THE IMPACT OF HIGH STAKES TESTING ON CLASSROOM PRACTICE

By

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Science in Mathematics Education

May 2017

SUNY Buffalo State

State University of New York

Department of Mathematics

Date of Approval:

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Dr. David Wilson, Associate Professor Project Advisor

Abstract

High Stakes testing was designed to attach consequences to standardized test results to promote teacher effectiveness and student learning. The impact of high stakes testing has been the source of Controversy among parents, teachers, administrators and students. In this study, teacher perceptions regarding the impact of high stakes testing on their students, their own teaching practices, and student learning was studied. High School Mathematics teachers from the Western New York region completed a questionnaire and their responses were analyzed. The results showed that though there are both positive and negative effects of high stakes testing on students, teachers, and teaching practice, negative responses were more often reported.

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Chapter 1

Introduction

High-stakes testing in the American educational system has been central in the effort to increase student achievement by holding teachers and school districts accountable for the learning and growth of students. (Braun 2004, Kober, & Rentner, 2011). The purpose of this study is to determine the possible impact of high-stakes testing on teachers' practice. There will be an investigation of how classroom practice may be affected by implications of high-stakes testing. Specifically, teachers' perceptions of how testing is affecting their practice will be studied.

High stakes testing can be defined as "the process of attaching significant consequences to standardized test performance with the goal of incentivizing teacher effectiveness and student achievement (Nichols, Glass, & Berliner, 2012, p.3)." From these tests, significant educational decisions are made about schools, administrators, teachers, and students (Amrein, & Berliner 2002). These tests have a purpose to both increase accountability for schools, teachers, and students (Amrein, et al., 2002; Anagnostopoulos, 2003; Chadd et al., 2006; Cimbricz, 2002; Klein et al., 2006; Lamb, 2007; Nichols et al., 2012) as well as improve educational instruction (Cimbricz, 2002; Klein, et al., 2006).

It has been found that teachers have both been positively affected (Cimbricz, 2002; Clarke et al., 2003, Williamson, Bondy, Langley, & Mayne, 2012, Yeh, 2005) and negatively affected (Amrein et al., 2002; Anagnostopoulos, 2003; Cimbricz, 2002; Clarke, Shore, Rhoades, Abrams, Miao, & Li, 2003; Lamb, 2007; Nichols et al., 2005; Segall, 2012; Schorr et al., 2003) by high-stakes testing. Some negative findings include teachers teaching to the test (Amrein et al., 2002; Anagnostopoulos, 2003; Cimbricz, 2002; Clarke et al., 2003; Lamb, 2007; Nichols et al., 2005;

Segall, 2012; Schorr et al., 2003), altering or narrowing their curriculum (Amrein et al, 2002; Cimbricz, 2002; Clarke et al., 2003; Firestone et al. 1998; Luna et al, 2001; Segall, 2012), and altering instructional time to better prepare the students for tests (Amrein et al., 2002; Cimbricz, 2002; Clarke et al., 2003; Firestone et al.,, 1998; Gerwin, 2006; Nichols et al., 2005, Luna et al., 2001, Yeh, 2005). There is significantly less literature indicating positive impacts of testing on teachers. However, some teachers report increased critical thinking and better use of class time as a result of high-stakes testing (Cimbricz, 2002; Clarke et al., 2003, Williamson, Bondy, Langley, & Mayne, 2012, Yeh, 2005).

Significance

This study is significant, because it will be addressing both positive and negative effects of high-stakes testing on classroom practice. In addition, there will be follow up questions to probe what the teachers think could be done do avoid negative effects of testing, as well as follow up questions to determine how the same positive results could be replicated in other classrooms. If this study find that there is an impact of high-stakes testing on classroom practice, and any effects are deemed negative, teachers then need to look at their classroom practice to see what they can do to prevent sacrificing good pedagogy. There may need to be further investigation as to the extent of any negative effects, and how there may need to be some pedagogical changes to combat this, be it on the school, district, or national level. If some teachers are reporting positive effects, while others are noting negative effects, further study may be desired to determine what the teachers on the opposite sides of the spectrum are doing differently from one another. In addition, there may be further investigation as to what all teachers can do to have a more positive response to high-stakes testing.

In addition, this study is significant due to the recent roll out of the Common Core State Standards. "[T]he Common Core State Standards were developed by the National Governors Association and the Council of Chief State School Officers and endorsed by the American Federation of Teachers (Kohler et al., 2014)" With these standards come reliance on high-stakes tests to both measure student learning and to keep teachers accountable via teacher performance assessments. Further, given the relatively short time that the standards have been implemented, there is a lack of published research on the impact of this high-stakes testing on classroom practice as well as teacher accountability.

Rationale

In the wake of the controversial Common Core State Testing, it seems that many people are jumping on an anti-testing bandwagon. Some debate whether or not the CCSS are necessary or beneficial for students, and are a source of conflict for teachers (Kohler et at., 2014). One reason this study is being done is to see if high-stakes testing really does have the adverse impact on students and teachers that some people in society think they do. As aforementioned, if there truly is an adverse effect on teachers and students, then there will have to be a further investigation on how such effects can be avoided or what changes may need to be made to prevent them in the future. It is possible that such testing does not have the effect that some perceive it to have.

The guiding question of this study is "In what way does high-stakes testing impact classroom practice?" High school mathematics teachers from various schools in the Western New York region who are held accountable by Common Core testing will be the focus of this study. They will be given the opportunity to report their perception of how their teaching is

personally impacted by the high-stakes Common Core test given at the end of their school year.

Their responses will be analyzed to determine the true impact of testing, so further investigation may be done in the future.

Chapter 2

Literature Review

There is much concern about high-stakes testing in the American educational system, especially with the passage of the No Child Left Behind Act of 2002 and recent implementation of the Common Core State Standards (Braun 2004, Kober, & Rentner, 2011). High stakes tests have been shown to affect classroom practice, having both positive and negative ramifications.

High-stakes tests can be defined as "tests from which results are used to make significant educational decisions about schools, teachers, administrators, and students (Amrein, & Berliner 2002)." Examples of some high-stakes tests may include state tests and standardized tests, which are "designed to measure attainment of...standards (Klein, Zevenbergen, & Brown, 2006, p.146)." Among the most predominant purposes of high-stakes testing, such as mandated state-testing, are accountability and instructional improvement (Cimbricz, 2002).

Why are High-Stakes Tests Important for Students?

High stakes testing is high stakes for students in the sense that there are positive and negative rewards based on their achievement on the tests (Amrein, & Berliner 2002; Cimbricz, 2002; Klein et al., 2006; Lamb, 2007). For example, "the *Board of Regents* examinations is a high school graduation requirement as well as a college-entry requirement in the State of New York (Klein et al., 2006, p.146)." In some states, achievement may be used to promote or retain students (Amrein et al., 2002; Cimbricz, 2002), and could "prevent high school students from receiving a regular high school diploma (Amrein et al., 2002)." In some cases, the results of these tests can also decide whether or not a student is permitted to take a certain course or program in their school (Cimbricz, 2002; Lamb, 2007).

Why are High-Stakes Tests Important for Teachers?

Similarly, these tests are high-stakes to teachers (Cimbricz, 2002; Nichols et al., 2012). "One effect of state-mandated testing is that teachers experience negative emotions such as anxiety, shame, embarrassment, guilt, and anger as a result of the publication of test scores (Cimbricz, 2002, p. 7). Positive rewards for passing can bring bonuses to teachers and good publicity for the school (Nichols, et al, 2012). Positive performance can secure teachers' jobs and ultimately, inadequate performance of their students can result in termination of teachers or principals and could also result in school closures (Nichols, et al., 2012).

Why are High-Stakes Tests Important for Schools?

Schools and districts also feel the pressure of high-states testing. School testing and yearly progress results are required to be shared with the public though "annual state and school report cards (Chadd & Drage, 2006, p.83)." If schools are deemed to be failing or low performing as a result of testing, they may be put on probation or face possible closure or government takeover (Anagnostopoulos, 2003; Amrein et al., 2002).

What are the Purposes of High-Stakes Tests?

One major purpose of high stakes testing is to strengthen accountability for schools, teachers and students (Braun, 2004; Chadd & Drage, 2006). The movement for school accountability essentially is pushing for top-down control of schools (Moe, 2002). It is believed that if governmental authorities want to promote student achievement, "they need to adopt a variety of organizational control mechanisms—tests, school report cards, rewards and sanctions,

and the like--designed to get district officials, principals, teachers, and students to change their behavior in productive ways. (Moe, 2002, p.3)." All of the aforementioned rewards and consequences that result from high-stakes test results, in part, hold students, teachers, and schools accountable for achievement (Amrein, et al., 2002; Anagnostopoulos, 2003; Chadd et al., 2006; Cimbricz, 2002; Klein et al., 2006; Lamb, 2007; Nichols et al., 2012).

Another major purpose of high-stakes testing is to improve the quality of education and instruction (Cimbricz, 2002; Klein, et al., 2006). One important goal of high-stakes tests such as standardized state testing "is to ensure all children have an opportunity to obtain a high-quality education and reach proficiency on state academic achievement standards (Chadd, & Drage, 2006, p.82)." Some believe that high-stakes tests are the best way to establish and maintain high standards because they will motivate students and teachers to do their best (Luna & Livingston Turner, 2001). It is suggested that they can incentivize teacher and student performance, and "by attaching significant rewards or serious threats to changes in student test scores, teachers and their students will inevitably be prompted to work harder, better, and learn more (Nichols et al, 2012, p.3). Many see high-stakes testing as "one way of using authority of the state to ensure that all students are exposed to the same instructional standards (Schorr & Bulgar, 2003, p. 135)," thus improving instruction and achievement.

How High-Stakes Tests Impact Teachers

With all of the pressure placed on teachers for their students to do well, many teachers end up teaching to the test (Amrein et al., 2002; Anagnostopoulos, 2003; Cimbricz, 2002; Clarke, Shore, Rhoades, Abrams, Miao, & Li, 2003; Lamb, 2007; Nichols et al., 2005; Segall, 2012; Schorr et al., 2003). Teaching to the test can involve altering curriculum and instruction to better match

and prepare students for exams (Amrein et al., 2002; Clarke et al., 2003; Firestone, Mayrowetz, & Fairman, 1998; Freeman, 1982; Gerwin, 2006; Lomax, Maxwell West, Harmon, Viator, & Madaus, 1995, Luna et al., 2001; Nichols et al., 2005; Schorr et al., 2003; Yeh, 2005), using instructional time to prepare students for tests (Clarke et al., 2003; Cimbricz, 2002; Freeman, 1982; Lamb, 2007; Luna et at., 2001; Nichols et al., 2005; Watanabe, 2007), and sometimes involves the changing or narrowing of curriculum (Ambrein et al., 2002; Clarke et al., 2003; Cimbricz, 2002; Luna et at., 2001; Nichols et al., 2005; Yeh, 2005). Some believe that teaching to the test involves "transforming learning and instruction to test learning and instruction (Amrein et al, 2002. P. 40)," placing the focus of instruction on the test, rather than on understanding. Activities common to this teaching to the test include "using modified versions of test questions as practice in class... gearing everything in the classroom toward the test... matching released test questions to units in the state standards and then emphasizing those units in class; and taking older tests and giving them as practice (Clarke et al, 2003, p.70)." Despite the negative connotations this term has, it is thought that teaching to the test should be a good thing if the test is well designed (Schorr et al, 2003; Nichols et al, 2005).

One common aspect of teaching to the test includes the alteration of curriculum and instruction (Amrein et al, 2002; Cimbricz, 2002; Clarke et al., 2003; Firestone et al. 1998; Luna et al, 2001; Segall, 2012). Often, teachers will limit what they teach to the topics that will be tested, even if their local curriculum requires more (Amrein et al, 2002; Luna et al, 2001). The curriculum that schools or teachers develop will be defined by examinations, and teachers sometimes alter curriculum and instruction to better match the tests and therefore improve students' scores (Amrein et al, 2002; Cimbricz, 2002; Firestone et al. 1998). Some teachers will sequence their units or lessons in the way that the topics are tested, even if it means there is a

pedagogically inappropriate flow to the curricula (Clarke et al, 2003; Segall, 2012). Another aspect of teaching to the tests involves teachers "making daily instructional decisions in the context of such testing (Luna et al, 2001, p.80)." In other words, teachers teach with the test in mind, meaning they instruct their students not just for understanding of the curriculum, but for success on exams (Segall, 2012). This can include using standards as a guide for lesson planning and gearing everything toward preparing for the test (Clarke et al, 2003). It may also include incorporating sample questions or tests into daily instruction to familiarize students with the format and style of their exams (Schorr et al., 2003). It is common for teachers to sacrifice conceptual teaching strategies for rote learning, drilling students on test facts to better prepare them for the exam, even if that is not the way they normally prefer to teach (Amrein et al, 2002; Gerwin, 2006; Nichols et al, 2005, Luna et al, 2001; Lomax, Maxwell West, Harmon, Viator, & Madaus, 1995).

Teachers will alter the way they use instructional time in order to better prepare their students for the test (Amrein et al., 2002; Cimbricz, 2002; Clarke et al., 2003; Firestone et al.,, 1998; Gerwin, 2006; Nichols et al., 2005, Luna et al., 2001, Yeh, 2005). Sometimes, teachers rush through material and sacrifice further or deeper instruction in order to make time for extra test preparation (Cimbricz, 2002; Clarke et al, 2003; Nichols et al, 2005, Luna et al, 2001, Yeh, 2005). During this time of test preparation, teachers will help students to develop good test taking skills and strategies, rather than teach them new material or deepen their understanding of topics already learned (Amrein et al, 2002; Gerwin, 2006; Yeh, 2005). To help prepare them, teachers might coach students on similar or practice test items, showing them how to do specific types of exam questions (Amrein et al, 2002; Clarke et al, 2003; Firestone et al., 1998). An important part of this test preparation is getting the students familiarized with the format of the

test that is to be given (Clarke et al, 2003; Schorr et al., 2003). This increase in test preparation may result in teachers sacrificing valuable and engaging instructional activities for lessons with more drill and practice to better prepare students for the tests (Nichols et al., 2005; Lamb, 2007; Watanabe, 2007).

As a result of the pressures of high-stakes testing, schools are changing and narrowing the curriculum in response (Cimbricz, 2002; Clarke et al, 2003; Yeh, 2005). In terms of changing and narrowing curriculum, educators have reported that preparing students for testing involves "varying degrees of removing, emphasizing, and adding curriculum content, with the removal of content being the most frequently reported activity (Clarke et al., p. 47)." Untested subjects are being pushed aside, and sometimes eliminated to make more instructional time for subjects that are tested (Amrein et al, 2002; Cimbricz, 2002; Nichols et al, 2005; Segall, 2012). Topics that are not going to be tested on the exam are neglected or disappearing, regardless of how pedagogically important they are for students (Amrein et al, 2002; Cimbricz, 2002; Watanabe, 2007). Teachers are both adding and subtracting topics from the curriculum in reaction to what is believed to be on the test (Clarke et al, 2003; Anagostopoulos, 2003; Luna et al, 2001). More emphasis is put onto specific curricular areas that are known to be tested because these are the topics that teachers feel most responsible for teaching to their students (Firestone, 1998; Segall, 2012).

No Impact

Though less common, it is important to note that some literature shows that high-stakes testing has either no effect on classroom practice (Cimbricz, 2002; Luna et al., 2006), or a positive effect on classroom practice (Cimbricz, 2002; Clarke et al., 2003, Williamson, Bondy,

Langley, & Mayne, 2012, Yeh, 2005). It has been shown that some teachers feel that high-stakes testing has no impact on what curricula is taught or how it is taught (Clarke et al, 2003). Some will admit to increasing the amount of drill and practice, but they do not perceive that as narrowing their curriculum or changing their instruction (Cimbricz, 2002). It has even been challenged that the effects of high-stakes testing is overrated by those who oppose them and that they do not change how teachers teach (Cimbricz, 2002).

Positive Impacts

Some positive feedback from high-stakes tests from teachers is that they impact the curriculum by removing unneeded or unimportant content, add important topics, and renew an emphasis on critical thinking skills, ultimately increasing the quality of the curriculum (Clarke et al., 2003). Some also believe that high-stakes tests encourage student-centered learning and improve education (Williamson et al, 2012), and "Teachers do not have to sacrifice high quality, child centered pedagogy that focuses on sense-making and understanding in order to get their students through high stakes tests (Williamson et al, 2012, p. 194)." Another positive result of high-stakes testing is teacher collaboration (Cimbricz, 2002; Yeh, 2005). Some of what many teachers found negative, other teachers found positive. For example, the accountability that some teachers found burdensome, others viewed as making them more goal oriented and reflective teachers who improved the quality of their instruction (Yeh, 2005). Also, though these teachers were spending instructional time on test taking skills, they were teaching their students more broadly useful skills like critical reading, rather than simple tricks (Yeh, 2005). In addition, some teachers use standardized tests "to diagnose individual strengths and weaknesses

in specific content areas (Freeman, Kuhs, Knappen, & Porter, 1982, p.53)," which helps teachers to address student needs.

It can be argued that most teachers agree that high stakes tests have significant ramifications on their classroom practice (Amrein et al., 2002; Anagnostopoulos, 2003; Cimbricz, 2002; Clarke et al., 2003; Lamb, 2007; Luna et al., 2006; Nichols et al., 2005; Segall, 2012; Schorr et al., 2003; Yeh, 2005). What is less clear is whether these effects are definitively positive or negative. Different teachers have different perceptions of how high-stakes testing influences their classroom instruction. More research needs to be done on how teachers draw their conclusions on the effects of high-stakes testing.

Chapter 3

Method

This will be a quantitative and qualitative study that investigates how teachers' classroom practice is affected by high-stake testing. Specifics on different ways that teachers report or perceive classroom or instruction changes will be studied.

Unit of Analysis

The unit of analysis of this study is high school mathematics teachers from the Western New York Region. They will be asked to answer a series of questions that will give them an opportunity to explicitly express how their classrooms may or may not have changed due to testing procedures.

Population

The population of this study will twenty six high school mathematics teachers in the Western New York Region that are involved in the "Master Teacher Program." These teachers have been chosen out of convenience and due to the fact that a low-mortality rate is expected. In order to obtain a more accurate look at how testing impacts teachers in this region, a stratified random sampling strategy will be used. The teachers will be separated into two separate strata. For some comparisons, they will be separated into four strata; urban, second-ring suburban, first-ring suburban, and rural. For others, thy will be separated into three strata based on which course they teach; Common Core Algebra I, Common Core Geometry, and Common Core Algebra II. Ideally, number of teachers chosen for each strata to be proportional to the actual number of teachers represented by each strata.

Measures

The teachers will be given the questionnaire found in Appendix A. Among some of the questions found in the questionnaire are some that were modified from Moon et al. (2003). Some questions have questions to follow up, allowing the teacher to further explain their thinking or to elaborate on any ideas they have. Ample space will be given for the teachers to elaborate on questions. For the Likert scale questions, only four choices are given to avoid neutral answers.

The selected teachers will be emailed this questionnaire via Wofoo.com. A 100% response rate is not expected. The responses that are received will be analyzed, compared and contrasted with one another, categorized, and percentages of each response will be calculated. Two way frequency tables and segmented bar charts will also be used to analyze quantitative data.

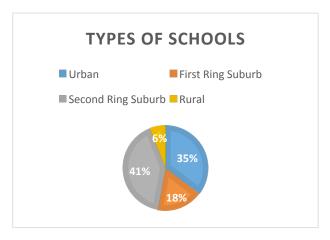
Qualitative data will be clustered in terms of patterns and themes that emerge from the data.

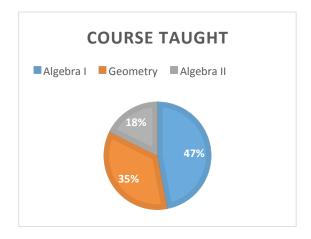
Based on this data, the impact of high-stakes testing will be determined.

Chapter 4

Results

Seventeen Western New York mathematics teachers responded to the questionnaire. Below are representations of responses based on the intended strata as well as the number of years each respondent has taught.



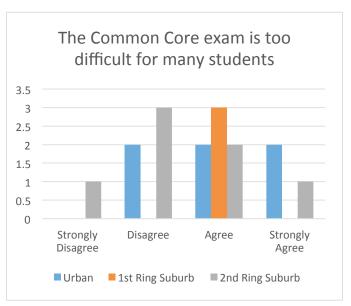




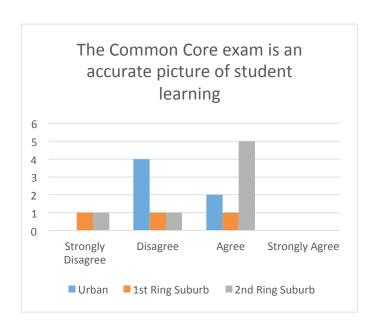
Due to the fact only one of the respondents was from a rural school, data from that respondent will be omitted from comparisons involving school type.

The following two responses were prefaced with the question "To what extent do you personally agree with each statement?"

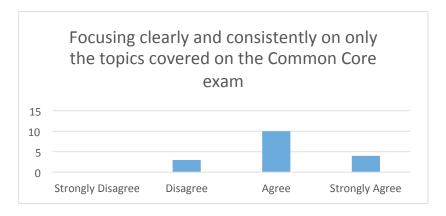
The Common Core exam is too difficult for many students				
			2nd	
		1st Ring	Ring	
	Urban	Suburb	Suburb	Total
Strongly				
Disagree	0	0	0.625	0.625
Disagree	0.125	0	0.1875	0.25
Agree	0.125	0.1875	0.125	0.4375
Strongly				
Agree	0.125	0	0.0625	0.1875
Total	0.375	0.1875	0.4375	1

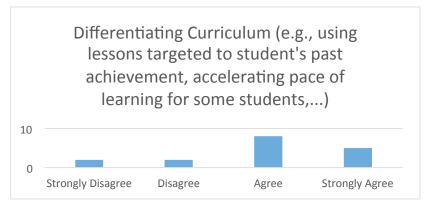


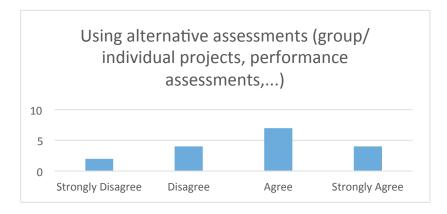
The Common Core exam is an accurate picture				
of student	learning			
		1st Ring	2nd Ring	
	Urban	Suburb	Suburb	Total
Strongly				
Disagree	0	0.0625	0.0625	0.125
Disagree	0.25	0.0625	0.0625	0.375
Agree	0.125	0.0625	0.3125	0.5
Strongly				
Agree	0	0	0	0
Total	0.375	0.1875	0.4375	1

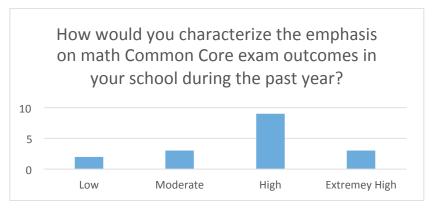


The following responses were prefaced with the question "To what extent do you agree the following curriculum and instructional approaches are affected by the emphasis placed on student success on the Common Core exam?"

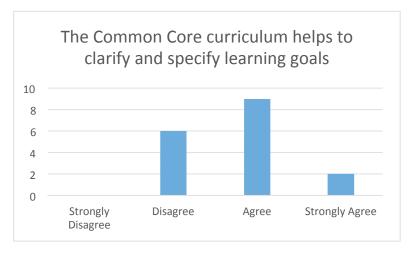


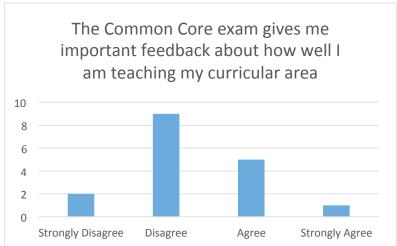


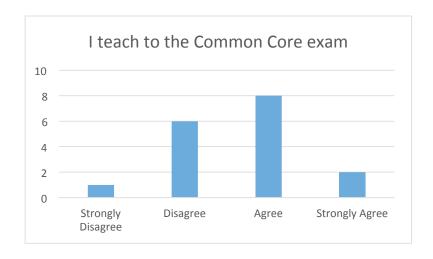


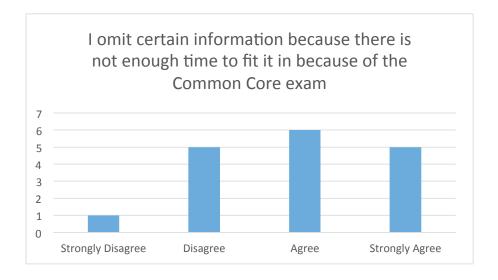


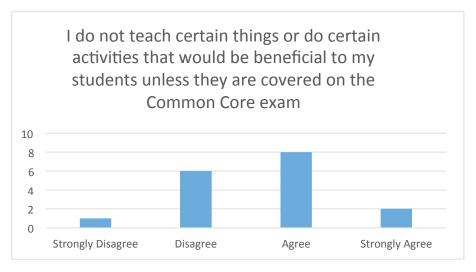
The following responses were prefaced with the question "To what extent do you personally agree with each statement? (Recall, you are answering based on the course and related exam identified at the start of this survey)"











6 4 2

Urban

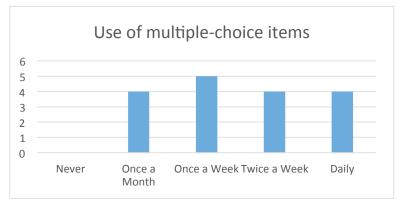
The Common Core exam does not influence my teaching practice (aside from what content needs					
		aside from w	nat content	neeas	
to be cove	ered)				
		1st Ring	2nd Ring		
	Urban	Suburban	Suburban	Total	
Strongly					
Disagree	0.0625	0.0625	0.125	0.25	
Disagree	0.1875	0.125	0.0625	0.375	
Agree	0.125	0	0.25	0.375	
Strongly					
Agree	0	0	0	0	
Total	0.375	0.1875	0.4375	1	

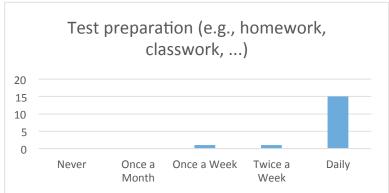


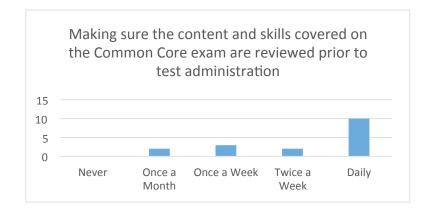
■1st ring suburban

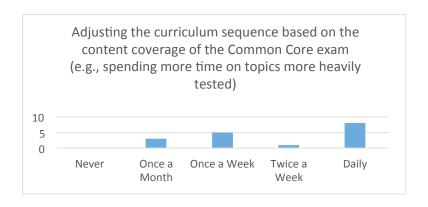
■ 2nd ring suburban

the question "To what extent do you agree on how frequently the following practices are used in your classroom? Select the option that best describes your choice."



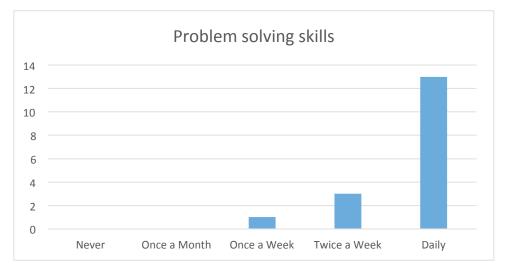


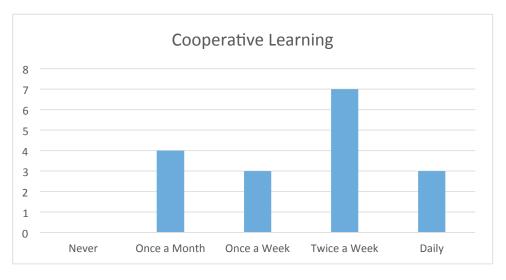


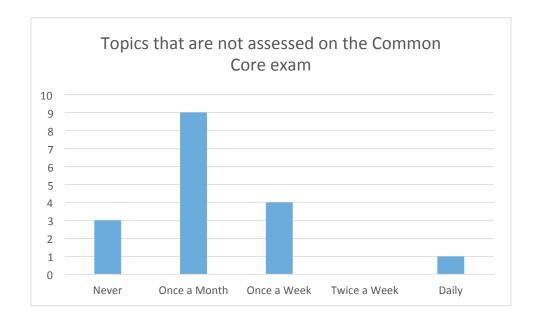


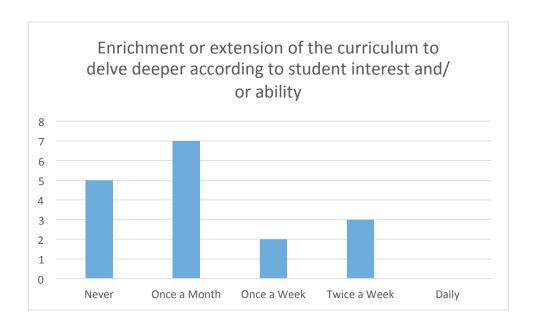
The following responses were prefaced with the question "To what extent do you agree with how much attention you are able to give the following aspects of instruction in your classroom?"



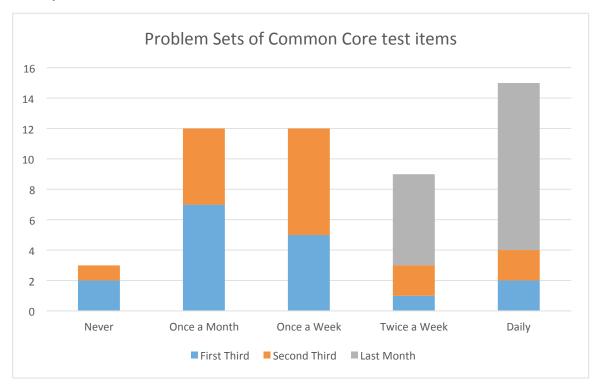


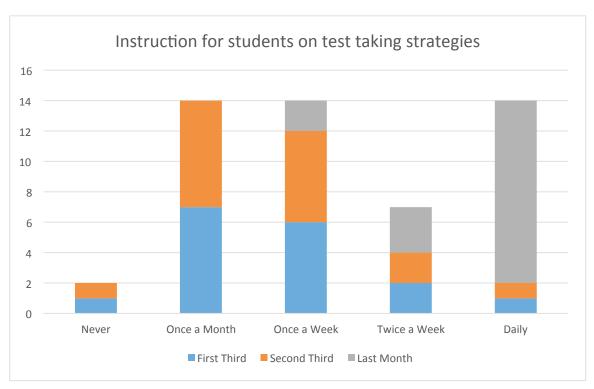


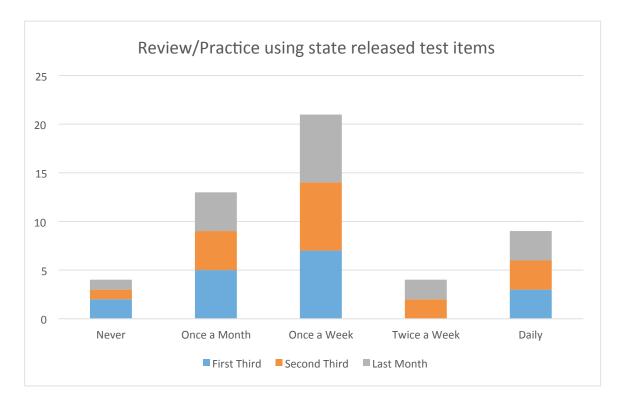


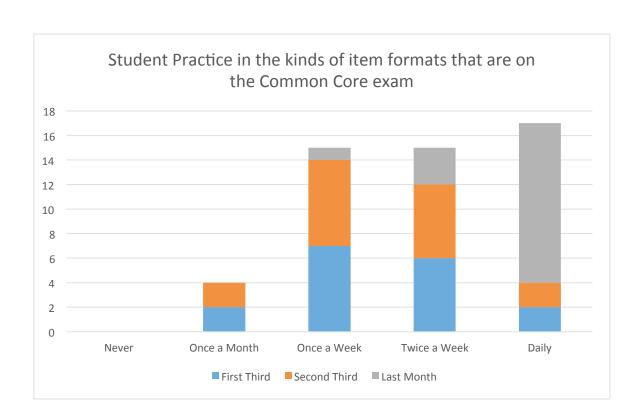


The following responses were prefaced with the question "To what extent do you agree with how much attention you are able to give the following test preparation activities during the [FIRST THIRD/SECOND THIRD/LAST MONTH] of the school year? Select the option that best describes your choice."

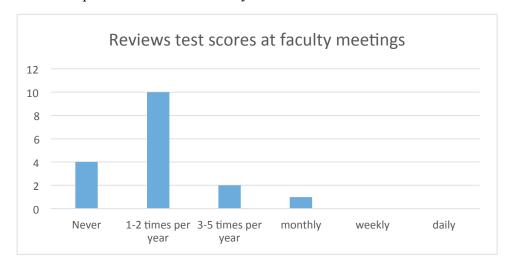


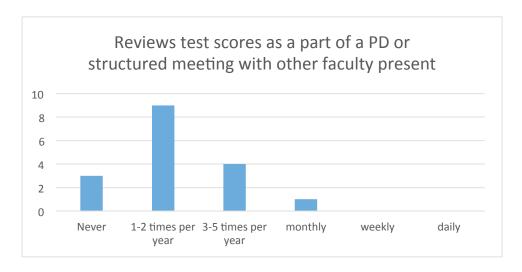


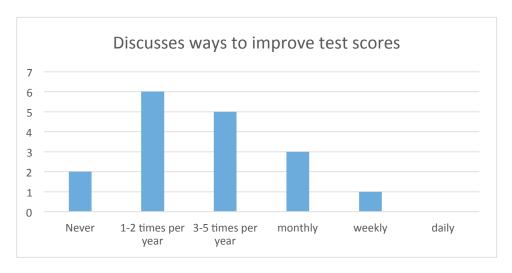


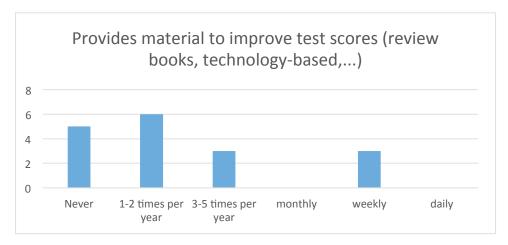


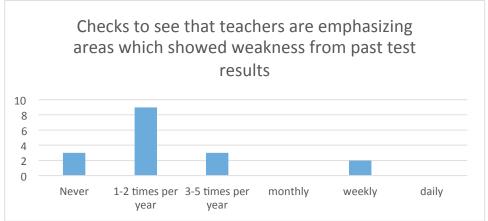
The following responses were prefaced with the question "To what extent do you agree with how often during the school year your school administration engages in the following activities with teachers? Select the option that best describes your choice."

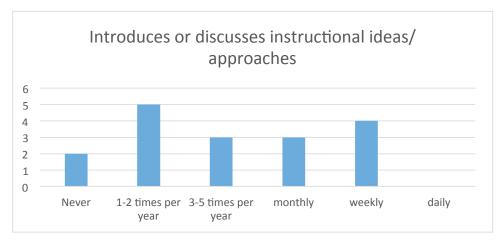










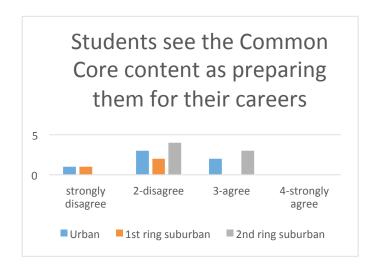


After this set of questions teachers were asked "Please help me understand your above responses by providing me with some specific details..."

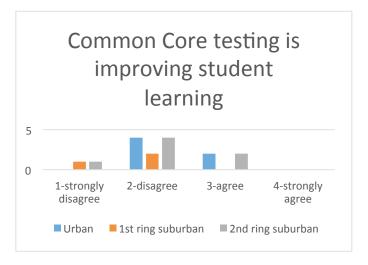
Many teachers reported that they have formal meetings to discuss the data from the Regents exams and assessments within their classrooms as few as one time a year and as often as once a week. However, a handful of teachers reported that their administration was more hands off in terms of either not helping teachers or looking at data with them, or assigning a "math coach" to do data analysis and goal setting with teachers.

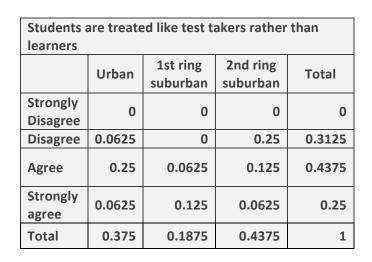
The following responses were prefaced with the question "To what extent do you agree students are affected by the need to increase scores on the Common Core exams? Select the option that best describes your choice"

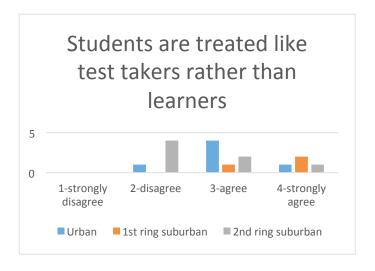
Students see the Common Core content as				
preparing	them for	their careers	3	
	Urban	1st ring suburban	2nd ring suburban	Total
Strongly Disagree	0.0625	0.0625	0	0.125
Disagree	0.1875	0.125	0.25	0.5625
Agree	0.125	0	0.1875	0.3125
Strongly agree	0	0	0	0
Total	0.375	0.1875	0.4375	1



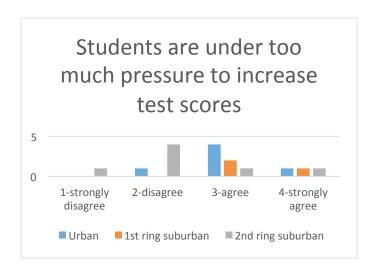
Common Core testing is improving students learning				
	Urban	1st ring suburban	2nd ring suburban	Total
Strongly Disagree	0	0.0625	0.0625	0.125
Disagree	0.25	0.125	0.25	0.625
Agree	0.125	0	0.125	0.25
Strongly agree	0	0	0	0
Total	0.375	0.1875	0.4375	1

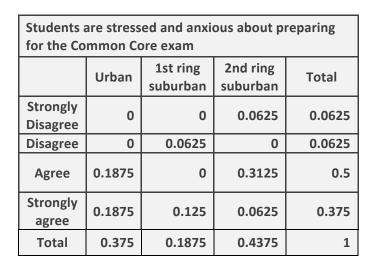


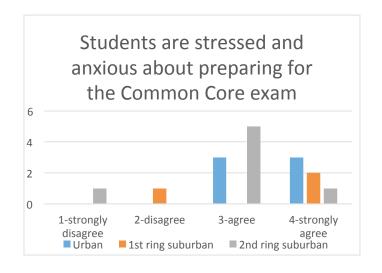


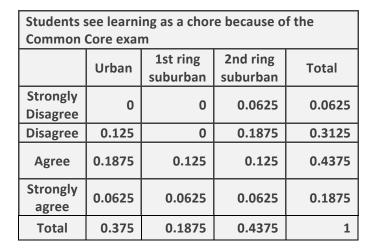


Students are under too much pressure to increase test scores					
	Urban	1st ring suburban	2nd ring suburban	Total	
Strongly Disagree	0	0	0.0625	0.0625	
Disagree	0.0625	0	0.25	0.3125	
Agree	0.25	0.125	0.0625	0.4375	
Strongly agree	0.0625	0.0625	0.0625	0.1875	
Total	0.375	0.1875	0.4375	1	







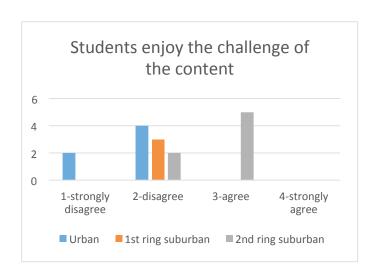




Students feel bad if they do not have high test scores						
	Urban	Urban 1st ring 2nd ring suburban suburban				
Strongly Disagree	0	0	0	0		
Disagree	0	0.0625	0.125	0.1875		
Agree	0.3125	0.0625	0.25	0.625		
Strongly agree	0.0625	0.0625	0.0625	0.1875		
Total	0.375	0.1875	0.4375	1		

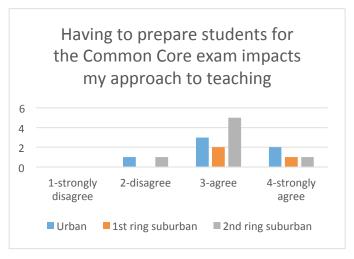


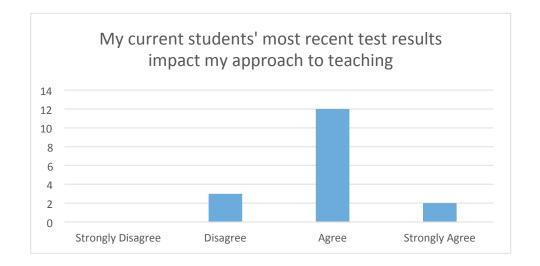
Students enjoy the challenge of the content					
	Urban	1st ring suburban	2nd ring suburban	Total	
Strongly Disagree	0.125	0	0	0.125	
Disagree	0.25	0.1875	0.125	0.5625	
Agree	0	0	0.3125	0.3125	
Strongly agree	0	0	0	0	
Total	0.375	0.1875	0.4375	1	

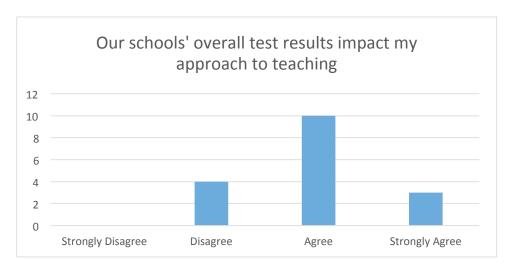


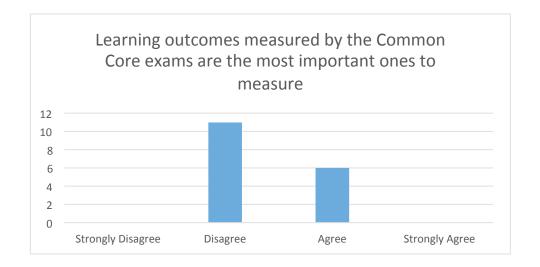
The following responses were prefaced with the question "To what extent do you agree teachers are affected by the emphasis placed on student success on the Common Core Exams? Select the option that best describes your choice."

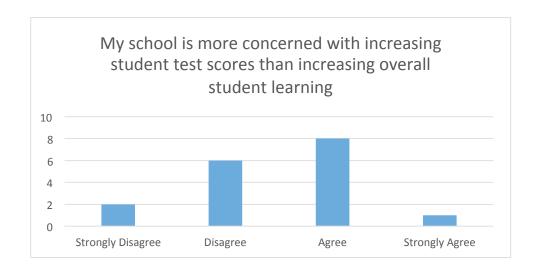
Having to prepare students for the Common Core exam impacts my approach to teaching				
	Urban	1st ring suburban	2nd ring suburban	Total
Strongly Disagree	0	0	0	0
Disagree	0.0625	0	0.0625	0.125
Agree	0.1875	0.125	0.3125	0.625
Strongly agree	0.125	0.0625	0.0625	0.25
Total	0.375	0.1875	0.4375	1

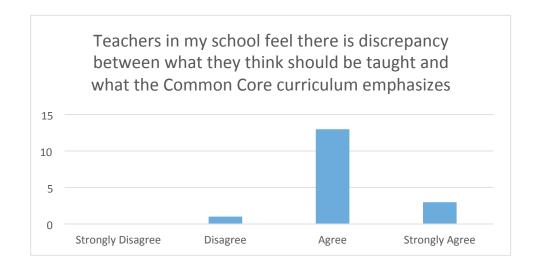


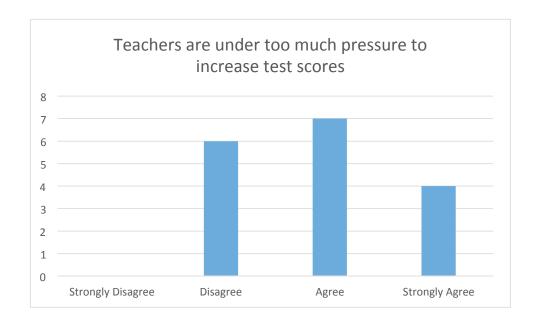


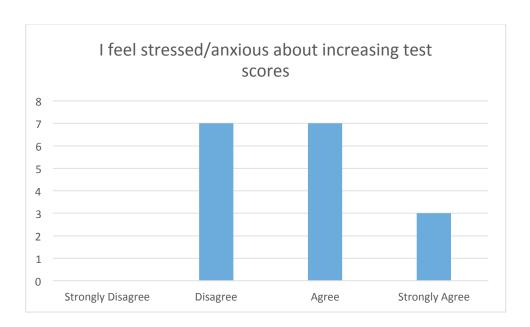












This is a summary of responses to the extended response questions at the end of the survey. Not all teachers opted to give additional input.

Some further positive impacts of the high-stakes Common Core testing noted by teachers include an increase in problem solving skills and ability, the exam raises the bar in terms of what is expected, and the testing reflects knowledge.

Some further negative impacts of high-stakes testing included too much of an emphasis on preparing students to take the test rather than on deepening their understanding of mathematics which in turn decreases the students' interest in learning. Another negative impact teachers reported was having to alter their curriculum. Some reported having to reteach topics from previous courses as well as using class time for test preparations; both of which take time away from activities they could be doing to deepen student understanding on their courses topics or to spend more time on topics students find interesting.

Chapter 5

Discussion and Conclusion

The purpose of this study was to determine how the classroom practice of high school mathematics teachers is affected by the existence of high stakes testing.

Impacts on Teaching

To the general statement "Having to prepare students for the Common Core exam impacts my teaching," 88% of responding teachers agreed or strongly agreed, while 12% of teachers disagreed. Therefore, it can be concluded that in this study, most teachers feel at least some sort of effect of high-stakes testing on their teaching practice.

The literature showed one impact of high-stakes testing was teachers teaching to the test (Amrein et al., 2002; Anagnostopoulos, 2003; Cimbricz, 2002; Clarke, Shore, Rhoades, Abrams, Miao, & Li, 2003; Lamb, 2007; Nichols et al., 2005; Segall, 2012; Schorr et al., 2003). Of the teachers surveyed in this study, 59% agreed or strongly agreed that they teach to the test, thus supporting the literature that some teachers are impacted in this way. Eighty-eight percent teachers reported giving some sort of daily test preparation, whether it be in the form of classwork, homework, or the like. In addition, 65% of teachers reported that they believe students are treated like test takers rather than learners.

More specifically, all teachers who responded to this survey reported that they adjust the sequence of their curriculum based on what they knew would be most heavily covered on the Common Core exam at least once a month. The most common response was that the teachers daily altered their curriculum sequence. This is consistent with the findings of Amrein et al, 2002; Cimbricz, 2002; Clarke et al., 2003; Firestone et al. 1998; Luna et al, 2001; and Segall, 2012.

Another classroom strategy teachers commonly utilize is using practice exam questions used on high-stakes exams to help prepare students for the way questions are asked. (Amrein et al, 2002; Clarke et al, 2003; Firestone et al., 1998). In this study, 88% of teachers reported that they give their students problem sets of Common Core test items at least once a month in the first third of the school year. Ninety-four percent of teachers reported doing this at least once a month in the second third of the school year, and 100% reported giving students these problem sets at least twice a week in the last month of school. It was found that as the school year progressed, teachers began using this strategy more and more frequently.

Similarly, this study showed that all teachers reported practicing testing format at least once per month, and 94% reported practicing testing format at least twice a week in the last month before the exam. Much like giving students practice exam questions, the frequency of teachers having students practice testing formats increased as the time of the exam neared.

In addition, it has been previously reported that some teachers choose not to enrich or extend their curriculum in order to be able to have more time to focus on test preparation (Cimbricz, 2002; Clarke et al, 2003; Nichols et al, 2005, Luna et al, 2001, Yeh, 2005). Similarly, in this study, 59% of teachers admitted to not teaching certain things or doing certain activities that they deemed beneficial if they were not topics covered on the Common Core exam. In terms of using class time to teach test taking strategies, 94% of teachers reported doing so at least once a month in the first two thirds of the school year. Further, all teachers reported giving strategies at least once a week in the last month of the school year with 71% reporting giving daily test taking strategies. In a written comment, one teacher commented that they felt "like a teacher of test taking, rather than a teacher of math" and that they "teach...calculator cheats and shortcuts."

Not only did teachers report that they opt to not enrich their curriculum, but 65% of teachers also admitted to omitting material that should be in their curriculum due to lack of time. This is consistent with the findings of Clarke et al.

Student Learning

The literature showed that one purpose of high stakes testing is to improve student learning (Cimbricz, 2002; Klein, et al., 2006; Chadd, & Drage, 2006, p.82; Luna & Livingston Turner, 2001). In this study, 47% of teachers responded that they believe the Common Core exam is an accurate picture of student learning. However, only 24% reported that they believe that the high-stakes Common Core testing is actually improving student learning. More research should be done, perhaps in a longitudinal study, to see if teachers are under-reporting the positive effect of high-stakes testing on student learning.

Impact on Teachers

The literature showed one negative impact of high stakes testing was negative emotions on teachers (Cimbricz, 2002,). In this study, it was found that 59% of the teachers that responded reported that they either agreed or strongly agreed that they feel stressed or anxious about increasing test scores. In addition, 65% of the respondents believe that teachers are under too much pressure to increase test scores. More research should be done with a larger sample to determine why teachers are specifically feeling this way and what the impact of this may be.

Impact on Students

When asked whether or not teachers felt that the Common Core exam is too difficult for students, 65% of respondents either agreed or strongly agreed. Further, 59% of teachers agreed that students are under too much pressure to increase test scores, and 82% agreed that students are stressed and anxious about preparing for the common core exam. Fifty-nine percent perceive that students see learning as a chore because they have to prepare for the Common Core exam. Seventy-seven percent of teachers reported that they believe students feel badly if they do not have high test scores. Only 29% of teachers believe that their students enjoy the challenge of the content and it should be noted that the only teachers who reported this belief were from second ring Suburban Schools. No urban or first ring suburban teachers reported that their students enjoy the challenge of the content. It should also be noted that 71% of second ring suburban respondents agreed that the exam provides an accurate picture of student learning, while only 33% of first ring suburban and urban respondents agreed. Further research should be done with a larger sample to determine if there is a significant difference in how teachers from different geographical settings report student perception. In addition, it may be beneficial to survey students themselves to see how they personally feel affected by having to prepare for high-stakes tests.

On a more positive note, consistent with Clarke et al. (2003), there are reports of teachers indicating an increase of critical thinking skills. All teachers in this study reported that their students are using higher-order thinking skills at least once a week, with 65% reporting that their students use these skills daily. In addition, all teachers reported that their students are using problem solving skills at least once a week, with 76% reporting that their students are using these

skills daily. One teacher from this study noted "[t]he types of analysis and connections between topics... [required to prepare for the exam] requires is [sic] incredibly beneficial for students going into the sciences (especially engineering)." More research should be done to determine if, and to what extent, students are in fact becoming better critical thinkers due to the requirements of high stakes-testing. Further investigation may include how careers in the STEM fields are being impacted by high-stakes accountability testing.

No Impact

As mentioned in the literature review, some literature declares that high-stakes testing has no effect on classroom practice (Cimbricz, 2002; Luna et al., 2006). Thirty-five percent of teachers in this study reported that they see no impact of high-stakes testing on their teaching aside from what content needs to be covered. It should be noted that when the teachers were asked if they agreed that they were not influenced, 57% of second ring suburban teachers agreed, no first ring suburban teachers agreed and only 33% or urban teachers agreed. More research should be done to determine if some teachers are, in fact, not impacted, or if they are not aware of how they are actually being impacted. Further, it may be worth looking into whether geographical location is independent from how much a teacher may or may not be influenced by high-stakes testing.

Conclusion

In conclusion, based on the results of this study, it is clear that the majority of teachers agreed that their classroom practice is at least somewhat influenced by high stakes testing. High stakes testing also appears to result in higher anxiety levels for both students and teachers. It

would be interesting to study whether this improves upon, or is a detriment to, test results in the future. More positively, teachers reported that problem solving and higher-order thinking skills are being used frequently, and these skills should be especially useful for students entering the STEM fields. There is a large discrepancy between the responses between urban and second ring suburban teachers regarding whether the test provides an accurate assessment of student learning. Further investigation should be done on a larger and perhaps more longitudinal scale to determine the significance of the impact of high stakes testing on classroom practice and how this may affect students, teachers, and the mathematical field in the future, for better or for worse.

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Appendix

High-Stakes Testing Impact on Classroom Practice

The questions below are to gain insight on your perspective of a single course you teach that has a Common Core exam at the end.

Please choose the one for which you feel most familiar, as you will be answering the
remaining questions keeping this course in mind. *
Common Core Algebra I
Common Core Geometry
Common Core Algebra II
In which type of school do you teach? *
○ Urban
 First Ring Suburb (bordered against the city of Buffalo)
 2nd Ring Suburb (adjacent to a First Ring school)
○ Rural
Including this school year, how long have you been teaching mathematics?*
○ 0-4 years
○ 5–10 years
○ 11 or more years

To what extent do you agree the following curriculum and instructional approaches are affected by the emphasis placed on student success on the Common Core exam? *

	Strongly Disagree	Disagree	Agree	Strongly Agree
Focusing clearly and consistently on only the topics covered on the Common Core exam	0	O 2	3	O 4
Differentiating Curriculum (e.g., using lessons targeted to student's past achievement, accelerating pace of learning for some students,)	0	O 2	3	O 4
Using alternative assessments (group/individual projects, performance assessments,)	0	O 2	3	O 4

To what extent do you personally agree with each statement? (Recall, you are answering based the course and related exam identified at the start of this survey) *

	Strongly Disagree	Disagree	Agree	Strongly Agree
The Common Core curriculum helps to clarify and specify learning goals	0	O 2	O 3	O 4
The Common Core exam gives me important feedback about how well I am teaching my curricular area	0	O 2	O 3	O 4
I teach to the Common Core exam	0	O 2	O 3	O 4
I omit certain information because there is not enough time to fit it in because of the Common Core exam	0	O 2	O 3	O 4
I do not teach certain things or do certain activities that would be beneficial to my students unless they are covered on the Common Core exam	0	O 2	3	O 4

The Common Core exam does not				
influence my teaching practice	0	0	0	0
(aside from what content needs to	1	2	3	4
be covered)				

To what extent do you agree on how frequently the following practices are used in your classroom? Select the option that best describes your choice. *

	Daily	Twice a week	Once a week	Once a month	Never
Use of multiple-choice items	0	O 2	3	O 4	O 5
Test preparation (e.g., homework, classwork,)	0	O 2	3	O 4	O 5
Making sure the content and skills covered on the Common Core exam are reviewed prior to test administration	0	O 2	O 3	O 4	O 5
Adjusting the curriculum sequence based on the content coverage of the Common Core exam (e.g., spending more time on topics more heavily tested)	0	O 2	3	O 4	O 5

To what extent do you agree with how much attention you are able to give the following aspects of instruction in your classroom? Select the option that best describes your choice. *

	Daily	Twice a week	Once a week	Once a month	Never
Higher-order thinking skills	0	O 2	O 3	O 4	5
Problem solving skills	0	O 2	O 3	O 4	O 5
Cooperative Learning	0	2	3	O 4	5
Topics that are not assessed on the Common Core exam	0	O 2	O 3	O 4	O 5
Enrichment or extension of the curriculum to delve deeper according to student interest and/or ability	0	O 2	O 3	O 4	5

To what extent do you agree with how much attention you are able to give the following test preparation activities during the FIRST THIRD of the school year? Select the option that best describes your choice. *

	Daily	Twice a week	Once a week	Once a month	Never
Problem sets of Common Core test items	0	O 2	3	O 4	5
Instruction for students on test taking strategies	0	O 2	O 3	O 4	O 5
Review/Practice using state released test items	0	O 2	3	O 4	O 5
Student Practice in the kinds of item formats that are on the Common Core exam	0	O 2	O 3	O 4	O 5

To what extent do you agree with how much attention you are able to give the following test preparation activities during the SECOND THIRD of the school year? Select the option that best describes your choice. *

	Daily	Twice a week	Once a week	Once a month	Never
Problem sets of Common Core test items	0	O 2	3	O 4	5
Instruction for students on test taking strategies	0	O 2	O 3	O 4	O 5
Review/Practice using state released test items	0	O 2	3	O 4	O 5
Student Practice in the kinds of item formats that are on the Common Core exam	0	O 2	O 3	O 4	O 5

To what extent do you agree with how much attention you are able to give the following test preparation activities during the MONTH PRIOR to the test? Select the option that best describes your choice. *

	Daily	Twice a week	Once a week	Once a month	Never
Problem sets of Common Core test items	0	O 2	3	O 4	O 5
Instruction for students on test taking strategies	0	O 2	O 3	O 4	O 5
Review/Practice using state released test items	0	O 2	O 3	O 4	O 5
Student Practice in the kinds of item formats that are on the Common Core exam	0	O 2	O 3	O 4	O 5

To what extent do you agree with how often during the school year your school administration engages in the following activities with teachers? Select the option that best describes your choice. *

	Daily	Weekly	Monthly	3-5 times per year	1-2 times per year	Never
Reviews test scores at faculty meetings	0	O 2	3	O 4	O 5	6
Reviews test scores as a part of a PD or structured meeting with other faculty present	0	O 2	O 3	O 4	O 5	O 6
Discusses ways to improve test scores	0	O 2	3	O 4	O 5	6
Provides material to improve test scores (review books, technology-based,)	0	O 2	O 3	O 4	O 5	6
Checks to see that teachers are emphasizing areas which showed weakness from past test results	0	O 2	O 3	O 4	O 5	6
Introduces or discusses instructional ideas/approaches	0	O 2	3	O 4	O 5	6

lease help me understand your above responses by providing me with some specific det elow.	tails

To what extent do you agree students are affected by the need to increase scores on the Common Core exams? Select the option that best describes your choice. *

	Strongly Disagree	Disagree	Agree	Strongly Agree
Student see the Common Core content as preparing them for their college and careers	0	O 2	O 3	O 4
Common Core testing is improving student learning	0	O 2	O 3	O 4
Students are treated like test takers rather than learners	0	O 2	O 3	O 4
Students are under too much pressure to increase test scores	0	O 2	O 3	O 4
Students are stressed and anxious about preparing for the Common Core exam	0	O 2	3	O 4
Students see learning as a chore because of pressure from the Common Core exam	0	O 2	O 3	O 4
Students feel bad if they do not have high test scores	0	O 2	3	O 4
Students enjoy the challenge of the content	0	O 2	O 3	O 4

To what extent do you agree teachers are affected by the emphasis placed on student success on the Common Core Exams? Select the option that best describes your choice. *

	Strongly Disagree	Disagree	Agree	Strongly Agree
Having to prepare students for the Common Core exam impacts my approach to teaching	0	O 2	O 3	O 4
My current students' most recent test results impact my approach to teaching	0	O 2	O 3	O 4
Our schools' overall test results impact my approach to teaching	0	O 2	3	O 4
Learning outcomes measured by the Common Core exams are the most important ones to measure	0	O 2	O 3	O 4
My school is more concerned with increasing student test scores than increasing overall student learning	0	O 2	3	O 4
Teachers in my school feel there is discrepancy between what they think should be taught and what the Common Core curriculum emphasizes	0	O 2	3	O 4
Teachers are under too much pressure to increase test scores	0	O 2	O 3	O 4
I feel stressed/anxious about increasing test scores	0	O 2	3	O 4

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Some questions from this survey were modified versions of questions from the survery developed by Moon et al. in Moon, T., Callahan, C. & Tomlinson, C. (2003). Effects of state testing programs on elementary schools with high concentrations of student poverty- Good news or bad new? *Current Issues in Education* [Electronic Version], 6(8), 1-25.