

How the Shift in High Stakes Testing Impacts Students of Low  
Socioeconomic Status in a Suburban Junior High School

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2/9/2015

A culminating project submitted to the Department of Education and Human Development of  
The College at Brockport, State University of New York in partial fulfillment of the  
requirements for the degree of Master of Mathematics in Education

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**Abstract**

This research project is a pilot study that analyzed student standardized tests performance across the mathematics standards shift and socioeconomic status (SES). The shift from state standards, most often known as the NCTM standards, to the Common Core State Standards (CCSS) in the past four years was anticipated to cause performance data to decrease. The National Council of Teachers in Mathematics (NCTM) established guidelines to support the roll out of the CCSS, which many states have adopted across the United States (US). This study examined seventh and eighth grade student performance on New York (NY) State Mathematics tests from 2010 to 2014 across the mathematics standards shift. After students completed a state standardized exam, the exams were scored and the students received scores of 1, 2, 3 or 4. Students who received a performance level of 1 or 2 were considered as performing below grade level. A student who received a three was considered as proficient or at grade level. Lastly, a student who received a four was considered as highly proficient or above grade level. A district report card, compiled by the NY State Department of Education, lists the percentages of students who received a score at each level. The data is also reported SES levels. For the purposes of this research, SES was parsed into two groups; not economically disadvantaged, defined as students who did not receive free or reduced lunch, and economically disadvantaged, or students that did received free or reduced lunch. Studies have shown students with low economic status have performed lower on high stakes tests than students who are not of low SES. The paradigm shift from NCTM standards to CCSS within the past two years has affected both economically disadvantaged students and not economically disadvantaged students. Prior to this change, economically disadvantaged students had typically been seen to perform lower on high stakes test, which is not

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the case under the new Common Core State Standards. Later in this study, an analysis of test results will be looked at to show this shift in scoring amongst middle school students.

## CHAPTER I

New York State works to assure that all school districts are held accountable to the same educational standards. In order to accomplish this goal, students are required to take standardized tests. A standardized test is a test designed in a way that questions, conditions for administering, scoring procedures and interpretations are consistent and it is administered and scored in a predetermined, standard manner (Popham, 1999). To connect standardized tests to school and student performance, the term high stakes test is adopted. A high-stakes test is a test from which results are used to make significant decisions about schools, teachers, administrators, and students. However, every few years high stake tests standards change for various reasons. The most recent change occurred because the new Common Core State Standards (CCSS) were implemented (Amrein & Berliner, 2002). Also states have to implement high stake tests to meet Federal regulations of Race to the Top, No Child Left Behind legislation, and now CCSS. The use of standardized tests has caused concerns among stakeholders in regards to the creation and implementation of numerous state and national standardized assessments. “Given the swiftness of the initiative, it would be wise to use caution when moving forward with the common core standards as written. Cooperation, collaboration and professional development is needed before we experiment with our children” (Main, 2011, p.76).

There are several reasons that the aforementioned groups are concerned about standardized tests. The large amounts of class time taken up, the pacing of classes, the lack of flexibility for students with special needs or academic difficulties, and the effect of low socioeconomic status (SES) has on results in high stakes tests. According to Baker & Johnston (2010), state that the lack of support and encouragement from home contributes to students from low SES backgrounds having more difficulty achieving high stakes testing goals (p. 194).

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Professional development is essential for early childhood teachers and administrators to gain the knowledge, skills and dispositions needed to implement early learning standards (Main, 2011, p. 74). The National Association for the Education of Young Children (NAEYC) and The National Association of Early Childhood Specialists in State Departments of Education (NAECS-SDE) agree that standards that are challenging, achievable and appropriate to children's development are important for the success of every child (Main, 2011, p. 74).

### **Testing in NY State**

In NY State, middle school subjects of mathematics, English Language Arts (ELA) and science, take high stakes tests in seventh and eighth grades. Subjects at the high school level that take high-stakes tests are: Comprehensive English; US History and Government; Global History and Geography; Mathematics (Integrated Algebra, Geography, or A2/Trigonometry); and Science. This information is available on the New York State Department of Education (<http://www.emsc.nysed.gov/part100/pages/diprequire.pdf>). To receive a The NY State regular high school diploma students must pass all five exams with a score of 65% or higher. According to Zhang (2009),

With so many freshman crossing state lines to attend college, first-year writing classrooms across this country most likely contain students whose experience of writing instruction includes preparing for and taking high stakes essay writing exam. Despite the proliferation of mandatory testing for graduation, however, very little research addresses how well standardized exams prepare students for their future studies or professions or how the exams compare across states (p. 353).

The Board of Regents create the specific types of exams; however some question if these test are preparing students for their future, or how much impact they should have on a child's

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educational future. The assessment that will be receiving the most attention within this paper is mathematics, with an emphasis on the seventh and eighth grade mathematics examinations at the middle school level.

### **Government's Influence**

This is an era of strong support of public policies that use high stakes tests; like standardized exams to change the behavior of teachers and students in desirable ways (Amrein & Berliner, 2002, p. 2). To become a nationally standardized test, a test must go through rigorous reliability and validity testing. According to Hernon and Schwartz (2009),

One way to test and retest reliability refers to whether measuring similar results are obtained when the same participants respond to the same test a second time and nothing has been done between testing that would affect their knowledge, learning or skills (p. 73).

The use of these tests are not new, but their effects are not always desirable (Amrein & Berliner, 2002, p. 2). Therefore, programs are put into the education system, like No Child Left Behind.

According to the US Department of Education ([www.ed.gov](http://www.ed.gov)):

On January 8, 2002, President George W. Bush signed into law the No Child Left Behind Act of 2001 (NCLB). This new law represents his education reform plan and contains the most sweeping changes to the Elementary and Secondary Education Act since it was enacted in 1965. It changes the federal role in education by asking America's schools to describe their success in terms of what each student accomplishes. The No Child Left behind Act, which is not in effect anymore, as of 2012, contains George W. Bush's four basic education reform principles: stronger accountability for results, increased flexibility and local control, expanded options for parents, and an emphasis on teaching methods

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that have been proven to work. It also affected what students were taught, the tests they took, the training of their teachers and the way money was spent on education.

United States Government realized No Child Left Behind legislation (2002) needed more support to the program; a new shift was to be considered. Race to the Top (2012) is a federal grant program to help with the role of technology being implemented in educational assessments and standards ([www.nclb.org](http://www.nclb.org)). Accordingly, Race to the Top, states are asked to advance reforms around four specific areas: (1) adopting standards and assessments that prepare students to succeed in college and the workplace and to compete in the global economy; (2) Building data systems that measure student growth and success, and inform teachers and principals about how they can improve instruction; (3) recruiting, developing, rewarding, and retaining effective teachers and principals especially where they are needed most; and (4) Turning around our lowest-achieving schools ([www.ed.gov](http://www.ed.gov)). The Race to the Top Fund will help support funds to states, including NY State, to help find strong instructional materials crucial in introducing and implementing CCSS. The winners from this grant program will help provide examples for states and local school districts throughout the country to follow. The state felt that with the Race to the Top program, a lot was going to change in the education world with the help towards the adoption of the CCSS. According to the US Department of Education ([ed.gov](http://ed.gov)):

Authorized under the American Recovery and Reinvestment Act of 2009 (ARRA), the Race to the Top Assessment Program provides funding to consortia of States to develop assessments that are valid, support and inform instruction, provide accurate information about what students know and can do, and measure student achievement against standards designed to ensure that all students gain the knowledge and skills needed to succeed in college and the workplace. These assessments are intended to play a critical

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role in educational systems; provide administrators, educators, parents, and students with the data and information needed to continuously improve teaching and learning; and help meet the President's goal of restoring, by 2020, the nation's position as the world leader in college graduates (p. 1).

According to Biddle & Payne, a result of these reforms, states and school districts have increased accountability for their student's performance on mandated standardized tests. From this, an emphasis on increased funding for poor school districts has led to higher achievement for poor and minority students (p. 27). New measurement tools were implemented into schools to ensure that student's progress was held accountable for. The law says that states must have testing in place for students in 3<sup>rd</sup> through 8<sup>th</sup> grades for Math and English, as well as testing for students in 4<sup>th</sup> and 8<sup>th</sup> grade for Science.

The states that have adopted the CCSS have a projected roll out for full implementation for all students by 2016. According to Williams (2013), "Rushing to make high-stakes decisions such as student advancement or graduation, teacher evaluation, school performance designation, or state funding awards based on assessments of the Common Core Standards before the standards have been fully and properly implemented is unwise" (p. 16). The consequences that will have the most serious impact will be the financial ones, where the poor school districts who have budget deficits will only become poorer because without funding, schools that need improvement can't meet costs and will keep facing larger fiscal gaps (Biddle & Payne, 2000, p. 27).

### **Organizations' Influence**

There are many organizations with invested interest in the education of America's youth. In general, their position regarding high-stakes testing is negative. NCTM, American

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Educational Research Association (AERA) and American Psychological Association (APA), have written positions on high-stakes testing that will be discussed.

The National Council of Teachers of Mathematics is an organization that guarantees high quality mathematics education to all students. NCTM (2000) reported:

Large-scale tests are widely used in decisions related to promotion, graduation, admission to college, and school accreditation. Some view such high-stakes testing as a way to raise expectations and to hold students, teachers, and administrators accountable. Basing major decisions about students, teachers, schools, or instructional programs on a single test is inappropriate and inconsistent with what we know about learning and assessment. Tests, after all, are snapshots that capture one event in one context rather than a wide array of events in multiple contexts (pg.1).

NCTM's position undoubtedly is in favor of multiple forms of assessment to make critical decisions about school districts, teachers, and/or students' futures. It is not, however, in favor of one test holding the determination of a student's understanding of math as a whole. This is just one example of an educational organization that is against high-stakes testing.

The American Educational Research Association (AERA) is the nation's largest professional organization devoted to the scientific study of education. AERA communicates that that high-stakes test should be used in conjunction with other forms of assessment. According to AERA (2000) ([www.aera.net](http://www.aera.net)):

Decisions that affect individual students' life chances or educational opportunities should not be made on the basis of test scores alone. Other relevant information should be taken into account to enhance the overall validity of such decisions. As a minimum assurance of fairness, when tests are used as part of making high-stakes decisions for individual

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students such as promotion to the next grade or high school graduation, students must be afforded multiple opportunities to pass the test. More importantly, when there is credible evidence that a test score may not adequately reflect a student's true proficiency, alternative acceptable means should be provided by which to demonstrate attainment of the tested standards (pg.1).

The same argument holds with AERA with not allowing one test that students take predict their future. Everyone has “bad days”, and what happens when a student is having that bad day the day of the test? Does that test score show how the student as done the entire year? These are just some of the questions that are being asked when high stakes tests are given to show students’ performance levels.

A third group, The American Psychologist Association (APA) also has a position in regards to the concern of high-stakes testing. According to the APA (2001) (apa.org):

Critics have also expressed concern that high-stakes tests, if designed or implemented inappropriately, may draw an inaccurate picture of student achievement and unfairly jeopardize students or schools that are making genuine efforts to improve. Others worry that overreliance on testing might paradoxically compromise educational quality by leading teachers to "teach to the test," focusing their classes on narrow test-taking strategies rather on than on broader, conceptual material.

Their position is similar to NCTM and AERA; stressing that no test is valid for all purposes and that multiple measures are the best way to make decisions regarding school districts, teachers, and students. One important point mentioned in their position is the importance of modifications for students with special needs to ensure that the test gives valid results for those students as well.

### **The Shift**

NY State has recently adapted to a new philosophy on standards, which has been implemented in other states. Common Core Standards have been put into practice as of 2013, as the standards for all school districts to adhere by. According to Main (2012), Common Core Math Standards have been written swiftly with a lofty implementation goal. The aim of the common core standards initiative is to have fewer, clearer, higher standards (p. 73). Similarly, Burns (2012) describes the new standards as a way to define what students should understand and be able to do. They are organized into domains, each of which includes clusters of related standards so as to present mathematics as a subject of closely related, connected ideas. Teaching to the Common Core Standards requires that both the practice and the content of standards become integral to classroom instruction (p.43).

### **Mathematical Achievement**

Studies on mathematical achievement in the past have focused on differences based on race instead of socioeconomic status. More recent published works have begun to examine the effect of socioeconomic status on a student's mathematical achievement. In order to examine students' socioeconomic status, free and reduced lunch percentages can be used as a guideline for setting socioeconomic status limits. If a student receives free or reduced lunches, they fall under the economically disadvantaged category versus not economically disadvantaged; where those students receive no financial aid towards lunches.

According to the findings of Okpala, Okpala, and Smith (2001), the percentage of students in free or reduced price lunch programs was statistically significant in explaining differences in mathematics achievement scores (p. 115). This is not always agreed upon in the research. A study of 264 seventh graders, conducted by Mooney and Thornton (1999),

concluded that most students participating in this study, regardless of SES background or ethnicity, identified lack of effort as the major reason for mathematics failure (p. 330).

**Socioeconomic Status (SES):**

Socioeconomic status plays a role, whether in a rural or suburban school, in all areas of education including high-stakes testing. The factors involved range from locations, parental involvement, availability of resources outside of school; like technology, and home life. The latter involves peer pressure from other low socioeconomic status students who may feel that education is not important.

According to Ozturk (2006), the term socioeconomic status is used by sociologists to denote an individual or family's overall rank in the social and economic hierarchy (Mayer & Jencks, 1989). In most research, including national studies, SES has been measured as a combination of parents' education, parent's occupational prestige, and family income (Mayer & Jencks; White, 1982). Socioeconomic status is a factor in many areas of everyday life including housing, healthcare, and education. For the purpose of this paper, education will be the only one addressed. Students in school districts and economic regions that are wealthy have access to more resources than students who live in poverty. These advantages come in two different forms: parents and school districts.

Parents of students, who live in an area that is predominantly wealthy, have the money necessary to access graphing calculators, computers, tutors, etc. While on the other hand, students living in households at or below the poverty level may not have access to such items. Also, many students living in households below the poverty level experience a higher level of stress, which may lead to behavior issues or emotional issues.

### **Location**

School districts share many common problems, but each issue presents a unique set of problems for those responsible for policy decisions related to educational planning, funding and administration. But has one ever considered location to be a factor to any of these problems? One major difference among schools in the US is their status as a rural, urban or suburban school. Rural schools in particular have unique needs and concerns due to their locations in sparsely populated areas (Lambert et al., 2010). Schools in rural communities are faced with many of the same demands and challenges as urban and suburban schools, such as implementing the No Child Left Behind Act (2002) mandates, recruiting qualified teachers and preventing school violence. However, there is concern that practices used in suburban and urban settings are not necessarily adequate in the distinctive context of rural schools (p. 133).

According to Jones, Irvin and Kibe (2012), there has been a small amount of data that considers the role of geographic setting in the relationship among perceptions of friends, academic self-concept, and achievement. In terms of performance in mathematics, some studies find that rural youth's mathematics achievement is comparable to non-rural youth. In a national report using NAEP data from 2005, a significantly lower proportion of 12<sup>th</sup> grade urban students score at or above proficiency in math (18%) than suburban students (25%) and rural students (21%). In addition, the proportion of rural students at or above proficiency is significantly lower than suburban students (p. 321). Although there are the Common Core Standards set in place now by New York State, issues need to be addressed as to where the lack of implementation is in the rural schools.

### **Home Life and Parents**

Stated by Epstein and Sheldon, the relationship between the beliefs of parents and the educational success of their children may play a strong role in standardized test performance. In general, parents of middle class students place strong values on education and achievement (p. 196). In contrast, parents of low socioeconomic status students' main concerns are the survival necessities: food, clothing, and shelter (p. 197).

An essential condition for effective integration of technology in the curriculum is students' access to computers at home. Knobel, Stone & Warchauer (2004) posed that higher SES students have access to home computers and their parents have the disposable income to purchase other items, such as graphing calculators whereas lower SES students may not have the same accessibility to home computers. According to Knobel, Stone & Warchauer (2004):

High SES students with home computers are much more likely to use them to complete school assignments than are low SES students with home computers. Whereas another study showed that even when access is given to low SES students, children from high SES homes achieve larger education gains from home computers than do lower SES students.

These studies suggest that how technology is used is as important as who has access to it.

Technology is not the only driving factor for low SES students. Students from low SES status homes may come to school under nourished, improperly dressed, and unprepared with supplies needed for school. Steps have been made through free and reduced lunch and breakfast programs but this only solves a portion of the problem. People may argue that schools can supply students with a pen and paper, however, as a result, some treat it with disregard to the fact

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that it does not belong to them. This applies to any school district whether a suburban, rural or urban school. According to the NCTM (1998):

It is important that students from high poverty schools perform well on these assessments as these schools are often subject to scrutiny. In urban settings, the source of this scrutiny comes from both state and local sources, often from both politicians and the business sector. Usually, the motivation behind the scrutiny is political or economic – education is a product for which the public pays, and there is a genuine concern that the public receives that for which it pays (p. 7).

SES, location, home life, and parents all connect to how student achievement is considered relative to high-stakes tests.

### **The Purpose of the Study**

This study will examine if the shift from NY Standards to the Common Core State Standards (CCSS) in mathematics had an impact on economically disadvantaged students' performance more than not economically disadvantaged students. According to New York State (NYS) Education Department, economically disadvantaged students are those who participate in, or whose family participates in, economic assistance programs, such as the free or reduced lunch programs, Social Security Insurance (SSI), Food Stamps, Foster Care, Refugee Assistance (cash or medical assistance), Earned Income Tax Credit (EITC), home Energy Assistance Program (HEAP), Safety Net Assistance (SNA), Bureau of Indian Affairs (BIA), or Family Assistance: Temporary Assistance for Needy Families (TANF). If one student in a family is identified as low income, all students from that household (economic unit) may be identified as low income (<http://data.nysed.gov/glossary.php?report=reportcards>). Not economically disadvantaged would be the remainder of the population. Chapter II addresses high-stakes tests, SES and a snapshot of

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the shift from the NCTM standards to the CCSS standards. In NYS, the shift to the new CCSS standards negatively affected SES student's performance on high stakes standardized tests.

### **Definitions**

*Common Core State Standards (CCSS):* standards establish grade-level expectations in Math and English Language Arts (ELA) for K-12 students. The standards are aligned with college and work expectations and internationally benchmarked. The Common Core is not a curriculum but describes the knowledge and skills students are expected to develop but do not prescribe how to teach them.

*High-stakes tests:* are tests from which results are used to make significant decisions about schools, teachers, administrators, and students

*National Council of Teachers of Mathematics (NCTM):* is the public voice of mathematics education, supporting teachers to ensure equitable mathematics learning of the highest quality for all students through vision, leadership, professional development, and research (NCTM Strategic Plan)

*No Child Left Behind (NCLB):* NCLB required states, school districts, and schools to ensure all students are proficient in grade-level math and reading by 2014. States define grade-level performance. Schools must make "adequate yearly progress" toward this goal, whereby proficiency rates increase in the years leading up to 2014.

*Race to the Top:* Educational reform grant program brought to the U.S. to help with the implementation of educational assessments and standards by creating conditions for innovation and reform.

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*Regents Examinations:* a system of competitive examinations for students at academies and high schools across the state. Aimed both at strengthening those and at stimulation the ambitions of students, the exams would provide positive evidence of actual merit in learning and instruction. These exams used as a standard for high school graduation and college administration

*Standardized Tests:* a test designed in a way that questions, conditions for administering, scoring procedures and interpretations are consistent and it is administered and scores in a predetermined, standard manner

*Socioeconomic Status (SES):* is an economic and sociological combined total measure of a person's work experience and of an individual's or family's economic and social position in relation to others, based on income, education, and occupation

## CHAPTER II

This chapter focuses on high-stakes tests and socioeconomic status (SES). In order to understand the arguments presented in this paper and the other research on this topic, a definition of high-stakes tests must be clarified and established. According to Amrein and Berliner (2002), high-stakes tests are tests from which results are used to make significant decisions about schools, teachers, administrators, and students (p.1). This definition is very clear and gives insights to the characteristics of high-stakes tests.

In the past, research has been conducted on high-stakes testing regarding topics from student motivation to the gap between Caucasian and African American students' performance. According to Common Mathematics Standards in the United States (2013),

Once used as a means to articulate components of ideal practice and as a framework to guide measurement for student performance, the influence of standards in U.S. educational policy has evolved over time. Today curriculum standards prescribe the content taught at a particular grade levels, and due to the high stakes attached to the mandated assessments associated with standards, then carry considerable influence in determining what students have an opportunity to learn (p. 1).

SES research concentrates on topics from mathematical achievement to the effect of technology. For example, computers may or may not have an impact on student achievement. According to Baker and Johnston (2010), many believe high-stakes testing to be an acceptable and accurate way to measure students learning, but one has to ask whether high stakes testing is an effective measurement tool for all children. Researchers continue to debate the effectiveness of high stakes testing and continually reexamine the possible impacts it may have on children from differing SES backgrounds, especially disadvantaged youth (p.193).

### **High-Stakes Testing: Reasons for Them**

High-stakes testing has been a controversial issue for years and plays a critical role in education today. The Race to the Top Fund and the No Child Left behind Act is a major reason for this. According to Amrein and Berliner (2002, March), some school districts and states, such as Florida, have used high-stakes testing in the form of minimum competency tests as early as the 1970's. According to Amrein and Berliner (2002):

At various times over the past years different arguments have been used to promote high-stakes tests. A summary of these follows: students and teachers need high-stakes tests to know what is important to learn and to teach; teachers need to be held accountable through high-stakes tests to motivate them to teach better, particularly to push the laziest ones to work harder; students work harder and learn more when they have to take high-stakes tests; students will be motivated to do their best and score well on high-stakes tests; and that scoring well on the test will lead to feelings of success, while doing poorly on such tests will lead to increased effort to learn (p. 4).

Supporters of high-stakes testing also assume that the tests: (1) are good measures of the curricula that is taught to students in our schools; (2) provide a kind of "level playing field," an equal opportunity for all students to demonstrate their knowledge; and (3) They are good measures of an individual's performance, little affected by differences in students' motivation, emotionality, language, and social status (Amrein & Berliner 2002, March, p. 5).

Finally, the supporters believe that: (1) teachers use test results to help provide better instruction for individual students; (2) administrators use the test

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results to improve student learning and design better professional development for teachers; and (3) that parents understand high-stakes tests and how to interpret their children's scores (Amrein & Berliner 2002, March, p.5).

This list of arguments for high-stakes testing is a significant reason for researchers to study the effects of high-stakes testing on different groups in society. The upcoming sections display research that has been done based on topics from this list.

### **Setting Cut-off Percentages**

Setting cut-off percentages for high-stakes tests involves statistical formulas and decisions created by state education officials. Guskey (2001) noted that typically these debates focus on what percentage of items students should be expected to answer correctly in order to have their performance judged “proficient” or “competent” (p.534, p. 1). This leads to the misconception that raising the cut-off percentage will in return raise the standards. For example, in NYS schools are no longer permitted to rescore any of the questions on any Regents Examinations after each question has been rated, regardless of the final exam score.

### **Student Motivation and High School Completion**

Achieving a high school diploma in NYS will become more difficult. According to the NYS Department of Education website, changes within the next year or two are expected to be: four years of math, four years of science, a second regents exam requirement in mathematics, increased required passing scores on the English and Mathematics Regents examination (75 percent in ELA; 80 percent in mathematics), and/or extended school day/year.

According to Amrein and Berliner (2003), federal legislators who passed the No Child Left Behind Act into law, apparently assumed that high-stakes testing would improve student motivation and improve student achievement. Unfortunately, evidence shows that such tests

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actually decrease student motivation and increase the proportion of students who leave school early (p.32). Students nationwide, such as in NYS are under more pressure to be successful and score well on high-stakes tests.

Amrein and Berliner (2003) argued that the unmotivated are usually identified as low SES students in urban schools, and are often African American and Latinos (p.32). This statement may indicate that high-stakes tests have a negative effect on the success of students in the low SES group. Similarly, another argument was the increase in students seeking alternative degrees such as the general education diploma (GED). According to Amrein and Berliner (2003), in North Carolina the proportion of students under the age of twenty who took the GED increased 73% between 1986 and 1999, which was 43% more than the nation during the same time (p.33). Also, the National Board on Educational Testing and Public Policy discussed this same topic in their report High-Stakes Testing and High School Completion. Clarke, Haney, and Madaus (2000) state:

Results show that in schools with proportionally more students of low SES that used high stakes minimum competency tests, early dropout rates-between eighth and tenth grades, were 4 to 6 percentage points higher than in schools that were similar but for the high-stakes test requirement. (p.3)

Four to six points is a significant difference when it comes to students remaining in school. They also recommend that more attention should be paid to the impact of high-stakes testing on different SES groups.

### **A Look Ahead**

This chapter presented different positions that research has explored related to the initial topic: As states standards shift, performance levels decline for all students regardless of their

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SES. However, economically disadvantaged scores continue to drop causing a greater number of students to fall below grade level proficiencies. The focus for the remainder of the paper will be to observe SES and high-stakes tests from a NYS perspective and examination scores from both NCTM state standards to CCSS. Data tables of existing data of seventh and eighth grade students' performance results on State Mathematics tests from 2010 to 2014 will be given to show the shift of scores in High stakes tests.

### CHAPTER III

This chapter examines data from NY State's students' scores on the seventh and eighth grade mathematics examinations. Specifically, this study analyzed the reports from tests taken within the past four years. The scores received on the examinations are then categorized twofold: the total tested for that year is broken into two categories; not economically disadvantaged and economically disadvantaged. Once a student takes an exam and the assessment is scored, a child can receive a score of 1, 2, 3 or 4. Level 1 is interpreted as well below proficient; level 2 is interpreted as below proficient; level 3 is interpreted as proficient; and level 4 is interpreted as excellent. The data was also divided up between the SES levels. SES was split into two groups; not economically disadvantaged (no free or reduced lunch) and economically disadvantaged (receive free or reduced lunch). The data was analyzed to determine if low SES students had a lower success rate than their higher SES counterparts on the two years of data that expand across the last standardized test that aligned with the NCTM standards and the first standardized test that aligned with the CCSS standards.

#### **The Data**

All of the data was retrieved from a NYS School Report Card for an urban middle school for the years 2010-2014 (<https://reportcards.nysed.gov/>). The middle school was selected due to the unique demographics of outer city and suburban areas. The middle school consists solely of seventh and eighth grade students, and therefore only two grade levels were analyzed. Listed below will be eight data tables broken down into certain school years under NCTM Standards or CCSS and the levels of scores students received. For this analysis, the percentages in levels 1 and 2 will be combined, along with the percentages in levels 3 and 4 for each table. Level's 1 and 2

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represent a student who is not proficient at grade level, where levels 3 and 4 represent a student who is proficient at grade level.

Table 1 shows the test results from the eighth grade mathematics exam for the 2010-2011 school year under the NCTM standards. The table is broken down into two categories; economically disadvantaged (low SES) and not economically disadvantaged (not low SES). The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 63 students tested in the economically disadvantaged category, 29% scored in the 1- 2 level. According to NY State, this group of students would be considered failing or not proficient at the eighth grade level for the mathematics exam. Looking at the category of economically disadvantaged still, 71% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the eighth grade level.

Table 1: 2010-2011 eighth grade test results based on socioeconomic status according to NCTM standard

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 6%             | 23% | 63%        | 8%  | 63           |
| Not Economically Disadvantaged | 1%             | 13% | 52%        | 34% | 247          |

Overall, the majority of the 63 students tested and labeled economically disadvantaged scored either in the level 2 or 3 on the 2010-2011 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 14% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level.

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The rest of the students in this category; 86% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 247 not economically disadvantaged students tested, the majority passed the high stakes exam for this school year with a level 3 or 4.

Table 2 shows the test results from the eighth grade mathematics exam for the 2011-2012 school year under the NCTM standards. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 68 students tested in the economically disadvantaged category, 39% scored in the 1- 2 level. According to NY State, this group of students would be considered failing or not proficient at the eighth grade level. Looking at the category of economically disadvantaged still, 60% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the eighth grade level for the mathematics exam.

*Table 2:2011-2012 eighth grade test results based on socioeconomic status according to NCTM standards*

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 4%             | 35% | 53%        | 7%  | 68           |
| Not Economically Disadvantaged | 1%             | 20% | 48%        | 31% | 229          |

Overall, the majority of the 68 students tested and labeled economically disadvantaged scored either a level 2 or 3 on the 2011-2012 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 21% received a level 1 or 2 on the mathematics exams, and would be considered failing

or not proficient in this specific level. The rest of the students in this category; 79% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 229 not economically disadvantaged students tested, passed the high stakes exam for this school year with a level 3 or 4.

In conclusion, both tables 1 and 2 show the same pattern of results for the eighth grade mathematics exam within one year of each other under the NCTM state standards. The majority of students, categorized as economically disadvantaged scored either a level 2 or 3 on the mathematics exam. On the other hand, the majority of the not economically disadvantaged students scored either a level 3 or 4. Therefore, these results show the impact of SES on high stakes tests.

Table 3 shows the test results from the seventh grade mathematics exam for the 2010-2011 school year under the NCTM standards. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 67 students tested in the economically disadvantaged category, 33% scored in the 1- 2 level. According to NY State, this group of kids would be considered failing not proficient at the seventh grade level for the mathematics exam. Looking at the category of economically disadvantaged still, 67% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the seventh grade level.

Table 3: 2010-2011 seventh grade test results based on socioeconomic status according to NCTM standards

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 4%             | 29% | 42%        | 25% | 67           |
| Not economically disadvantaged | 2%             | 22% | 33%        | 43% | 232          |

Overall, the majority of the 67 students tested and labeled economically disadvantaged scored either a level 2 or 3 on the 2010-2011 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 24% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 76% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 232 not economically disadvantaged students tested, the majority passed the high stakes exam for this school year with a level 3 or 4.

Table 4 shows the test results from the seventh grade mathematics exam for the 2011-2012 school year under the NCTM standards. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 75 students tested in the economically disadvantaged category, 33% scored in the 1-2 level. According to NY State, this group of kids would be considered failing not proficient at the eighth grade level on the mathematics exam. Looking at the category of economically disadvantaged still, 67% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the seventh grade level.

Table 4: 2011-2012 seventh grade test results based on socioeconomic status according to NCTM standard

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 7%             | 26% | 38%        | 29% | 75           |
| Not Economically Disadvantaged | 2%             | 14% | 39%        | 45% | 212          |

Overall, the majority of the 75 students tested and labeled economically disadvantaged scored either a level 2 or 3 on the 2011-2012 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 16% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 84% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 212 not economically disadvantaged students tested, the majority passed the high stakes exam for this school year with a level 3 or 4.

In conclusion, both tables 3 and 4 show the same pattern of results for the seventh grade mathematics exam within one year of each other under the NCTM state standards. The majority of students, categorized as economically disadvantaged scored either a level 2 or 3 on the mathematics exam. On the other hand, the majority of the not economically disadvantaged students scored either a level 3 or 4. Therefore, these results show the impact of SES on high stakes tests.

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Table 5 shows the test results from the eighth grade mathematics exam for the 2012-2013 school year under the Common Core State Standards. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 81 students tested in the economically disadvantaged category, 61% scored in the 1- 2 level. According to NY State, this group of kids would be considered failing or not proficient at the seventh grade level on the mathematics exam. Looking at the category of economically disadvantaged still, 39% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the eighth grade level.

Table 5: 2012-2013 eighth grade test results based on socioeconomic status according to CCSS

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 20%            | 41% | 27%        | 12% | 81           |
| Not Economically Disadvantaged | 12%            | 35% | 36%        | 17% | 212          |

Overall, the majority of the 81 students tested and labeled economically disadvantaged scored either a level 1 or 2 on the 2012-2013 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 47% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 53% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 212 not economically disadvantaged students tested, the majority

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received a score in the 2-3 level. This is not the same pattern that was presented under the NCTM standards between the socioeconomic statuses.

Table 6 shows the test results from the eighth grade mathematics exam for the 2013-2014 school year under the Common Core State Standards. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 52 students tested in the economically disadvantaged category, 79% scored in the 1- 2 level. According to NY State, this group of kids would be considered failing or not proficient at the seventh grade level on the mathematics exam. Looking at the category of economically disadvantaged still, 21% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the eighth grade level.

Table 6: 2013-2014 eighth grade test results based on socioeconomic status according to CCSS

| Level                          | Not Proficient |     | Proficient |    | Total Tested |
|--------------------------------|----------------|-----|------------|----|--------------|
|                                | 1              | 2   | 3          | 4  |              |
| Economically Disadvantaged     | 25%            | 54% | 17%        | 4% | 52           |
| Not Economically Disadvantaged | 14%            | 51% | 34%        | 2% | 140          |

Overall, the majority of the 81 students tested and labeled economically disadvantaged scored either a level 1 or 2 on the 2013-2014 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 65% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 36% scored a level 3 or 4, passing or proficient on the

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In conclusion, both tables 5 and 6 show the same pattern of results for the eighth grade mathematics exam within one year of each other under the CCSS. The majority of students, categorized as economically disadvantaged scored either a level 1 or 2 on the mathematics exam. On the other hand, the majority of the not economically disadvantaged students scored either a level 2 or 3. The pattern remains the same between the two years taken under CCSS, but does not stay the same in comparison to the test results under the NCTM standards. Therefore, these results show the impact of SES on high stakes tests.

Table 7 shows the test results from the seventh grade mathematics exam for the 2012-2013 school year under the CCSS. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 66 students tested in the economically disadvantaged category, 93% scored in the 1- 2 level. According to NY State, this group of kids would be considered failing or not proficient at the seventh grade level on the mathematics exam. It is important to note that 0% of students received a level 4, the highest ranking score on this high stakes exam. Looking at the category of economically disadvantaged still, 8% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the seventh grade level.

Table 7: 2012-2013 seventh grade test results based on socioeconomic status according to CCSS

| Level                          | Not Proficient |     | Proficient |    | Total Tested |
|--------------------------------|----------------|-----|------------|----|--------------|
|                                | 1              | 2   | 3          | 4  |              |
| Economically Disadvantaged     | 41%            | 52% | 8%         | 0% | 66           |
| Not Economically Disadvantaged | 19%            | 50% | 26%        | 5% | 212          |

Overall, the majority of the 66 students tested and labeled economically disadvantaged scored either a level 1 or 2 on the 2012-2013 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 69% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 31% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 212 not economically disadvantaged students tested, the majority received a score in the 2-3 level. This is not the same pattern that was presented under the NCTM standards between the socioeconomic statuses.

Table 8 shows the test results from the seventh grade mathematics exam for the 2013-2014 school year under the CCSS. The table is broken down into two categories; economically disadvantaged and not economically disadvantaged. The percent of the level students received are broken down amongst the possible level a student can receive; 1, 2, 3, or 4. From the 67 students tested in the economically disadvantaged category, 83% scored in the 1- 2 level. According to NY State, this group of kids would be considered failing or not proficient at the seventh grade level on the mathematics exam. It is important to note that 0% of students received a level 4, the highest ranking score on this high stakes exam. Looking at the category of

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economically disadvantaged still, 16% scored in the 3 or 4 level. This group of students would be considered passing the exam or proficient at the seventh grade level.

Table 8: 2013-2014 seventh grade test results based on socioeconomic status according to CCSS

| Level                          | Not Proficient |     | Proficient |     | Total Tested |
|--------------------------------|----------------|-----|------------|-----|--------------|
|                                | 1              | 2   | 3          | 4   |              |
| Economically Disadvantaged     | 43%            | 40% | 16%        | 0%  | 67           |
| Not Economically Disadvantaged | 18%            | 37% | 30%        | 15% | 222          |

Overall, the majority of the 67 students tested and labeled economically disadvantaged scored either a level 1 or 2 on the 2013-2014 high stakes mathematics exam for that school year. Of the not economically disadvantaged students, a total of 55% received a level 1 or 2 on the mathematics exams, and would be considered failing or not proficient in this specific level. The rest of the students in this category; 45% scored a level 3 or 4, passing or proficient on the mathematics exam. From the 222 not economically disadvantaged students tested, the majority received a score in the 2-3 level. This is not the same pattern that was presented under the NCTM standards between the socioeconomic statuses.

In conclusion, both Tables 7 and 8 show the same pattern of results for the seventh grade mathematics exam within one year of each other under the CCSS. The majority of students, categorized as economically disadvantaged scored either a level 1 or 2 on the mathematics exam. On the other hand, the majority of the not economically disadvantaged students scored either a level 2 or 3. The pattern remains the same between the two years taken under CCSS, but does not

stay the same in comparison to the test results under the NCTM standards. Therefore, these results show the impact of SES on high stakes tests.

### **Analysis of Data**

Through the Tables 1, 2, 3, 4, 5, 6, 7 and 8 presented in this chapter, they have shown that there is a shift in student's performance levels through the change in state standards from NCTM to CCSS. This move in state standards has affected the percent's in levels being scored of students in a middle school who receive a free/reduced lunch or is economically disadvantaged versus the percentage of students who levels are not economically disadvantaged or receive no free or reduced lunch. Not only are economically disadvantaged students not passing the state exams at a proficient level, the majority of not economically disadvantaged are also not passing. Although getting a free/reduced lunch is not the cause of these lowered scores, other factors related to socioeconomic status maybe the cause. This, along with recommendations for follow up research will be discussed in Chapter IV.

## Chapter IV

This final chapter will be discussed in five sections. The first will explore the possible causes for the test results found in Chapter III. The second and third sections will discuss the strengths and weaknesses of this study. The final section will make recommendations for future researchers on this topic and will close the paper.

### Possible Causes

As discussed in Chapter III, the relationship between students who receive a free or reduced lunch (economically disadvantaged) and NYS tests results for seventh and eighth grade high stakes exams passing rates show a level of significant amongst the two variables. There are many factors of SES, as discussed in Chapter I that may have a relationship with the levels of passing rates or those who receive a score of 3 or 4 on the exams. This does suggest that there is a correlation between SES and performance on high stakes exams. These factors may include the technological advantages that come with having a high SES. Do students who have a home computer and graphing calculator score higher on High Stakes Tests? Were NCTM standards allowing students with the same technological advantages as CCSS was? Will Race to the Top play a significant role in underprivileged schools ability to compete with high performing schools?

As mentioned prior in this study, technology is not the only factor associated with SES. Cultural beliefs that are driven by SES play a huge role on how students and parents view the educational process. Do parents of high SES students have higher educational expectations than their low SES counterparts? Do students who come from a high SES background have more self-motivation than students who do not? And finally, are low SES students more concerned about when and where their next meal is coming from rather than what the homework is tonight? These questions and others like it may lead to why there is a strong negative correlation between

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SES and achievement on high stakes tests. More research is needed in the areas where the questions are posed.

### **Weaknesses of Study**

As with all research, this research had weaknesses. One weakness could be the collection of data from NYS, and another may be that the standardized tests were graded by teachers of each district. Different teachers as graders may cause reliability issues in the scoring. Another weakness could be that the free/reduced lunch criteria for collecting the data may be slightly different from district to district. Also, the data from free/reduced lunch does not give the researcher insight into the family structure of the students. If the researcher could collect the data from middle schools on free/reduced lunch and then visit the homes of these same students, would the results also have a negative correlation between family structure and achievement? A final weakness of this study could be the effect this data had on teachers. With the rise of students' exam scores being added to teacher evaluations, this data could be an indicator whether teachers would be categorized as ineffective, developing, or effective at the end of the school year. Teachers that teach in high SES districts may be considered effective teachers, whereas teachers, who teach in low SES districts, may be considered ineffective.

### **Conclusion**

This project has laid the groundwork for further exploration on the topic of SES and success on high stakes tests on the shift from the NCTM standards to the CCSS. One possible extension of this research may be to hold the criteria the same, except expand it to all middle schools in NYS to explore the patterns of performance among NCTM and CCSS standards. This research study has been examined where a shift in states standards happened during students K-12 school years. In order for this study to be fully examined, full roll out implementation has to

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wait 12 years. Once a student starts kindergarten and has graduated under the Common Core state Standards, then one will be able to compare the NCTM state standards for a thorough comparison between the two state standards.

In NYS it is required for students to pass with a score of sixty-five percent or higher on these high stakes tests in order to receive a regular high school diploma. In order to help with students passing rates, there have been many efforts in funding school districts with proper support, like technology. Race to the Top is one educational grant program adopting Common Core State standards for mathematics and language arts while implementing educational assessments. The new funding based tests put enormous pressure on the states to develop or expand their current tests, often beyond what students have the ability to do. The consequences that will have the most serious impact will be the financial ones, where the poor school districts who have budget deficits will only become poorer because without funding schools that need improvement can't meet costs and will keep facing larger fiscal gaps. Opposing viewpoints, like from the NCTM, AERA and APA organizations all have similar negative views towards high stakes testing. One test should not predict a child's educational future. What happens if that student is having a bad day, and they do poorly on the day of the test? This should not predict the educational future of a student based on one test exam.

Further research could lead to why these decreases in tests results are occurring and what educators can do to help repair students' performance levels. Socioeconomic status plays a role in students live when it comes to academics. Students living in households that are below poverty level experience a higher level of stress which will impact a way a child feel towards their education. Breaking SES down even further; home life, parents, location and technology play an even bigger role in low SES student's academic career because if those factors are not

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available, students lack of interest decreases along with performance levels on high stakes tests.

The goal of this project and others like it is to show that the impact of low socioeconomic status is a problem in education and needs more attention because it goes beyond just race. It is not the goal of education to educate the children who just come from the wealthiest of families; it is our duty to educate all of our students.

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