copies of a paragraph

were given to be orally read in turns. Fourth, the classroom setting as described was overcrowded in a way that students' movement was not flexible, they were difficult to be grouped and identified according to ability levels as well. Fifth, the learning environment was lacking in resource materials and restricted in homework activities.

Qualitative strategies were followed to collect data including observing a teacher within the focused setting and investigating the teacher with open-ended questions. The research findings highlight that the traditional method was used centering on the child and building his/her experiences. The materials are being re-taught when student fails rather than punishing. The teacher stated that letter-sound approach was beneficial in teaching reading in terms of decoding and the recognition of letter and word. The used of various activities was improved the involving of students in learning. The minimal limit of resources and materials influences the effectiveness of the teacher's teaching and the necessity to training and workshops was addressed. The advantage of traditional instruction that stated in the study was that learner gains the ability of understanding how the formation of a word is. However, the disadvantage was that the teacher has the basic role in the educational process of developing the students' reading making them more recipients with small space to conduct the learned materials (Phajane, 2014).

Reading comprehension has been investigated as a significant component in learning reading. Gibson (2009) explored the effectiveness of used reading instructional strategies contributing to improving reading comprehension from the teachers' perspective. Teachers' background knowledge and attitudes have been directing the instructional decisions and implementations. Gibson (2009) suggested that, "Teacher attitude plays an important part in what gets translated to the teaching practice" (p.8). The suggested problem of the study is the unavailability of the strategy- based reading instruction programs for every teacher despite the gains of critical thinking skills, comprehension levels monitoring, and increasing of motivation levels. Thus, the researcher questioning was about teachers' perspective of the effectiveness of implementing strategy-based reading instruction in their classroom.

The researcher assumed that strategy-based reading instruction will be a gainful program for students learning reading throughout pre-school to school ages. The strategy-based reading instruction should be available and able to be used by educators across all various age groups and proficiency levels. Such a strategy will promote the development of critical thinking skills of young students who are not able to read throughout reading-aloud sessions. By using this program, students are encouraged to critically think and monitor their thinking process. In addition, strategy-based reading instruction will allow enjoying the act of reading. In this study, a mixed of quantitative and qualitative instrument was used by having thirteen K-8th teachers answering an online survey about their perspective of the strategy-based instructional methods in teaching reading comprehension (Gibson, 2009).

The study findings supported the assumption that strategy-based reading instruction is a useful approach that positively reflected on the engagement of students in lessons. According to more that 65% of teachers participating in the study, students' engagement lasted the entire time of lesson while almost 35% of them stated that their students kept

engaged for most of the time. For the ability of differentiation while using this approach, almost 90% of teachers found it highly possible. Moreover, most teachers agreed to the statement of strategy-based reading instruction as being contributor to the improvement of reading comprehension (Gibson, 2009).

#### Common Core Standards

When the Common Core State standards were adopted, schools and districts have started focusing on the developing the instructional methods to convey the new standards by understanding the new vision of common core and utilizing the available resources. Hodge and Benko (2014) discussed the common vision on instruction in English/language arts by analyzing the common core state standards resources. Common core standards put down common expectations of the students' performance to be lined up with appropriate curriculum, instruction, and assessment to enhance the quality of education and the efficiency of educational opportunities. The most popular resources of the professional recommendations in implementing the common core state standards were analyzed. In English/Language arts field, there are three instructional shifts that are associated with the CCSS. "The three instructional shifts for ELA are: (1) Regular practice with complex text and its academic language; (2) Reading, writing and speaking grounded in evidence from text both literary and informational; (3) Building knowledge through content-rich nonfiction and informational texts" (p.176).

Hodge and Benko (2014) found and discussed in detail the controversial points over these instructional shifts within these resources. The controversy over the first shift "text complexity" was if the student is better to read passages at the grad-level or to read passages at their reading assessment level, and on the definition of complexity of reading. The controversy over the second shift "Close reading" was that the CCSS is being skeptical on the exact needed interaction of students with the complex texts. The controversy over the third shift "The role of narrative reading and writing" was on the amount of the nonfiction reading and the informative/argumentative writing that students experience. The implications of findings included that how the common core state standards are taught was clarified within these professional development resources. However, how the recommendations were reached, was not explained in all resources. To decide how to implement these recommendations, it is important for teachers to understand the rationale beyond them. Lastly, these resources were founded one-sided described on the current instructional shifts and what to be changed. As a result, this vision of instructional practices is argued to be research-based as is the CCSS, but it is not clear if it is well-supported with a complete research base (Hodge & Benko 2014).

On the other hand, studies on the actual applicability of the common core standards to the focused outcomes representing in college-career readiness were conducted. Conley, Drummond, Gonzalez, Rooseboom, and Stout (2011) examined the extent of which the knowledge and skills consisted of the common core state standards are applicable to and necessary for college-career readiness. A recruiting sample of national postsecondary instructors in twenty-five course categories was asked to rate the applicability and

importance of each standard. The courses were chosen to represent 7 main subject areas including English language arts, mathematics, science, social science, healthcare, business management, and computer technology. In this study, the standards of English Language Arts and literacy were found to be highly applicable in non-literary reading and writing; especially when combining results of informational texts and writing. For mathematical practices, most of instructors in nearly all subject areas rated them as applicable (Conley, Drummond, Gonzalez, Rooseboom & Stout, 2011).

It was not unexpected that not all standards in the broad assigned categories are applicable. Similarly, the various rating of significance degree of applicability on the English Language Arts and mathematical categories by the instructors within the different subject areas was not surprising. In the rating of the importance of the CCSS for successful post-secondary learning, it was explicit that, participants who found a specific standard applicable found it important as well. Results showed that ELA and literacy standards were higher essentiality rated than mathematical standards. There were only two of the more than hundred standards of ELA and literacy achieved means below the midpoint on the rating scale. The importance of ELA common core standards achieved the lowest rated despite their achieving the highest rating of applicability. Nonfiction reading Comprehension and age-appropriate complex reading standards received high rating in general and specified subject area. ELA skills that were emphasized by instructors included drawing out main ideas and details, general writing, using research supports, and long and short frequent writing. In the supplemental questions that are to reinforce findings, more than ninety five percent of participants found the standards as a whole are providing the adequate cognitive challenging. Almost eighty five percent said that these standards did not exclude the basic knowledge and skills. As a result, students who have mastered Common Core State Standards are likely to be ready for entry-level courses and their degree of readiness extends across wider course categories by their proficiency of more standards (Conley et al, 2011).

The Common Core Standards have led teachers to new visions of instruction such as quantity/quality and frontloading. Papola-Ellis (2014) explored the strategies of lessons planning and teaching literacy used by an elementary urban school under the Common Core initiative. Three teachers of different grades have been participating in an hour-observation and half hour-interview weekly for three months for data collecting. In addition, physical artifacts regarding lesson planning and activities were collected to be analyzed. Coding and line-by-line classification of data in particular to find regular and frequent patterns was used in data analyzing. Open coding was used initially to draw the main points followed by the focused coding that extract repeated points throughout both observations and interviews.

It has been found that teachers' strategies of using text including text dependency, text complexity, and informational text were different due to the Common Core State Standards. For the text dependency, teachers stated that due to the CCSS demands, they retreated from building on background knowledge to not limit students from independently diving in texts. For the text complexity, teachers started to include more grade-level reading with lessen student's level reading. For informational text, teachers are increasing the

informational reading regardless of the reasons behind selecting them in order to follow the CCSS requirement of fifty percent informational reading by reaching fourth grade. Instructional methods used in teaching literacy have become based on the Common Core State Standards rather than the teachers' professional knowledge (Papola-Ellis, 2014).

Other studies were conducted inquiring a clearer vision of the differences between the two methods. Conley, Drummond, Gonzalez, Seburn, Stout, and Rooseboom (2011) conducted a study to compare Common Core State Standards to several sets of existing standards in terms of matched knowledge and skills, the depth of cognitive challenging level between matched standards, and the width of Common Core State Standards in covering the content of current standards. Using standards-to-standards (Webb) alignment methodology, sixteen participants of experts were asked to rate the correspondence of the assessments to the standards and then to be statistically calculated. For English Language Arts and literacy, the Common Core State Standards for eleven and twelve grades were organized to be rated in this study. Results found for English Language Arts and literacy were discussed under three indices.

First index is the Categorical Concurrence where the criterion was repeatedly reached between the Common Core State standards and the comparison standards. Second, the Depth of Knowledge Consistency of Common Core Language Standards overall are being frequently met by the Common core Standards. Lastly, most of the Common Core Standards were widely covered by the Comparison Standards in measuring the Breadth of Coverage. In general, the study suggested a similarity between the CCSS and the comparison standards upon the necessary knowledge in ELA and mathematics for secondary education for the purpose of preparing students for the post-secondary life (Conley et al, 2011).

#### **Teachers' perspective of CCSS**

Since the teachers are the primary party involving relevant to the instruction work, their visions and experiences of the instructional changing to implement the Common Core Standards are substantial. Cheng (2012) investigated teachers understanding of the Common Core State Standards and in what way it will impact the outcomes of CCSS. A sample of teachers from the New Haven Unified School District (NHUSD) and Fremont Unified School District (FUSD) were surveyed and interviewed to gather quantitative and qualitative data in this mixed methods study. Teachers generally showed positive perceptions toward the CCSS system from the aspect of correcting disadvantages or persisting the advantages of the existing No Child Left Behind (NCLB) system. At the same time, they showed concerning perceptions that CCSS system may persist or increase difficulties of the existing NCLB system. The perceptions of teachers found to be centered on two points regarding the new CCSS system. First, although the width of the standards is being narrowed in a preferred way under the CCSS, teachers questioning that may not be sufficient and it may be even unrewarding with the fifteen percent additional content to the CCSS. Second, Teachers expressed concerns regarding the appropriateness of the CCSS



particularly the fine line between the high expectations and unreachable expectations (Cheng, 2012).

In fact, there has been a correlation between the teachers' awareness of the CCSS as a recent policy and their attitudes toward implementing them. In the Achieve report for the year 2012, educators' understanding of the Common Core State Standards and Assessments was monitored represented in their awareness of and support to the CCSS to be compared to the previous year 2011. One of the key findings of this report was that the increased information teachers know about the CCSS, the higher favor attitudes are recorded toward it. Likewise, teachers with less degree of knowledge regarding CCSS had taken oppositional attitudes. More than seventy five percent of participants voted for implementing the Common Core State Standards when they have been educated about them by an abbreviated description (Achieve, 2012).

#### **Ability levels**

Students typically vary in their ability level within one classroom. However, we could be uncertain of applying same educational components to all the different low, middle, and high levels in order to obtain valid and reliable outcomes. In one study, two groups of 32 students, one as a low and the other as a normal, were examined by conducting objective tests in attempt to measure validity and reliability of testing different ability groups. The group of lower ability level contained students who had failed subjects at secondary level at least once while the other group of students were a year in advance. Also, the lower group achieved an average of 92 on an IQ measurement where the normal group achieved an average of 102. The examiners used four various testing types including multiple choice, true/false, completion, and a modified essay, which was begun with to avoid hinting from other types.

The number of right answers was used for scoring. The normal group showed higher corresponding correlation in each instance. Correlations varied within the lower group indicated to the significance of additional testing in order to obtain reliable results. It has been found that testing of group with lower IQ and achievement showed low reliability and validity levels (1929).

Ability grouping of students have been studied as having an effect on their academic achievement. A study that covered six schools investigated the differences in students' experiences when being in homo-ability group and mixed-group. The study had been conducted over three years starting with the eighth grade of the participating students where all six schools implemented mixed grouping. Then that variable was manipulated by removing it and using homo-ability grouping in some schools, keeping it on others, and others used it for ninth graders. Observation of lessons, questionnaires of students, and interviewing students as well were used to collect data in this research. Results briefly included a restricting of students' working pace who were set in ability groups. Also, negative experiences such as frequent changing of low ability group teachers and reducing opportunities and difficulty level of activities to be too easy were reported. At meantime,

high expectations generated high pressure on students set in high ability groups (Boaler, William, & Brown, 2000).

Among the students with wide backgrounds, ability grouping may have potential impact on academic achievement. Lleras and Rangel studied the impact of the practices of ability grouping on the educational outcomes of African/American and Hispanic elementary students with comparison to non-grouped students. The assumption was that students within low ability group learn less than students who are assigned in high ability group in reading during the initial years of school. In addition to teachers' reports, the sample of African American and Hispanic students and data were obtained from the ECLS-K surveys that includes kindergarten and follow up years data of students. The reading achievement results, ability group placement, class ability, and the control variables such as sex and family socioeconomic status were the main components of measurement. The research resulted in supportive findings of the ability grouping impacting the reading achievement of African American and Hispanic students from kindergarten to third grade. In comparison to non grouped students, students in the low ability group showing low performance in reading assessment than students in the high ability group with consistent results between African American and Hispanic students was the major finding of the study assuring that African American and Hispanic students in high ability group learn more than those who came from same background placed in low ability group (Lleras & Rangel, 2009).

#### Summary/Synthesis

There are several studies that researched traditional instruction methods in teaching reading and language arts. Teachers thought that there was a need ~~to~~ for a higher level of student engagement in teaching reading first years of schools (Phajane, 2014). Others have stated that their background knowledge and own attitudes are what they rely on in the used instructional strategies (Gibson, 2009). There are other studies that researching the common core state standards (CCSS) as they have been adopted lately. Some are concentrating on the comparison of content and applicability between the existed standards and the new CCSS. The CCSS have been founded to have similarities with the earlier standards while they are unifying the states and local educational agencies definition of proficiency. Most of the CCSS have positive rating of applicability to their purposes of improving college-career readiness (Conley, Drummond, Gonzalez, Rooseboom & Stout, 2011). Other studies are looking for the differences of instruction delivery between the two sets of standards by investigating the teachers' vision to meet the new standards and the resources helping them for this change (Cheng, 2012). Teachers have announced that they have started different concepts and instructional strategies with the CCSS (Papola-Ellis, 2014). The instructional shifts resources existed to support teachers in understanding and meeting the CCSS standards need to be research-based.

### Chapter III - Methodology

This study investigated whether there is a significant difference in end-of-year reading and language arts achievement scores between fourth graders receiving state-mandated common core instructional methods and fourth graders receiving tradition pre-common core instruction. And, if so, whether the difference in reading and language arts end-of-year achievement scores between students receiving the different instructional methods the same ~~scores for~~ low, middle, and high ability groups. These questions ~~were~~ will be answered by comparing the third grade and fourth grade scores from the school years of 2013 (traditional state standards) and 2014 (common core standards) to explore the seeking relationships answers for the research questions.

#### - Sample:

This study will rely on data from five different fourth grade classes at Capshaw Elementary School in Putnam County. The cohort of fourth graders for the 2012-2013 school year received traditional instruction, and the cohort of fourth graders during the 2013/2014 school year will receive state-mandated common core instruction. Reading and Language Arts TCAP scores from the end of each cohort's third grade year will constitute the pre-measure upon which ability groups will be based. The Capshaw elementary school serves grades from PK-4 for a total of 511 students. The major part of the texture of students that represented in the percentage of 87.6, are White while the rest of them varied from different races. Specifically, 2.8 percent of those students are African American, 4.7 percent are Asian/Pacific Islanders, and 4.9 percent are Hispanic. Almost the third of those students represented in the percentage of 30.3 are economically disadvantaged. In terms of gender, 54.5 percent of students are male and 45.5 percent of them are female.

#### - Design:

This will be a causal-comparative descriptive study. Data for this study (excluding-including end-of-year achievement test data for the 2013-2014 school year) are available to be collected and evaluated.

#### - Measurement and Instrument:

The Tennessee Comprehensive Assessment Program, or TCAP was used as an achievement assessment in this study. According to the Tennessee Department of Education, "The TCAP Achievement test is a timed, multiple choice assessment that measures skills in reading, language arts, mathematics, science and social studies" (TDOE, 2014). The Tennessee Comprehensive Assessment Program (TCAP) is "a criterion-referenced achievement test given in grades 3-8 – is given once per year in the spring" (ECF, 2014). Basically, the TCAP scores give an annual report of the students' level of performance. The averages of the TCAP scores may not be appropriate indicators to the school's efficiency since they may be impacted by other factors such as social and economic circumstances (ECF, 2014).

The validity and reliability of the TCAP as an assessment tool were found acceptable. There is an adequate correlation between the norm-referenced test (NRT) of the Tennessee Comprehensive Assessment Program test (TCAP) and the Tennessee curricula. That relationship has been proven based on the gains across the state that would not be achieved without this alignment to the Tennessee curriculum confirming content validity (Horn, Bratton, & Wright, n.d.).

The TCAP was reviewed, revised, and field-tested in typical circumstances to confirm item validity. The stable outcome on the TCAP test samples had confirmed equivalent forms reliability (Larimore, 2011).

**- Materials:**

No materials were used in this study.

**- Data Collection:**

The data used in this study was collected from Capshow Elementary School in Putnam County, Tennessee. The participants in this study were students at one school and their records for third grade and fourth grade TCAP academic content of Reading and Language Arts were used to determine scale score data.

All sets of scores and data ~~were then~~ will be placed for each child on a Microsoft EXCEL spreadsheet. Columns for the variables ~~were~~ will be created organized and divided into four columns. These four columns are student ID for the students' information, method for the Common Core and pre-Common Core, ability for the three levels of ability, and achievement for the TCAP results.

**- Limitations**

Since this study is using causal-comparative design, one of the descriptive research methods, it had a significant limitation that called the post hoc fallacy. The post hoc fallacy term means that if two factors go together, one should be the cause of the other's effect. A cause and effect relationship cannot be taken for granted by the researchers due to other factors that may not have been considered during the study that could have influence the findings (Best & Kahn, 2006).

Furthermore, the manipulation for the independent variables ~~is not exist~~ was not controlled by the experimenter. Manipulating, altering, and adjusting the independent variable in a descriptive study are not available options. Additionally, there ~~are~~ was no random assignment of subjects to the treatment groups in a descriptive study (Best & Kahn, 2006).

Additional limitation was that the findings could be resulted by set of complex causes rather than one simple factor. There are many unexamined variables are potential contributors to results of the study. Thus, it is important to deeply consider these post hoc fallacy in any descriptive study that distributes events that have already occurred (Best & Kahn, 2006).

It is important to consider the possible developmental and environmental circumstances during the study conducting such as the school's first year of implementation

of CCSS, teachers' lack of knowledge of CCSS, or extra-curricular activities which they may have an impact on the results.

**- Data Analysis/ Statistical Procedures:**

[The data will go through a rigorous cleaning and screening process to make sure there are no errors in coding, outliers, missing data, or breach of the assumptions of normality or homogeneity of variance.](#)

[To answer the two research questions, the data will be analyzed in SPSS with a two-way analysis of variance \(ANOVA\) of TCAP scores comparing the two methods while blocking for student ability to remove extraneous variance and to facilitate investigating the potential interaction between treatment and ability. Marginal and cell means will be computed and plotted to help in interpreting all main and interaction effects. For the purpose of analysis, the level of significance will be  \$p=0.05\$ .](#)

**Chapter 4: Data Presentation and Analysis**

**Introduction**

The data were analyzed using SPSS software. Data were screened before analysis and found clean. However, violations of assumptions were found. A two-way ANOVA was conducted to determine if significant differences in scores on the end of year test (TCAP) existed among treatment groups and among treatment groups when blocked on ability. Significant differences were found.

**Presentation of Data**

The data were initially screened for missing data, coding errors, outliers, normality, and equality of error variances. No missing data were found. After data were screened for coding errors, there were none of them as well. There were outliers and the way outliers were handled is that they were trimmed. Trimming of these extreme values includes reducing, moving, or changing them to the next closest value (see Figure 1). The data were tested for normality and significant departures from normal were found across the treatment groups or across ability levels (see Table 1). Testing of equality of error variances showed a significant violation of the equal variances assumption (see Table 2). Because of the violations of these two assumptions, some caution will have to be exercised when interpreting the results of the analysis variance later. The descriptive statistics of means, standard deviations, and sample sizes by treatment and ability level were presented in Table 3.

Figure 1: Outliers

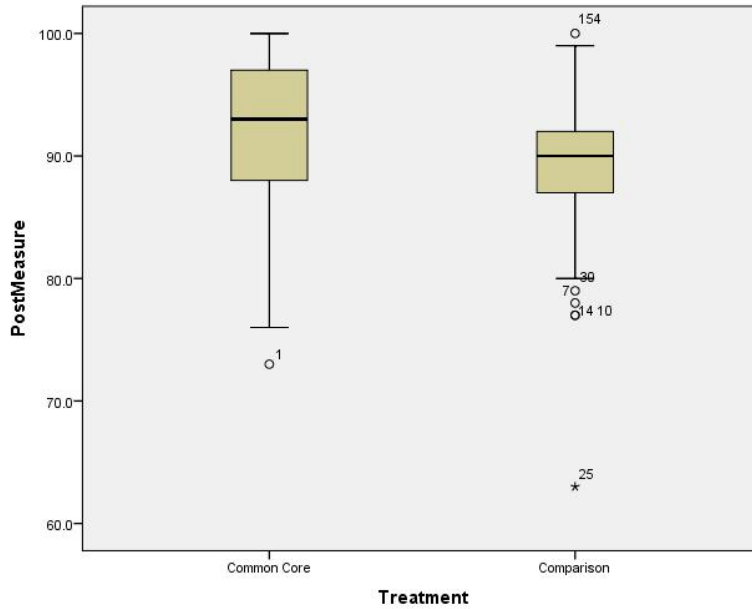


Table 1: Tests of Normality

	Treatment	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
PostMeasure	Common Core	.130	95	.000	.916	95	.000
	Comparison	.154	93	.000	.914	93	.000

a. Lilliefors Significance Correction

Table 2: Levene's Test of Equality of Error Variances<sup>a</sup>

Dependent Variable: PostMeasure

F	df1	df2	Sig.
4.763	5	181	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + Treatment + AbilityGroup + Treatment \* AbilityGroup



## Chapter 5: Conclusions, Discussion, and Recommendations

### Introduction

The current study found a significant difference in academic achievement in reading and language arts of students when they received common core instruction in comparison to their achievement when they received traditional instruction. This author concludes that common core instruction is therefore more effective than state-standards based instructional practices. Some areas of weakness in the current study exist and some recommendations for future research can be drawn from the current study.

### Summary of Results

There were two research questions examined in this study. First, is there a difference in reading and language arts achievement between fourth grade students receiving state-mandated common core instruction versus traditional state-standards based instructional methods?

Second, is the difference in academic achievement as measured by TCAP scores, if any, among the two treatments ~~are~~ similar for students of different ability levels: low, middle, and high? This study found a significant difference in academic achievement as measured by TCAP between students' scores when they received common core standards instruction and their ~~previous~~ TCAP scores ~~when they as compared with those who~~ received traditional state-based instruction. This study also found no significant difference among the two treatments for different student ability levels as determined by dividing groups based upon the previous year's Reading and Language Arts End-of-Course scores: low, middle, and high.

### Conclusions

Analysis of the data indicated significant differences in academic achievement in Reading and Language Arts among the treatment groups; however, there ~~was~~ ~~no~~ ~~significant~~ ~~change in the~~ differences determined when blocked on ability. Therefore, the major conclusion of this study is that instructional method based on common core standards resulted in more progress than state-standards based instructional method at boosting achievement on the end-of-year (TCAP) test. ~~However, the~~ ~~The~~ lack of a significant difference among treatments groups when blocked on ability indicated that ~~no~~ ~~the~~ difference ~~of~~ ~~between~~ the treatments ~~effects~~ ~~was~~ ~~consistent~~ ~~for~~ ~~all~~ ~~on~~ the ability levels.

### Discussion of Results

The question of whether or not common core based instruction boosts the academic achievement has been asked many times. However, there haven't been many studies that look specifically at the subject of reading and language arts and the fourth grade in particular. Gibson (2009) did a study to examine the strategy-based reading instruction as a new approach to the traditional instruction on the students' reading progress. Similar to my study, He found that more than two third of students kept engaged in the reading lesson the entire time which led teachers to notice an increase in students' achievement. In Conley,



Drummond, Gonzalez, Rooseboom, and Stout study (2011), where they investigated the effectiveness and applicability of common core standards, similar appreciated results were found. Almost a hundred percent of experts participating in their study agreed on the cognitive adequate challenging of common core standards. In contrast to my study, Cheng (2012) directed his attention to the teachers' perspective rather than students' results, which may reveal the uncertainty of teachers when it comes to the individual needs of the students that may not be distinct within group or comparative measuring. Some teachers expressed concerns that common core standards and practices may not fit some students' needs and becoming unreachable. Boaler, Wiliam, and Brown (2000) studied the students' performance in six schools when blocked on ability within the era of traditional instructional method. Unlike this study results, they reached to the result of negative impact on students' educational experiences. Although my study showed no significant differences in academic achievement of student when blocked on ability, it was close. While the majority of the sample used in my study is White, Lleras and Rangel (2009) targeted a more diversified background sample to examine the effect of ability grouping on their achievement. Students from the same background placed in low ability group showed less achievement in reading than their peers placed in high ability group.

#### Implications

The results of this study can be a guide that will help future researchers, parents, teachers, and policy makers throughout the following recommendations:

- In this study, 87% of students were White; therefore, a more diverse sample will be needed for truly accurate results in future research.
- Future research should also target a broader sample and different school systems to be done on the effects of common core instruction on academic achievement because in this study there was only a sample size of 188 students.
- Future research should be done for the same purpose looking at different age-levels of the students, subjects, and assessment tools to see if there is consistent impact of common core instruction on academic achievement.
- Future research should examine whether other extra-curricular activities could have an interfering ~~effect~~ effect on results as well.
- After looking at the research results, for parents, I would encourage your child to get involved in school systems that have applied effective common core standards instruction, since it has a significant effect on boosting academic outcomes.
- For teachers, this study would encourage them in looking for the improvements needed as instructors during the switch of instructional methods from state-standards to the common core standards.
- Knowing the previous findings, this study would be a confident item for policy makers in the development of educational standards by applying common core instructional methods for increased effective outcomes.

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