THE EFFECTS OF IMPLEMENTING THE COMMON CORE STATE STANDARDS ON STUDENT ACHIEVEMENT

By

Jake Lynch

Submitted to

Educational Leadership Faculty

Northwest Missouri State University Missouri

Department of Educational Leadership

College of Education and Human Services

Maryville, MO 64468

Submitted in Fulfillment for the Requirements for

61-683 Research Paper

Spring 2013

May 5, 2015
ABSTRACT

This study was conducted to find if there was a significant difference in student achievement on state standardized test scores following initial implementation of the Common Core State Standards (CCSS). The Common Core State Standards were developed to provide students with a deep, conceptual understanding of math; not mere procedural literacy. The mathematical practices outlined within the standards require teachers to support students in the development of deep understanding of math topics rather than merely memorizing a process. Research supports that the development of deep conceptual understanding and strong number sense in elementary mathematics education is critical for increased student learning and achievement. 3rd grade math achievement scores, obtained from the Missouri des'e website for a Midwestern school district show that a district-wide comparison of 2013 and 2014 3rd grade mathematics student achievement scores revealed no significant difference following transition and implementation of the Common Core State Standards in a Midwestern school district during the 2013-2014 school year. The reasoning behind this is not investigated in this study but similar data analysis in other states with earlier adoption suggests that initial implementation has produced similar results with steady student achievement gains evidenced over subsequent years as districts further align curriculum and professional development for teachers. After study of state assessment achievement data, review of current research and literature, and compilation and review of the findings of this study, it is found that student math achievement showed no significant difference with the initial transition to the new Common Core State Standards.
INTRODUCTION

*Background, Issues and Concerns.*

Over the years there have been many concerns and debate when it comes to the curriculum that educators are teaching in the public school systems. Traditionally, state curriculum models, which have a direct effect on student achievement and the results of each state’s standardized tests, have been criticized for not preparing students adequately. In response, the Common Core State Standards (CCSS) were developed as an answer to the curriculum debate, focusing on a high level of rigor with consistency across all states. There are many different viewpoints that individuals possess over this controversial subject. Many educators and parents feel that it would be in the best interest of the students, teachers, and parents for states to maintain local control over educational standards where educators would continue to have the ability to make the appropriate curricular decisions for their students, resulting in curriculum that continues to differ widely from state to state. Whereas others believe that to see the best results in student achievement, and college and career readiness, districts throughout each and every state must work together to teach *rigorous* common career-ready nationally benchmarked standards to students, which are known as the Common Core State Standards. Many states have recently adopted the CCSS, and have already started to implement them slowly into their districts. Consequently, many researchers, educators, and members of the general public are concerned that the results from the implementation of the CCSS on state standardized tests will show little or no improvement in student achievement.

In particular, during the 2013-14 school year the Midwestern School District experienced a significant transition to the CCSS. Professional development focused on the new CCSS Mathematical Practices and Standards. CCSS aligned curriculum was adopted and
implemented in the elementary grade levels. Particular focus was placed on CCSS aligned math curriculum in the elementary grades. The district implemented CCSS curriculum based on Engage NY, a comprehensive mathematics curriculum developed through Race to the Top grant funding in an effort to improve student achievement and performance.

**Practice under investigation.**

The practice under investigation will be a review of the Missouri Assessment Program (MAP) performance scores. There will be a study to see if there is a significant difference in the achievement of students on the MAP’s mathematics performance scores following implementation of the CCSS into the schools. This study will be examining the MAP’s performance results provided by the Department of Elementary and Secondary Education (DESE). If there is a significant difference found, further research and tracking of student achievement over time may be necessary to establish and confirm on-going trends and the consistency of results over time. In the case of positive growth, mathematical instruction should continue to be aligned with the CCSS supported by on-going curriculum alignment and professional development.

**School policy to be informed by study.**

Every school district in the state of Missouri has now been required to implement the CCSS and will have to participate in state standardized testing in which student achievement scores weigh heavily in the resulting Missouri School Improvement Plan, 5th Edition (MSIP 5) Annual Progress Report (APR) score. Further, in order for districts to meet Adequate Yearly Progress (AYP), increasing percentages of students must score in the proficient or advanced achievement levels each year. If there is a significant difference found in the test results after
The implementation of the CCSS, then districts can be made aware and plan accordingly for the results.

**Conceptual underpinning.**

The decline of student achievement as measured by standardized test scores continues to be a much debated issue in the United States. Comparisons are made both between states as well as with other countries, often portraying American high school graduates as ill prepared for college or the workforce. The United States educational system is criticized for producing a generation of students unable to apply mathematical understanding to real-world applications and problem-solving. Many argue that most state-developed and adopted standards have historically failed to raise the level of expectations for students or teachers to a high level of rigor, and will only continue to result in low-performing achievement scores and students who may not be considered college and career ready. In a recent joint public statement of the National Council of Teachers of Mathematics (NCTM), the National Council of Supervisors of Mathematics (NCSM), The Association of State Supervisors of Mathematics (ASSM), and the Association of Mathematics Teacher Educators (AMTE), stated that, “Mathematics Education Organizations Unite to Support Implementation of Common Core State Standards. The CCSS provides the foundation for the development of more focused and coherent instructional materials and assessments that measure students’ understanding of mathematical concepts and acquisition of fundamental reasoning habits, in addition to their fluency with skills. Most important, the CCSS will enable teachers and education leaders to focus on improving teaching and learning, which is critical to ensuring that all students have access to a high quality mathematics program and the support that they need to be successful (NCVTM).”
Statement of the problem.

If there is a decline in student performance on the math assessment portion of the MAP standardized testing, administrators, teachers, and parents need to explore the cause of these declines and correlation to the quality implementation of the CCSS.

Purpose of the study.

The purpose of the study is to find if there is a significant difference in achievement by students, on the Math section of the Missouri Assessment Program test after implementing the Common Core State Standards into the school setting.

Research questions.

RQ: Is there a significant difference in student achievement on the 3rd grade MAP test between students with Common Core Standards and students prior to Common Core Standards?

Null hypothesis.

Ho: There is not a significant difference in student achievement on the 3rd grade MAP test between students with Common Core Standards and students prior to Common Core Standards.

Anticipated benefits of the study.

If there is a significant difference in student achievement on math MAPS scores following the implementation of the CCSS, then district and state officials will have a better understanding of how the implementation of rigorous CCSS standards support improved student achievement in their district. Further curriculum alignment and professional development to support CCSS implementation would be warranted.
Definition of terms.

APR - Adequate Progress Report- A measurement defined by the United States federal No Child Left Behind Act that allows the U.S. Department of Education to determine how every public school and school district in the country is performing academically according to results on standardized tests.

AYP - Annual Yearly Progress- The No Child Left Behind Act, instituted in 2000, sets certain goals for school districts to reach to show student achievement.

MSIP 5 - Missouri School Improvement Plan 5th Edition- is the state's school accountability system for reviewing and accrediting public school districts in Missouri. MSIP began in 1990 and entered its fifth version in 2013.

MAP- Missouri Assessment Program test- A test given in the state of Missouri to measure student achievement.

CCSS- (Common Core State Standards) are a set of high quality academic expectations in English-language arts (ELA) and mathematics that define the knowledge and skills all students should master by the end of each grade level in order to be on track for success in college and career.

DESE- Department of Elementary and Secondary Education- A department that oversees public K-12 instruction in the state of Missouri. The department managed 2,439 schools and 916,842 students during the 2012-13 school year.

GLE- Grade level expectations- Grade-level expectations that were developed to align with Missouri state standards and national guidance and counseling standards.

NCLB- No Child Left Behind- A mandate that requires all public schools receiving federal aid to annually administer a statewide standardized test to students.
NGA- National Governors Association- Founded in 1908, the National Governors Association (NGA) is the collective voice of the nation’s governors and one of Washington, D.C.’s most respected public policy organizations. Its members are the governors of the 55 states, territories and commonwealths. NGA provides governors and their senior staff members with services that range from representing states on Capitol Hill and before the Administration on key federal issues to developing and implementing innovative solutions to public policy challenges through the NGA Center for Best Practices.

CCSSO- Council of Chief State School Officers- is a non-partisan non-profit organization of public officials who head departments of elementary and secondary education, the U.S. states, the District of Columbia, the Department of Defense Education Activity and five U.S. territories. CCSSO provides leadership, advocacy and technical assistance on major educational issues.

SBAC - Smarter Balanced Assessment Consortium- is a service provided by a public institution (University of California, Los Angeles), governed by member states/territories and funded with member state/territory fees. Smarter Balanced has developed next-generation assessments to accurately measure student progress toward college and career readiness in English language arts/literacy (ELA) and mathematics.
Summary.

A study was conducted to see if there was a significant difference in the achievement level of students on math MAP testing scores after implementation of the CCSS into the district. If the t-test concludes that there was a significant difference in student achievement, the district and state personnel would be made aware, whether positive or negative, of the level of student achievement following the CCSS implementation. Because this is the first year of implementation of the CCSS, the results, regardless of the outcome, can and will be used as a true baseline of where students and teachers are performing. After this study is completed, school districts may benefit by reviewing the performance data and providing on-going professional development and curriculum alignment to support a high level of quality implementation of the CCSS.
REVIEW OF LITERATURE

Over the past decades, there has been much debate over what is being taught in the public school system across the country. There have been many theories and plans that officials have tried to have implemented into the public school systems but many have failed, and the ones that actually ended up being implemented were too often unsuccessful. This was the case until 2001, when The No Child Left Behind Act (NCLB) was introduced by George W. Bush. This plan was put in place to hold school districts across the country accountable for teaching their students effectively and reaching the standards and objectives that were set at that time (USDA, 2001).

Each state was responsible for creating a curriculum and administering that curriculum throughout its public schools. Further, testing of that curriculum by administering a statewide assessment was required. This assessment was administered to test the proficiency goals of students, and to see if there was Adequate Yearly Progress (AYP) towards those goals, or Grade Level Expectations that were created.

Unfortunately, the NCLB Act did not result in the high level of student achievement that its founders anticipated. Though it resulted in some gains in math proficiency, it lacked the results in reading and language arts according to a study done by Dee and Jacob (2010). Though there has been much controversy over the NCLB Act, the majority of the education world agrees that steps needed to be made to strengthen the existing state standards that we hold our educators and students to. In a 2009 speech at the National Press Club, Education Secretary Arne Duncan said, “We want to raise the bar dramatically in terms of higher standards. What we have had as a country, I’m convinced is a race to the bottom. We have 50 different standards, and 50 different goal posts. And due to political pressure, those have been dumbed down. We want to
fundamentally revise that. We want common career-ready, internationally benchmarked standards” (Sloan, 2010, p.1).

Up to this point in time, every state had developed and adopted its own learning standards and its own definition of proficiency. This lack of standardization, and the common trend in falling proficiency levels was the reason why states decided to develop the Common Core State Standards (CCSS). According to the Common Core State Standards Initiative (2010), “The state-led effort to develop the Common Core State Standards was launched in 2009 by state leaders, including governors and state commissioners of education from 48 states, two territories and the District of Columbia, through their membership in the National Governors Association Center for Best Practices (NGA Center) and the Council of Chief State School Officers” (p.1). This would ultimately end up being a 5 year transition from the time standards were created until they would be implemented into the schools.

The CCSS’s defined by the Common Core State Standards Initiative (2010), “The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy” (p.1) Although the CCSS might sound promising, they did not come without criticism.

Districts are facing significant challenges related to the implementation of the CCSS. The transition to the CCSS from the state’s GLE’s or Grade Level Expectations places enormous pressure on districts, as they work to design and facilitate professional development needed to
support teachers as well as crucial curriculum modifications and alignment all within a timeframe before full-scale rollout of CCSS assessments in 2014-15 (Farrell, 2013).

As districts have worked to make this transition, focus has undoubtedly migrated from the GLE Standards to the CCSS, which has not been easy. This transition or shift in focus to the CCSS has been a multiyear process for most school districts across the state of Missouri, with possibly the greatest shift occurring in the 2013-14 school year, directly before the state required full implementation of CCSS during 2014-15.

Throughout this transition process there has been much debate and criticism over the curriculum and standards that the CCSS are based upon. Many feel that the new standards won’t measure up to expectations, and will consequently bring student achievement down. But according to a statement made by the NGA and CCSSO (2010), “The standards are informed by the highest, most effective models from the states across the country, and countries around the world, and provide teachers and parents with common understanding of what students are expected to learn. Consistent standards will provide appropriate benchmarks for all students regardless of where they live” (Sloan, p.2).

Some speculators argue that this model will undoubtedly bring those low achieving states proficiency up, but will do nothing but hurt the states that are already reaching high levels of achievement from their students. Again the NGA and CCSSO (2010) state “the standards are built upon the most advanced current thinking about preparing all students for success in college and their careers. This will result in moving even the best state standards to the next level. In fact, since this work began, there has been an explicit agreement that no state would lower its standards” (Sloan, 2010, p.2).
According to the Common Core State Standards Initiative (2010), the CCSS “are aligned with college and work expectations; are clear, understandable, and consistent; include rigorous content and application of knowledge through high-order skills; build upon strengths and lessons of current state standards; are informed by other top-performing countries so that all students are prepared to succeed in our global economy and society; and are evidence based.” (p.1)

At a recent event co-sponsored by Achieve.org, Chiefs for Change, and the Foundation for Excellence in Education, Dr. William Schmidt, a University Distinguished Professor/Founder of the Center for Study of Curriculum at Michigan State University (2015) explained that through his research he found that the CCSS for math strongly resembled those of the highest achieving nations in the world, and that they have more focus, rigor and coherence than that of most of the state standards that they replaced. He also found that the states with standards that reflected those of the CCSS, have much higher scores on the National Assessment of Educational Progress, which shows that the CCSS do indeed work and implementing them into our schools would help (Achieve, 2015). Schmidt followed by explaining his research in which he reviewed the standards of all 50 states and compared them to the focus and coherence of the CCSS. His statistical findings revealed that the majority of the state’s standards contained less coherence and were far less focused than those of the CCSS (Achieve, 2015).

The new CCSS don’t just contain a new curriculum or a new set of standards. They present a new systematic approach to teaching students content knowledge, and then how to process that knowledge using conscious reasoning. According to Sloan (2009), in the area of reading, the CCSS “establish a staircase in increasing complexity” in what students are required to read so they are able to continuously meet the high demands of curriculum and thus be ready for college and career-ready situations. According to the language section of the Common Core
State Standards Initiative website (2010) the CCSS include “certain types of content for all students, including classic myths and stories from around the world, foundational US documents, seminal works of American literature, and the writings of Shakespeare” (p.1).

In the math section of the Common Core State Standards Initiative, (2010) it explains that the elementary standards provide a “solid foundation in whole number, addition, subtraction, multiplication, division, fractions and decimals- which help young students build the foundation to successfully apply more demanding math concepts and procedures, and move into application” (p.1) The standards “stress not only procedural skill, but also conceptual understanding”. This allows for students to truly understand the problems they are facing, and builds overall more advanced conceptual knowledge of the subject area.

At the secondary level in math, the Common Core State Standards Initiative (2010) states that the standards “call on students to practice applying mathematical ways of thinking to real world issues and challenges” (p.1) The standards “set a rigorous definition of college and career-readiness, by helping students develop a depth of understanding and ability to apply mathematics to novel situations as college students and employees regularly do” (CCSSO, 2010, p.1). An important benchmark of mathematical understanding is a student’s ability to express reasoning of why a particular mathematical statement is true. Further, a student’s ability to explain or justify their reasoning and problem-solving approach is a key skill. There is significant difference between a student who can summon a mnemonic device to perform a computation and a student who can explain where the mnemonic comes from or the reasoning behind it. Further, the ability to understand and explain an algorithm or mathematical rule demonstrates conceptual understanding and prepares students for successfully solving problems and performing tasks that may be less familiar. Mathematical understanding and procedural skill are equally important, and
both are accessible using mathematical tasks of sufficient richness according to the Common Core State Standards Initiative website (2010)

One of the main focus points of the CCSS will be the professional development within each and every district. With the implementation of the new CCSS, many educators will be experiencing both new content and instructional strategies in which they must use for the first time. This, like anything new, will most likely present obstacles for both administrators and educators alike. That is why regularly scheduled professional development and collaboration meetings amongst schools employees will be vital in the CCSS success. RQ: Is there a significant difference in student achievement on the 3rd grade MAP test between students with Common Core Standards and students prior to Common Core Standards?

With this new initiative, there are many state, national and private organizations that are already in the process of structuring such efforts. Student Achievement Partners, which is a New York based organization founded by three of the lead writers for the CCSS, Susan Pimental, Davis Coleman, and Jason Zimba recently received a grant in the amount of $18 million from the GE Foundation. This grant will be used to create “Immersion Institutes” which will be used to help educate teachers on the CCSS, and to create a “storehouse” of materials and lessons to use in their lessons (Rothman, 2014).

Because of the large number of states that have already adopted the CCSS (43), the opportunity for collaboration and professional development amongst educators is enormous. In fact, many organizations have already jumped at the opportunity for cross-state collaboration. According to Rothman (2014), a group of universities, community colleges, and schools that make up 30 states have pulled together and formed the Mathematics Teacher Education Partnership in an effort to “redesign teacher-preparation programs” toward CCSS. This group is
made up of 68 institutions of higher education, and 87 school districts. According to Rothman (2014), with the “level of activity states are engaged in, the possibilities offered by technology and cross-state collaborations, and the extraordinary effort to develop new assessments all suggest that the Common Core Standards might generate some real changes in classroom instruction” (p.6). Rothman (2014) goes on to say, “The fact that the standards have been adopted by so many states makes possible cross state partnerships that could not have taken place when each state developed its own standards.” (p.3). Evidence points strongly to an opportunity for improved student achievement over time and through a high quality implementation plan that includes both curriculum alignment and professional development for educators.
RESEARCH METHODS

Research design.

A quantitative study was conducted to see if there was a significant difference in achievement on math MAP scores after the implementation of the CCSS. The independent variable being tested was the status of students without Common Core implementation versus students with Common Core implementation. The dependent variable tested was the Math MAP test scores. If there is a significant difference found in the MAP test scores after implementing the CCSS, then school officials should be made aware so they are able to take the appropriate steps to ensure that the highly rigorous CCSS are fully implemented and supported.

Study group description.

All 3rd grade students from a Midwestern school district who have reported math MAP test scores from the years 2013 and 2014 have been chosen as the groups to be evaluated.

Data collection and instrumentation.

Archived data from DESE was collected to identify scaled scores of a Midwestern school districts 3rd grade students from both the 2013 and 2014 assessment years on the Math MAP test.

Statistical analysis methods.

A t-test analysis was conducted to find if there was a significant difference in 3rd grade student performance indicated on the Math MAP test scores from 2013 and after implementing the CCSS into the school setting in 2014. The source was broken into two categories: 3rd grade 2013 and 3rd grade 2014 student performance results. The mean, mean D, t-test, df, and p-value were concluded from this test. The Alpha level was set at 0.25 to test the null hypothesis: There is no significant difference in student achievement on math MAPS scores.
FINDINGS

A t-test was applied to determine whether there existed a significant difference in math achievement scores for 3rd grade students in (2013) as compared to 3rd grade students in (2014) with the implementation of the CCSS on the MAPS math performance. The following tables, graphs, and charts will present the collective findings based on the statistical raw data found on the Missouri Department of Education website 2014.

Figure 1

**t-Test Analysis Results from 2013 & 2014 3rd Grade Math Achievement Scores**

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Mean D</th>
<th>t-test</th>
<th>df</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not CC</td>
<td>620.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>620.69</td>
<td>.2100</td>
<td>0.0822</td>
<td>708</td>
<td>0.9345</td>
</tr>
</tbody>
</table>

Note: Significant when p<=0.25

All 3rd grade students prior to the implementation of CC (2013), and all 3rd grade students after the implementation of CC (2014) in the Midwestern school district were selected for a study to determine if there was a difference between math performance on the MAPS assessment with the implementation of the new CCSS in the 2013-2014 school year. The data was collected from the Missouri Department of Education website and included the scale scores of all 3rd grade students in the assessment year 2013 compared to the math performance of all 3rd graders in the 2014 assessment year following a year of CCSS implementation. The mean of the math performance as 3rd grade students prior to CCSS implementation was 620.906 The
mean of the math performance for the 2014 cohort of 3rd graders after CCSS implementation was 620.697. The Mean D, or difference between the two groups was 0.2100. The t-test result was 0.0822 while the df was 708. The null hypothesis states that there is no significant difference in student achievement on math MAP scores. The null hypothesis was not rejected because the p-value, 0.9345, is higher than the alpha level of 0.25. This shows that initial implementation of the Common Core State Standards did not have a significant impact on student achievement and the related math MAP scores. Students’ math achievement scores on standardized tests did not significantly improve following the initial implementation of the CCSS.

Figure 2
The mean scaled score of the 3rd grade cohort of 363 total students in 2013 on the Mathematics MAP performance was 620.906. This average scale score falls in the range of Basic Performance. The mean of the 3rd grade cohort of 347 total students in 2014 on the Mathematics MAP performance was 620.697. This average scale score also falls in the range of Basic Performance.

Figure 3

Student achievement is organized into four categories on the Missouri Assessment Plan including Advanced, Proficient, Basic, and Below Basic. A scaled score range is identified for each of the four achievement levels reflecting the number of questions answered correctly by each student. The scoring rubric for Mathematics MAP Achievement is as follows:

- **Advanced**: 667-780
The two lowest tiers, Basic and Below Basic, do not meet the state requirement for achievement. The two top tiers, Advanced and Proficient, indicate achievement requirements established by the state. The chart illustrates that 45.6% of the Midwestern school districts 3rd grade students met state requirements in 2013. This leaves 54.1% of this cohort in the bottom two tiers. The chart further indicates that 43.9% of the 2014 3rd grade cohort met state requirements within the top two tiers and 56% in the bottom two Basic and Below Basic categories.

A compilation of the findings answers the research question: “Is there a difference in student achievement scores on the mathematics section of MAP testing for 3rd grade students from the year 2013 to the year 2014?” Figures 1-3 illustrate that there was no significant difference in performance on the 2013 and 2014 state assessments. Although both 3rd grade groups had a mean score in the Basic Performance tier, there was no significant difference following the implementation of CCSS in 2014.
CONCLUSIONS AND RECOMMENDATIONS

The outcomes as identified in this study show that there was no significant difference in district mathematics achievement scores on the MAPS assessment as evidenced by district 3rd grade data comparison from 2013 and after implementation of the CCSS in 2014. The findings indicate that there was not a significant difference between the achievement scores in 2013 and 2014. Further, implementation of the CCSS did not positively impact student achievement as evidenced by the achievement levels for the district. The t-test results from the 2013 and 2014 testing years indicated that the p-value was 0.9345, greater than the alpha level set at 0.25. Therefore, the null hypotheses was not rejected. There appears to be no significant difference in student achievement in the initial stages of implementation of the CCSS.

The conceptual underpinning that cites the support and long-range benefit of adoption and implementation of the CCSS is not supported within these initial findings. Creating a strong foundation for mathematical understanding requires the development of conceptual understanding and number sense in students. Similar studies in other states indicate that an initial decline in student scores or a minimal increase may be expected as districts and teachers work to align curriculum and implement professional development that supports the needed shifts in instructional practice and instruction. Kentucky is an example of a state with an earlier timeline of CCSS implementation that has created a baseline that saw a 30 point proficiency rating decrease in the first year before showing steady student achievement gains over subsequent years’ implementation (McQuillan, 2015). Further, quality implementation of the CCSS in some states suggests that ACT scores are also positively affected as students show benefit from multiple years of exposure to the CCSS. According to Wise (2014) since the
implementation of the CCSS, Kentucky’s percentage of high school graduates ready for college and careers, has increased from 34 percent to 62 percent.

The MAPS testing administered in both 2013 and 2014 was designed to align with the existing Missouri Standards Grade Level Expectations (GLEs) rather than the newly adopted CCSS. The Missouri Assessment Program will administer Smarter Balanced Assessment Consortium (SBAC) test items in a newly formatted electronic state assessment that is specifically designed to align with the CCSS during the state testing window in the spring months of 2015. This will be the first statewide data that Missouri will collect that has assessment items directly aligned with the CCSS. Further studies should be conducted to review the results of student achievement with assessment that clearly aligns with the taught curriculum of CCSS.

Further studies may also be conducted to establish the possible impact of CCSS on mathematics achievement at other grade levels K-12. Additional data could be obtained from the DESE website to identify trends across multiple grade levels. Studies may also be conducted to determine changes in student achievement within subgroups including race, gender, and socio-economic status.

It will also be important to continue further studies to track the effect of on-going implementation of CCSS related to student achievement. Quality implementation along with a newly formatted and aligned test may produce like trends as compared to those shared as success stories in other states. A nationwide study comparing student achievement levels in relation to CCSS implementation would be informative in the national and state debates surrounding the possible benefits related to the new rigorous standards.
References


Missouri Department of Elementary and Secondary Education. (2013, 2014). Division of Improvement: End-of-Course Assessments

NGA, CCSSO. (2010). NATIONAL GOVERNORS ASSOCIATION AND STATE EDUCATION CHIEFS LAUNCH COMMON STATE ACADEMIC STANDARDS.


