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The Impact of a Multifaceted Intervention on student Math and ELA Achievement

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COLLEGE OF EDUCATION

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Abstract

Closing the achievement gaps in mathematics and English language arts (ELA) is an ongoing challenge for most New York City Public school administrators. One New York school experiencing this problem implemented a broad intervention including (a) the Children First Intensive (CFI) program, which includes using data to inform instructional and organizational decision-making; (b) added baseline and post assessments; and (c) differentiated instruction including student conferences. The effects of the intervention had not been evaluated within the context of implementation. The purpose of this quantitative study was to evaluate the impact of the multifaceted learning gaps' intervention on 6th grade student achievement in math and ELA. The framework used in this study was the Halverson, Grigg, Prichett, and Thomas data-driven instructional systems model. The comparative study design used paired *t* tests to examine the change in math and ELA achievement scores on a group of 6th grade students ($N = 26$), before after the intervention. Results indicated significant increases in the test scores of the students, suggesting that students' learning gaps were closed using their assessment results and differentiated instruction within the comprehensive intervention. Results were used to create a professional development handbook on using a multifaceted data-based approach to improve student achievement. Positive social change might occur by providing the local site findings on the outcomes of their approach and additional training on using the approach, which may ultimately improve the academic performance of all students.

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Dedication

To Cecelia Louise Stewart (1917-2009), the love of my life: Your prayers, support and love were not in vain. I love you.

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I would like to first acknowledge God as my Lord and Savior and the head of my life who made all of my success possible. I would like to thank my parents, Annette and Augustus Strachan, for believing in me. Thanks go also to my pastors of the Greater Eternal Light Church of the Apostolic Faith Inc. and friends for praying for me, and for seeing me through my long educational journey.

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Thank you

Table of Contents

Section 1: Introduction to the Study

The Problem

The achievement gap between middle-income White students and racial minority students has existed since the 1960s (Chubb & Loveless, 2002). In 1966, Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966) documented the first student achievement gap with Black students being significantly behind White students academically. In the 1970s, the National Assessment of Educational Progress continued to investigate the learning gap and discovered that the learning gap was wider than first reported in the 1960s, with Black and Hispanic students averaging four years behind their White peers academically (Chubb & Loveless, 2002). In the preceding years, results from state schools and testing programs began to show the gap widening even further between Black and White students (Murphy, 2009; Paige & Witty, 2009; Williams, 2003). As the learning gap between Black students and White students expanded, scholars began to debate the causes of the achievement gap and ultimately diversified its definition (Murphy, 2009).

Definitions of the achievement gap have varied over the last 40 years (Murphy, 2009). Olszewski-Kubilliu (2006) defined the achievement gap of students as the difference between the academic performance of students of poverty to that of wealthier students and the difference between racial minority students and their White peers. Tyson (2002) characterized the gap as the result of negative attitudes by minority students toward learning. Ferguson (1998) and Sadovnik, O'Day, Bohrnstedt, and Borman (2013) hypothesized that defining the learning gap is associated with teachers who received low competency test scores in their subject area of teaching and who are inadequately trained.

Jencks and Phillips (2011) categorized the achievement gap as a lack of structural foundation of the family and school settings of students based on the educational level of the parents within each household and their occupation. Bol and Berry (2005) further theorized that the achievement gap stemmed from factors such as "socioeconomic status, school policies, allocation of human and material resources, and classroom instructional practices" (p. 32). Attempts to resolve the learning gap have become difficult because of the various interpretations and definitions.

Because of the diverse interpretations and concepts of what is the learning gap, no specific definition or universal precedent on how to effectively close the achievement gap among students exists. According to Dwyer (2013), it is difficult to address the topic of the achievement gap without defining it because "the gap itself is defined in different ways" (p. 60). To commence my quest on how to close the learning gap of students, I utilized the definition used by the school within this study. According to Hill (2011), to combat the achievement gap we must first define it. For this study, O'Reilly's (2008) definition, a "disparity in academic performance between groups of students" (p. 22) served as the premise for defining the learning gaps. The school principal used this definition when focusing on the educational performance of students. This definition helped me to focus this study on the academic performance of students. I used the school's practices of evaluating student's academic performance through their assessment data to gain insight into the specifics of their learning gaps in math and English language arts.

My goals in this study was to examine the effects of using student's assessment results to identify their academic weakness to close their learning gaps in math and

English language arts and to investigate the effectiveness of differentiating classroom instruction based on the weaknesses to improve student learning. The middle school, chosen for this study, hereafter referred to as the study school site, sustained low standardized test scores, poor Annual Yearly Progress status, and declining student proficient levels. The effectiveness of the inquiry practices used by staff at the study school site to close the learning disparities of its students in mathematics and ELA was closely monitored along with the assessment data of the student population. Practices used by staff at the study school site were based on the New York City Department of Children First Intensive model, which was created to close the learning gaps between students as well as inform and improve teachers' classroom instruction and students' learning outcomes (New York City Department of Education, 2008a). The theoretical concepts of Johnson (2002) and the researched of Halverson, Grigg, Prichett, and Thomas (2005) were also implemented within the study school site's inquiry practices by the teachers and school administrative staff to promote a successful, data-driven community.

The Local Problem

Definition of the Problem

Closing the student achievement gap has been an ongoing problem throughout the United States since the 1960s. Hargrove (2011) and Walton and Rockoff (2009) found recorded evidence of the expanding gap in student achievement between low-income, racial minority students and middle-income White students in the United States dating from 1966. Although there have been countless documentation and extensive school reform efforts during the last four decades designed to close or narrow students' learning

gaps, the 21st century began with continuing gaps in academic achievement between different groups of students (Editorial Projects in Education Research Center, 2011).

In 2007, the New York City Board of Education began to ratify the necessary protocols to close students' learning gaps by creating school-based inquiry teams (New York City Department of Education, 2008a). These teams helped to increase student performance using students' assessment data (Love, 2008; New York City Department of Education, 2008a). To provide additional support to inquiry teams and help teachers improve student outcomes, the New York City Board of Education Accountability Division administrators provided support to schools by training principal-selected individuals to become school-based data specialist. Data specialists were responsible for maintaining accurate data within schools as well as creating a system of data accountability for school communities to improve student learning (New York City Department of Education, 2008a; New York City Department of Education, 2008b). The task of the inquiry team and data specialist was to use students' assessment data as a tool to improve learning by creating differentiated classroom instruction that meet the academic needs of each student (New York City Department of Education, 2008a).

The practice of using data from student assessments to help close their learning gaps was an innovative concept for the teachers at the study school site. Most of the teachers were first year teachers with no experience in using student's data to close their learning gaps. Through conferencing with the school's data specialists and administrators, they discovered that veteran teachers were unfamiliar with how to effectively analyze student's assessment data to pin point their academic weaknesses (L. Brady, personal communication, December 10, 2012). As the mathematics and ELA data

specialist and inquiry members discussed the ineffectiveness of how teachers were using student's data, they realized that the teacher's inefficiency was also affecting student's test scores. While analyzing the 2012 New York State mathematics and ELA results of students, the school administrators and data specialist discovered that the Level 1 and low Level 2 sixth-grade students were considerably deficient in basic mathematics and ELA skills.

Using the Achievement Reporting and Innovation System (New York City Department of Education, 2012) of the New City Department of Education, the data specialist and inquiry team members discovered that the students were performing poorly on assessments. The inquiry team members and data specialist discovered that 50% or more of the 87 sixth-grade students lacked the basic skills in the following areas: estimating percentage, explaining equations, interpreting graphs, plotting points, solving equations, solving proportions, and solving integers on a number line (New York City Department of Education, 2012). In ELA over 50% of the students were unable to identify the main theme of a story, determine the meaning of words in a story, analyze sentences, compare and contrast the author's point of view, and cite textual evidence to support the meaning of a text. Based on the standardized assessment results the school gave each student a math and ELA baseline assessment to confirm their findings.

The beginning-of-the-year 2012 mathematics' baseline assessment results showed 74% of the sixth-grade population struggled with solving ratios and did not know how to describe a ratio relationship between two quantities. In addition, 62% of the students could not fluently add, subtract, multiply, or divide multiple-digit decimals using an algorithm format. For ELA, 54% of the students were unable to determine the theme or

central idea of a text. Furthermore, 83% of the students could not describe the plot of a story, the author's development of a point of view in a story, or how the characters of a story responded to change. The new Common Core mathematics and ELA standardized exams implemented in 2013 would also test the same skills that these students failed to master on the 2012 standardized assessments Both the 2012 standardized and baseline assessments indicated that the students needed additional support on specific skills and standards (I. Nadal, personal communication, December 10, 2012).

Closing the learning gap of students became a major focus for entire study school site community (New York City Department of Education, 2012). Based on the school's baseline assessments and data analysis, the inquiry team members and data specialist predicted that the sixth graders would perform the worst on the upcoming 2013 mathematics and ELA standardized assessments. According to the 2011-2012 ELA assessment results, the sixth graders performed below standard on 16 of the 17 ELA Common Core Learning Standards (CCLS) that would be tested on the 2013 standardized assessments. The sixth-grade students also performed below standard on 17 of the 19 CCLS in mathematics skills tested on the 2013 standardized mathematics test.

My observations of various meetings and conferences between staff and administrators confirmed the overall concern regarding student performance and the task of closing students' learning gaps. It was clear that improvement in the performance level of each student was necessary. The study school site's principal implemented strategic, systematic plans to restructure the school's protocols so that the focus centered on effective in-class instruction and student learning (I. Nadal, personal communication, December 10, 2012).

The school restructuring began with the usage of the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), the theoretical concepts of Johnson (2002), and the theories of Halverson, Grigg, Prichett, (2005). These theoretical models had a common theory that the assessment data of students was the key in identifying students learning gaps in order to provide them with the differentiated instruction needed to close their gaps in learning. The focus of the study school site restructuring of its school protocol not only began with implementing these theoretical changes within their school community but also creating effective practices that would close or narrow the learning gaps of its students. In the 2010- 2012, the New York City Quality Reviews of the study school site resulted in the school receiving two C's and an F (New York City Department of Education Quality Review Report, 2011,2012). The underachievement of the students at the beginning of this study and the Quality Reviews of the study school site indicated that improvement was necessary by the students, administration, and teachers in order for students' learning gaps to be close and the improvement of student's test scores.

Evidence of the Problem at the Local Level

Indications of the Problem through Standardized Assessments

At the start of the 2012-2013 school year, the mathematics and ELA data specialist analyzed and discussed the previous year's New York State standardized assessment scores of each student with the school administrators and the mathematics and ELA teachers. A careful review of the students' scores showed insignificant improvements in the areas of mathematics and ELA. This finding led the data specialist to look at the standardized assessment results for

each student from two years prior. That analysis revealed that the Level 1 students made insignificant improvement on their standardized assessments scores for both mathematics and ELA (L. Brady, personal communication, December 11, 2012).

Analyzing the mathematical data results taken from the Achievement Reporting and Innovation System (ARIS) database revealed that from 2008 to 2012 there was a 26% increase of Level 1 students, a 14 % increase in Level 2 students, a 38% decrease in Level 3 students, and a 2% decrease in Level 4 students. In ELA, there was a 20% increase in Level 1 students, a 24% increase in Level 2 students, and a 44% decrease in Level 3 students. From 2008 through 2010 and 2011-2012 there was a 1% decrease in Level 4 students with 0 Level 4 students reported in 2010-2011 (New York City Department of Education, 2013). The data also showed that the school received a 3.3 out of 17 on its recent Progress Report Card for its in effectiveness in closing the achievement gap of its students.

Based on the ARIS (New York City Department of Education, 2013) findings, the data specialist, teachers, and administrative staff created and conducted preliminary assessments to further validate their findings. The results on all the assessments indicated that the strategies and tools used by the school staff was ineffective in closing the learning gaps of most of its students as well as ineffective in increasing the test scores of students. Because of this information, changes took place to improve the use of students' test scores as well as the method of classroom instruction proposed by the principal based on the student data.

Rationale

Historical Evidence of the Problem

My rational for addressing closing students' learning gaps and improving students test scores was based on the historical data of the study school site's Quality Review and my local district low test scores, unavailable resources, and insufficient training of how to use student's assessment data to close their gaps in learning. Within my school district were various inconclusive resources, practices, and detailed information on how to close students' learning gaps in math and ELA. According to Boykin and Noguera (2011) and Murphy (2009), to understand the frequency of a problem, we must look at the history of the problem in American society.

Commencing with the 1954 Supreme Court's decision in *Brown v. the Board of Education*, the nation's educational system began to slowly provide equity in education for all students (McNeese, 2009). According to Tillman (2008), "Post-Brown desegregation resulted in some improvements in the quality of education" (p. 46). Decades later, the Supreme Court's decision to integrate students and improve equity in schools became a perpetual effect that led to the increase in the achievement gap between racial minority students and their White peers (CQ Researcher, 2009; Ikpa & McGuire, 2009; Johnson, 2002; Kaplan & Owings, 2014; The National Center for Education Statistic, 2001). As the nation's school system began to integrate minority and White students within the same classroom, the achievement gap began to widen (Kaplan & Owings, 2014; The National Center for Education Statistic, 2001). The National Commission on Excellence in Education (1983) reported that the United States' educational system was failing to meet the needs of minority students and held the

nation's school system administrators responsible for the mediocrity of the educational level that minority students were receiving. Their findings sent a message of urgency to improve student learning for minority students in the nation's school systems and provide the proper academic supports for all students. According to Pollock (2007), "Thirty years after the landmark classification of educational goals, a new sense of urgency forced educators into redesigning learning targets" (p. 13). This urgency forced the nation's educational leaders to find solutions to the academic disparities that existed between White and minority students.

With the United States educational system now a national focus, educators rushed to find accountable solutions to the findings of the National Commission on Excellence in Education (Hayes, 2004; William, 2008). According to Skrla and Scheurich (2003), it was the accountability reforms that emerged from the 1983 *Nation at Risk* report that linked the educational crisis to the "inequalities of our society" (p. 189). Some of these inequalities include academic subject exclusion. The authors further stated that, "The achievement gap was perpetuated by the broadening of the curriculum for some students, while narrowing it for others . . ." (p.243). Shannon and Bylsma (2002) agreed that it was the inequality of education received by low-income and racial minority students compared to the greater provision made to White, middle- class students that propagated the achievement gap. They believed that this unfair treatment lead to a disconnection "between students who come from different cultures and family conditions and the traditional school structure and expectations" (p. 9). Subsequently, as variations of the achievement gap emerged, so did the characteristics under various categories such as

race, gender, income, and ethnicity (Haycock, 2001, 2002; Haycock, Jerald, & Huang, 2001; Hill, 2011; Olszewski-Kubilliu, 2006; Shannon & Bylsma, 2002).

A Method of Improvement: The Achievement Gap and No Child Left Behind (NCLB)

The *Nation at Risk* report in 1983, has led the National Commission on Excellence in Education to become the force of improvement of the nation's efficiency in improving equity in education as well as student achievement (Hayes, 2004). With no improvement shown in students' test scores and an increase of the country's student dropout rate, U.S. Department of Education officials and President George W. Bush mandated state and school administrators accountable for the academic decline of students with the adoption of the Achievement Gap and NCLB Act of 2001 (CQ Researcher, 2009; Olivert, 2007, William, 2008). NCLB, signed into law by President George W. Bush in 2002, was designed to operate on the basic assumption that every child, regardless of income, gender, race, ethnicity, or disability can learn and that every child deserves to learn (Olivert, 2007, William, 2008).

The NCLB Act supports the belief of former President George W. Bush that all efforts toward reforming the nation's school system focus on meeting the students' learning needs to improve academic achievement (CQ Researcher, 2009; Olivert, 2007, William, 208). Each state had to meet the federal Department of Education's requirements for academic improvement in order to receive educational funding under NCLB (Fusarelli & Cooper, 2009; Olivert, 2007). According to the New York State Department of Education (2007), each institution governed by the NCLB had to meet the targeted goal of 85% of students passing the math and English language arts standardized

assessments within a given time specified by law. Each state redefined its Adequate Yearly Progress, which included improving student proficiency level on state standardized tests, the schools overall annual performance, the performance level of local education agencies, and the state as a whole. With NCLB in place, school administrators now focused on improving the achievement gap and avoiding the serious consequences of not meeting the performance standards set by the NCLB (William, 2008).

Evidence of the Problem from Professional Literature

Despite the various provisions of NCLB to improve student achievement and close students' learning gaps, data on student achievement did not improve (Kaplan & Owings, 2014; Lee, 2006; National Center for Education Statistics, 2009, 2011; O'Day, Bohrnstedt & Borman, 2013). Instead, state officials shifted the educational focus to assessments as a means to improve and monitor student achievement because of the NCLB mandates. According to Solley (2007),

Tests are not simply what teachers give at the end of the year. They are now attached to high stakes, such as grade retention, admittance into special programs, graduation, admission into college, and whether or not schools remain open and teachers get to keep their jobs. (p. 33)

Solley (2007) believed that standardized testing was no longer about the importance of what students needed to know in order to close the learning gap. Instead, it was now an indicator for school improvement, which pressured school administrators to focus on students' standardized assessment scores and not on meeting the differentiated learning needs of students to close their gaps in learning. According to the National Center for Fair and Open Testing (2007), many teachers and school administrators felt pressured to

raise the scores of students on standardized exams. The pressure of increasing students' standardized assessment scores led many educators to focus their curriculum on test preparation.

With many schools focused on increasing the test scores of students, teachers became overwhelmed with the requirements for preparing students to pass the standardized assessments. According Spina (2011) and Greene and Melton (2007), preparing students for standards-based assessments has become stressful, time consuming, and overwhelming for teachers, placing great stress on students to pass the test and great stress on teachers to base their curriculum on the test. With teachers now "teaching towards" the state exam, students became unmotivated in learning and overwhelmed by the states testing requirements. According to Tomlinson (2000),

> For many teachers, curriculum has become a prescribed set of academic standards, instructional pacing has become a race against a clock to cover the standards, and the sole goal of teaching has been reduced to raising student test scores on a single test … (p. 6)

Teachers were torn between teaching effective curriculum that enforces the basic knowledge of what students needed to learn to close the learning gaps and what the standards outlined for them to teach (Tomlinson, 2000).

With the various struggles of states to meet the mandates from the U.S. Department of Education to improve student proficiency, effective methods for closing or narrowing students' learning gaps were questionable. Many educators questioned the viability of the NCLB Act because it provided no proven methods to reach racial

minority students, poor students, or students with special needs to close the achievement gaps (Armor, 2004). With this in mind, many believed that the NCLB provisions would unsuccessful nationally because the likelihood of schools meeting the NCLB set mandates by 2014 was very low (Linn, 2003; Snowman & McCown 2011; Thernstrom & Thernstrom, 2003).

Although there were increasing attempts to redefine and resolve the learning gaps between groups of students, the disparity in student learning continued to increase. Johnson (2002) stated that despite numerous efforts over the last two decades to close the learning gap, it continues to widen among different group of students. The continuous increase in students' learning gaps existed between students of color and immigrants and their White and Asian American peers (Editorial Projects in Education Research Center, 2011; Haycock, 2001; Johnson, 2002; Murphy, 2009; Schwartz, 2001). Haycock (2001) reported that in 1988 the gap between African American, Whites, and Latinos began to widen. The College Board's National Task Force on Minority Achievement (1999) discovered persistent learning gaps between African Americans, Latinos, Native Americans, Asians, and White students that began as early as elementary school and continue throughout their postsecondary educations for these students. Haycock, Jerald, and Huang (2001) and The National Center for Education Statistic (2001) suggested that before the 1990s some closure in the learning gaps occurred in core subjects for racial minority students; however, during the 1990s, the learning gap began to widen again with some students showing no academic growth.

In further research on the nation's learning gap, Haycock (2001) reported that in the 1990s the gap separating African Americans and Latinos from other students widened

on reading achievement assessments. He also reported that on the mathematics assessments the gap widen in 1992 for Blacks and Latinos in comparison to White peers. Haycock further stated that the learning gap has contributed to the graduation rate of students. He noted in his report that 90% of Whites and 94% of Asians completed high school or earned a GED, while only 71% of African Americans and 63% of Latinos obtained either a GED or a high school diploma. The percentage of students who actually went on to attend college was 76% Whites and 86% Asian students, while African American and Latino students rate of attendance for college was 71%.

Contributing Factors that Led to Choosing the Problem

Although students' learning gaps were evident nationally, various factors could have affected the increase in the educational gap for the students in the study school site. According to researchers, a variety of factors might influence student achievement including the characteristics of a student's school, home, and community (Darling-Hammond, 1995; Goodlad & Keating, 1994; Haycock, 2001; Lee, 1998; Murphy, 2009; Noguera & Akom, 2000; Shannon & Bylsma, 2002; Paige & Witty, 2009; Williams, 2003). Ariza (2002) hypothesized that the learning gap in ELA links to the disparity of the teaching and learning styles in the classroom between teachers and students. Balka, Hull, and Miles (2009) hypothesized that the learning gap in mathematics is predicated on the teachers' lack of content knowledge, failure to identify the mathematics standards, and ineffective curriculum and planning for engaging classroom lessons. Chubb and Loveless (2002) blamed overpopulated classrooms as a contributor to the learning gap in mathematics and ELA. With these theories in mind, the data specialist and school administrators analyzed and observed the routines and structures of the study school site

as well as teacher practices to better understand the effective and ineffective practices within the school.

The study school site's data specialist and school administrators discovered a variety of factors associated with the students' learning gap in mathematics and ELA (L. Brady, personal communication, December 11, 2012). First, teachers lacked the skills to align the school's curriculum to the Common Core Standards. Some teachers created their own curriculum without knowing what learning standards they had to cover to fill students' learning gaps and prepare them for the mathematics and ELA assessments. According to the study school site's New York City Department of Education Quality Review Report (2011), the school lacked a unified structure to help teachers differentiate their instructions and create rigorous learning goals to meet the individual needs of each student.

Without a unified structure, effective curriculum mapping, and the ability to include rigor efficiently into the curriculum, exposure to and use of students' specific leaning needs failed; thus, student learning suffered. According to Johnson (1996), educators must be knowledgeable of their students learning needs. In addition, benchmarking students' test results to identify the areas of improvement was a struggle for most teachers. This struggle occurred because some teachers were unfamiliar with using students' assessment data to compare and measure their students' improvements. Some educators only believed in administering exams and recording the results; subsequently, when instructors failed to track, analyze, and monitor mastery of performance skills, they overlooked and dismissed vital information. An obvious

drawback was the lack of sufficient training given to teachers to assess student data effectively for differentiated instruction. It was evident to the school administrator that effective changes were needed to improve students learning.

Based on data pertaining to the study school site's structure, its protocols, and student performance, the school administrator added strategic implementations to improve the school's learning outcome and close the learning gaps of its students. Utilizing the methodology and theories of the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), the theoretical concepts of Johnson (2002), and the research of Halverson et al. (2005), the school administrators and teaching staff commenced to change its inquiry practices. From their strategic implementations of each methodology, this research served as an assessment tool to gauge the effectiveness of the study school site's practices used to close the learning gaps of its students in mathematics and ELA.

The local problem for this study was that the broad initiative had not been evaluated within the context of implementation. The purpose of this study was to evaluate the impact of the local school site's multifaceted learning gaps intervention on student academic achievement in Math and ELA.

Definitions

The following are terms and definitions were incorporated within this project study.

Acuity. Acuity is a comprehensive assessment database created by McGraw-Hill that allows educators to focus on the strategies that most effectively impact student achievement. The database has customized assessments aligned to the New York State

standards and it mirrors the annual state exams given for each grade ("Acuity: Assessment Focused on Learning," 2007).

Achievement reporting and innovation system (ARIS). A database system that "provides educators with a consolidated view of student learning-related data and tools to collaborate and share knowledge about how to accelerate student learning (New York City Department of Education, 2009, p. 2).

Data reform. According to the U.S. Department of Education (2007), data reform is "The analysis and use of student data and information concerning educational resources and processes to inform planning, resource allocation, student placement, and curriculum and instruction. The practice entails regular data collection and ongoing implementation of a continuous improvement process" (p. 1).

Data instruction. Kiley and Jensen (2007) defined data-driven instruction as instruction that is guided by and responsive to information (data) that we have about students. This information includes what students already know and can do, what critical knowledge or skills the students lack, how easily the students learn how they learn and how they learn most effectively, what the students' interests are, and how students are motivated to engage the process of learning (p. 48).

Data specialist. Data specialist are considered inquiry team members who specifically trained to ensure the accuracy of allocating student data to their learning communities while advocating the importance of using student data in closing students' learning gaps (New York City Department of Education, 2008-2009a).

Differentiated instruction. Instructing students based on their specific learning

styles to accommodate the manner in which they learn best (Magee & Breaux, 2013).

Common Core state standards. Chaucer (2012) described Common Core state standards as standards set by Council of Chief State School Offices and the National Governors Association for Best Practices to accomplish the following:

> Provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy. (p.13)

Individual Educational Plan (IEP*)*. The IEP is the blue print of the special services that a child will receive uniquely designed to meet the specific educational needs of that child (La Venture, 2007).

Inquiry team. Inquiry teams consist of at least three or more individuals including the principal. This team utilizes periodic assessments and ARIS as tools to help make data-driven decision for differentiated instructions as well as utilizes this information to help close the achievement gap of students (New York City Department of Education, 2008a).

Performance level. The performance level on the New York State standardized ELA and mathematics exams reflects the extent to which the student demonstrates the level of understanding expected at his or her grade level. According to Educator Guide: New York City Progress Report Elementary/Middle School (2011-2012), each level has a

scale score and is usually indicated as followed: (a) Level 1 indicates *below* standard--student performance does not demonstrate an understanding of the content expected at this grade level; (b) Level 2 indicates *meets basic* standard-student performance demonstrates a partial understanding of the content expected at this grade level; (c) Level 3 indicates *meets proficiency* standard--student performance demonstrates an understanding of the content expected at this grade level; and (d) Level 4 indicates *exceeds proficiency* standard--student performance demonstrates a thorough understanding of the content expected at this grade level (p. 5).

Proficiency ratings. The New York State mathematics and ELA exams have proficiency ratings on a continuum from 1.00 to 4.50 for New York State Middle Schools. The first digit of the proficiency rating corresponds to the performance level of each student. A proficiency rating of 1.00 corresponds to the lowest score a student in performance Level 1 can attain. A proficiency rating of 1.99 corresponds to the highest score a student can attain and still be at performance Level 1. A proficiency rating of 2.50 corresponds to the midpoint between performance Level 2 and performance Level 3. Similarly, ratings between 2.00 and 3.00 reflect scale scores between the State cut-off scores for performance Levels 2 and 3, and ratings between 3.00 and 4.00 reflect scale scores between the State cut-off scores for performance Levels 3 and 4. Students who exceed the cut-off score for performance Level 4 receive proficiency ratings from 4.01 to 4.50. A proficiency rating of 4.50 corresponds to the highest score attainable on the test (Educator Guide: The New York City Progress Report Elementary/Middle School, 2009).

Standardized testing. Standardized tests are assessment tools used to give a measure of students' performance level as well as performance indicators for educators in

assessing the skills and abilities of students (Bagin & Rudner, 2004).

Student performance. The student performance scale is based on 25 points of a school's overall score of the number of students who have reached proficiency in ELA and mathematics on a school's progress report. It also measures the number of students who have successfully passed the core subject classes of mathematics, English, science, and social studies (Educator Guide: The New York City Progress Report Elementary/Middle School, 2011-2012).

Student progress. The student progress indicator is 60 points of a school's overall progress report card score. It measures the learning proficiency of students and monitors the individual growth of students on the New York State ELA and mathematics exams using growth percentiles. This measure is based on the academic knowledge that students have developed because of their attending school during that academic school year (Educator Guide: The New York City Progress Report Elementary/Middle School, 2011-2012).

Scale score. According to the New York City Department of Education Guide to Understanding Your Students' Predictive Assessment Report (2008-2009b), the scale score is the level of achievement used to show the growth within and across years of students.

Students in a school's lowest third. Students in a school's lowest third are students who scored the lowest on the New York State ELA or mathematics exam in May 2011. (Educator Guide: The New York City Progress Report Elementary/Middle School, 201-2012).

Students in the lowest third citywide. Students in the lowest third citywide are

those students who scored the lowest on the New York State ELA and mathematics exam in May 2011 citywide. Each grade level has a predetermined lowest third cutoff. The following are the cutoff scores by grade levels for mathematics and ELA: Grade 6 mathematics cut-off score is 2.79 and ELA cut-off score is 2.44; Grade 7 cut-off score for mathematics is 2.74 and for ELA, the cut off score is 2.48; and Grade 8 cut-off score is 2.69 in mathematics and 2.47 in ELA (Educator Guide: The New York City Progress Report Elementary/Middle School, 2011-2012).

Significance

Local Significance of Closing the Learning Gap

Closing students' learning gaps was a significant goal for the members of the study school site. If the mathematics and English language art teachers and data specialist were able to close the learning gaps of the students in this study, the academic improvements of their performance levels would indicate possible improvements throughout the entire school community. According to Hughes and Vass (2001), "Closing the learning gap is central to genuine and sustainable school improvement" (p. 16). Hughes (1999) believed that closing the learning gap is the foundation of school improvement and that it is the key for educators to improve on the quality of teaching as well as understanding the learning process of students. Other theorists believed that closing the learning gap will motivate teachers to buy into the beliefs and attitudes that students can learn and thereby motivate them to become better teachers (Armstrong & Anthes, 2001; Bambrick-Santoyo, 2008; Hall & McEwain, 2007; Johnson, 2002; Stiggins & Chappuis, 2005; Williams, 2003).

For the study school site, closing the learning gap of its students was essential. If

the school's teachers were successful with their inquiry practices then this would allow the school to improve upon its Annual Progress Report Card grade of an F. Improvement on the Annual Report Card would indicate improvement of students' performance in mathematics and ELA, which means the effectiveness and productivity of its teachers toward student learning improved. This would also emphasize the school leadership's ability to create an operative data-driven community. Closing the learning gaps would therefore be an indicator to the New York State Department of Education that the school has met the two main elements of the Annual Progress Report, which are improving student performance and improving the progress of its students (Educator Guide: The New York City Progress Report Elementary/Middle School, 2009).

If the school administrators and staff were able to maintain a successful data-driven learning environment, then they would be able to establish its effectiveness in creating classroom environments conducive to learning. With an effective and affective data-driven community, the Quality Review Score of the study school site would then increase, lessening the possibility of the school closing, receiving new leadership, or undergoing restructuring by the New York State Department of Education (Educator Guide: The New York City Progress Report Elementary/Middle School, 2012).

The Larger Significance of Closing the Learning Gap

The significance of the closing the learning gap affects not only the nation's school system but also the economic factors of this country. According to Stevenson and Stigler (1994) and the Organization for Economic Cooperation and Development (OECD; 2010), hiring poorly educated workers affects U.S. productivity and its economic status with other nations as the labor market as unskilled and uneducated

workers inundate the workforce. The OECD indicated that, "countries depend upon a stable supply of well-educated workers to promote economic development" (p. 40). Lacking a stable supply of well-educated workers will cause a tremendous cost on society and the nation's economy through increasing impediments of workers performance and productivity (Murphy, 2009; Schwartz, 2001). Miller (1995) contended if the learning gap continues to widen, then all nations and in particular, the United States face (a) lower standards of living, (b) increased social conflict, (c) a decline in world-market competition, and (d) a faltering domestic economy. Thernstrom and Thernstrom (2003) believed that mending the learning gap could also mend the racial gap in education and provide racial equality for all. They believed that "students who have equal skills and knowledge will have roughly equal earnings." (p. 2). Addressing the learning gap must begin at the school level by reducing the test score gaps of students to produce positive economic and social change (Murphy, 2009).

The results of this study could lead to significant academic and social advances for school communities in their efforts to decrease the achievement gap of students and improve social change. According to researchers Armstrong and Anthes (2001), the process of using student data as a tool to guide and improve learning outcomes has shown a 1 to 13% improvement in student's assessment results. Decker (2003) also reported an increase in student achievement on classroom assessments using students' assessment results. Armstrong and Anthes (2001), Chubb and Loveless (2002), Halverson et al. (2005), Kozioff, LaNunziata, Cowardin, and Bessellieu (2000), Timperley and Parr (2007), and Williams (2003), all reported an increase in scores on standardized assessments (e.g., mathematics or reading) when using the existing data to support

specific instruction needed to close students' learning gaps. Bambrick-Santoyo (2010), Kelly and Shaw (2009), and Williams (2003) discovered that school communities that were able to close students' learning gaps produced prosperous learning environments where students thrived academically and behaved positively. Stringfield (2004) posited that closing the learning gap has improved teacher instruction and increased students' learning and achievement. Peterson (2006) associated closing the learning gap of students with increased parental involvement.

Economic and Social Significance of Closing the Achievement Gap

Closing students' learning gaps transcends the academic setting and directly shapes the caliber of workers and stimulates growth in the nation's economy. Arrow, Bowles, and Durlauf's (2000) research delineated that those who received effective schooling were more successful in their careers as highly skilled workers. Workers who are educated receive higher wages that lead to a more productive work environment while imposing positive growth in the economy. They also suggested that workers who are uneducated were less likely to spend or receive higher earnings than those who were educated. Becker and Lewis (1993) believed that education is the key to the economic health of the nation. They suggested that providing the best possible education for students contributes to the enhancement of labor productivity, which in turn, promotes growth in our national income. Stevenson and Stigler (1994) found that when government agencies invest in the students then the future of the nation's economy is more productive. According to the National Center for Public Policy and Higher Education (2005), there is a negative demographic projection of the nation's workforce because of the disparities among racial ethnic groups, in terms of educational levels, that

will affect the nation's workforce as a whole. The report concluded that the "drop in level of education completed would in turn result in a decrease in personal income per capita among Americans" (p. 5).

Schools are a medium for social change in education. According to Johnson (2002),

> Schools are socializing agencies for both educators and students, and the content and context of that socialization are very powerful. As a result of a series of educational practices, educational outcomes are affected. When practices are manifested in low expectations, low-level curricula, and essentially low-level instructional strategies for low-income children, low achievement is the outcome. (p. 9)

Sadovnik et al. (2013) and Shannon and Bylsma (2002) theorized that the catalyst for closing the achievement gap required the involvement of parents in their children's education. The authors suggested that by changing the attitudes and beliefs of teachers, parents, and students the value of education will be celebrated thereby creating a more conducive environment for learning. Haycock (2001) proposed that community involvement is the social key to make positive changes in the achievement gap between student groups. The author suggested that through a positive perspective of the general community and parental involvement students will believe more in themselves and improve in their academic proficiency levels.

Based on the local significance of this study and the broader influence of the outcomes, the research results could aid in accomplishing the following for all learning communities: (a) narrow or close students' learning gaps in mathematics and ELA; (b)

increase the state assessments scores of students in mathematics and ELA; (c) assist teachers in writing and implementing instructional plans for the specific needs of each student through differentiated instruction; (d) help monitor, report, and evaluate the progress and performance of each student as well as the school's learning environment; (e) aid teachers in using differentiated instruction to meet the needs of each learner; and (f) establish uniform data-driven practices for closing students' learning gaps. The results of this study could motivate and inspire teachers to use student assessment data to improve students' performance outcome as well as contribute to other scholarly research related to this topic.

Research Question

In order to evaluate the impact of the local school site's comprehensive learning gaps intervention on student academic achievement in math and ELA, the follow research questions guided the study.

RQ: What is the impact of the local school site's multifaceted learning gaps intervention on student academic achievement in math and ELA?

Review of Literature

Introduction

Closing students' learning gaps has been an ongoing process for schools within the United States. With the various implementations of processes, resources, and practices, to close students' learning gaps, students are still failing (The National Center for Education Statistic, 2001). With the increase of students failing in our nation's school system, there are still insufficient resources and effective practices on how to effectively close their learning gaps (Pollock, 2007; Williams, 2003). To further explore this

problem the academic resources of Walden University's library, Iona College's research library, the New York City Department of Education publications, and the New York City Public library were used to investigate this problem from and local and national perspective. Research databases such as ProQuest, ERIC, Google Scholar, recent published books, articles, and scholarly works were also used to review the various literature that addresses the topic of this study and were used to justify the theoretical frameworks implemented.

The theoretical framework used to address the problem came from the New York City Department of Education (2008a): *Children First Intensive Inquiry Team Handbook*, which identifies the specific skill that causes students to struggle; the conceptual practices of Johnson (2002) who uses the assessment results of students to identify their learning gaps; and the data-driven instructional design system (DDIS) approach used by Halverson, Grigg, Prichett, and Thomas (2005) that focuses on analyzing students' assessment data for instructional practices, planning and goal setting.

Review of the Problem

Meeting the academic needs in a diverse learning environment of differentiated learners is a challenge that principals and educators have to deal with in closing the learning gap of students. With various opinions and theories on how to close the learning gap, educators are without unified concrete methods on how to narrow or close the learning gaps of their students effectively. For the last two decades, policymakers and educators have been without consistency when applying what actually works to close or narrow the achievement gap. The limited provisions, resources, and knowledge on how to improve student achievement produced fragmented strategies, proposals, and programs

used by policymakers, school district administrators, and communities that were unable to identify and address the variables that affect the socioeconomic, racial, and ethnic-group differences in academic achievement (Williams, 2003). According to Johnson (2002),

> Public education is currently in an era of accountability, high-stakes standardized testing, and standards-based reform. However, there is an absence of meaningful discussion how to achieve equitable outcome that do not unfairly penalize the most undeserved students. Despite countless school reform efforts during the last two decades of the 20th century, we begin the 21st century with continuing gaps in academic achievement among different groups of students. (p. 4)

With the lack of consistent resources and knowledge about how to close students' learning gaps, many school leaders will continue to use fragmented strategies until they can conclusively close students' learning gaps.

Theoretical Framework of Study

There were three theoretical practices used to guide the methodology of this study. The practices utilized for this research included the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), the theoretical concepts of Johnson (2002), and the researched assertion of Halverson et al. (2005). The premise for this research was that of The New York City Department of Education (2008a): to use the *Children First Intensive Inquiry Team Handbook*, which uses the scaffold apprentice model (SAM). According to Scharff, DeAngelis, and Talbert (2010), the principles of the SAM program are for school-created micro groups, "to identify and close specific skill gaps for struggling students, understand how school wide

learning conditions allowed those gaps to persist, and make strategic improvements to school wide learning conditions that will benefit all students" (p. 2). This method applies feasible and appropriate school-based implementations to engage student learning and close their gaps in learning. Johnson (2002) believed that the learning gap of students could close by utilizing student assessment data to identify the areas in need of improvement for students. The author theorized that by analyzing student data educators are better able to make effective decisions to meet the individual learning styles of each student touching upon the elements that affects student achievement.

Researchers Halverson et al. (2005) believed the process of analyzing student data allows research teams to code common mistakes discovered in students' assessments, and therefore, allow them to align the mistakes discovered to state standards and redesign similar questions for classroom instructions and future assessments. By analyzing the implementation of the three theoretical designs of the inquiry practices used at the study school site, I was able evaluate if the assessment data of students and differentiating classroom instruction could close students' learning gaps in mathematics and ELA.

Justification of Theoretical Concept and Local Problem

Over the past 4 years, data reform has become the main focus of educational leaders in the New York City public schools to close the learning gap. Mandated by the NCLB Act 2001, school leaders are reforming their learning communities to become more data-driven (Teachers' Use of Student Data Systems to Improve Instruction, 2007, p. 1). With the mandate regulated by NCLB, the New York City Department of Education has implemented school-based inquiry teams to aid in closing the learning gap

of students through data-reform practices. Through the Children First Intensive program, New York City public school educational leaders are utilizing school-based inquiry specialist and teachers to close or narrow students' learning gaps. Modeled after the SAM, the purpose of inquiry teams are for educators to look closely at the practices that are not working for particular children, make the strategic changes needed using student assessment data, evaluate the impact of that change, and then use what was learned to close the achievement gaps of those students. These reform practices are individualized, applicable, and directed and implemented based on the goals and set directives of each school (New York City Department of Education, 2008a).

The premise of an effective data-driven community is for teachers and school leaders to become knowledgeable of student data in order to close the learning gap. Using the theoretical framework of the Children First Intensive inquiry program (New York City Department of Education, 2008a), the conceptual framework of Johnson (2002), and that of Halverson et al. (2005), geared educators to become more knowledgeable of the specific learning needs of students and provided students with classroom instructions that addressed their learning needs and different styles of learning. According to Hawley and Valli (2007), "Knowing the needs of the students gives teachers information to modify the teaching and learning activities in which students are engaged in order to differentiate and focus on how individual students approach learning" (p. 90). Magee and Breaux (2013) and Hamm and Adams (2012) believed that differentiate instruction helps teachers to create procedures that will improve student learning by helping teachers to understand the concepts and processes that students do not comprehend during classroom instructional time. Scharff, DeAngelis, and Talbert (2010) posited that studying the

"system through the lens of students whom it is not working clarifies which decision leads to patterns in curriculum and instruction that consistently fail to meet the specific students' needs" (p. 2). By creating a data-driven community based on the theoretical concepts presented, the study school site educators aspired to implement effective data-reform practices in mathematics and ELA as a means to close the learning gaps of its students.

Justification for Using Data Reform and Inquiry Practices

Ongoing changes to NCLB exist to improve student learning and close the achievement gaps but no one proven methodology seems to work nationally that meets the needs of all students (Armor, 2004). In a goal setting society where expectations must be met to improve student learning and meet the expectation set by NCLB a system of inquiry must be created (Johnson, 2002). According to Armstrong and Anthes (2001), data reform begins through inquiry. William (2003) believed reform to improve student learning begins once the school and district personnel and the community recognizes the need for change and the necessity of data to drive the process of reform. The commencement of these stakeholders using data-driven reform practices will then increase the involvement of teachers to use and analyze data in their instructional practices.

The inquiry process of data reform is essential to enhancing student learning. Through the inquiry process, many schools are able to evaluate their reform practices and address questions that arise to close the learning gap. According to Bambrick-Santoyo (2008), educators form key questions needed to help identify and understand the deficiencies in classroom instructions after analyzing student data. The inquiry process

aids teachers in narrowing down the scope of what to emphasize in their teaching and allows teachers to make more effective action plans in helping students in their areas of deficiency. The author also suggested that by having teachers analyze students' assessments, they are able to determine where students have erred in their understanding of a particular concept taught and then re-teach that concept. This process encourages teachers to use student data in their instructions. Halverson et al. (2005) and Sindelar (2011) concurred that the process of analyzing student data is imperative in assessing the needed areas of academic improvements of students in order to improve their levels of achievement.

Diverse Theories on Closing the Learning Gaps

Despite several decades of limited success in closing or narrowing the learning gap, some theorists believe that narrowing or closing the achievement gaps of students is possible. William (2003) believed high expectations for students, cultural congruence in classroom instruction, culturally inclusive curriculum, knowledgeable teachers, and appropriate instruction will aid in narrowing the achievement gap. Olszewski-Kubilliu (2006) suggested creating early intervention programs to help minority students learn specific skills to enhance their success. McCall, Hauser, Cronin, Kingsbury, and Houser (2006) believed that to close the learning gap is an allocated responsibility among families, communities, government agencies, and schools; including all of the stakeholders is the only way the gap will be closed. Jencks and Phillips (2011) suggested smaller class sizes to close the learning gap and increase test scores. Ferguson (1998) believed that by only allowing qualified teachers to educate students that the learning gap would begin to narrow. Bambrick-Santoyo (2010), Popham (2010), Sindelar (2011), and

Stiggins and Chappuis (2005), theorized that using classroom assessments for classroom instructions would aid in bridging the learning gap. Johnson (2002) recommended standards-based reform and continuous usage of student data by inquiry teams to produce student achievement and close the learning gap. These theorists believed that it is possible to close students' learning gaps; however, the varying ways to close the learning gaps left educators and school leaders using multiple data-reform practices to bridge their students' learning.

Over decades, theorists and educators employed various possible solutions to close students' learning gaps. Many educational institutions implemented best-fit strategies within their learning communities to close the learning gap. According to Huges and Vass (2001), as learning evolves the strategies to improve student learning must also evolve to meet the needs of students learning abilities; therefore, creating strategies to meet the needs of each student will enhance learning. With the responsibilities of school leaders to implement data practices that best fit the needs of their students, the specifications of what practices really work became vague to many educators and school leaders.

Implications

The goal of this project study was to assess if using students' mathematics and ELA assessment scores and differentiated instruction could close students' learning gaps. Based on the results of this study, I discovered that using the pre and post assessment data of students and differentiating instruction could close their learning gaps and improve their assessment results. The results of this study influence the local problem of the study school site because it validates that the practices utilized by the school were

effective in increasing students test scores and closing or narrowing students' learning gaps. The results of this study also confirm that the project manifested out of this study could be effective in closing or narrowing students' learning gaps.

The results of this study posed many possible implications. One implication that could derive from the project study might be to provide key insight to school administrators and educators on how to address the specific areas in mathematics and ELA that students struggled with on standardized assessments. Bambrick-Santoyo (2008), Popham (2010), and Sindelar (2011), believed that when teachers analyze student's errors on assessments they are able to address those errors within their classroom instructions. The results of this study may also provide educators with insight on the effectiveness of using student data to differentiate classroom instruction to meet the specific learning needs of students and improve students' learning outcomes. According to Magee and Adams (2012) and Tomlinson and Mc Tighe (2006), differentiated instruction enables teachers to focus their classroom instructions to meet the individual needs of each student and to improve learning outcomes. An additional implication of this study could be the usage of the inquiry strategies implemented within this study by other school communities to support and provide the necessary professional development needed for their current and future educators. Most important, the project could also aid in establishing a practicum for school principals to align their academic resources to the needs and proficiency level of each student in order to support the academic growth of students.

Summary of Section 1

Section 1 addresses the local problem of this study and the many scholarly

writings and theories researched pertaining to the causes, effects, and solutions of closing students' learning gaps. The scope of literature review of this section entails the concerns of educators regarding how to close students' learning gaps and the inconclusive results of what practices and methodologies actually work. The literature review also emphasizes the problem faced by educators to implement effective practices to close the learning gaps of student. This section ties into the research questions of using student's assessment data and differentiating classroom instruction as a possible solution to closing students' learning gaps in mathematics and ELA and warranted a need for positive and concise results.

Section 2, covers the validity of the framework and methodology of this study. Section 3 consists of the descriptive part of the project of this study along with the goals and in-depth literature review of the strategies implemented with the project. Section 4 reflects upon the strengths, weakness, and limitation of the project. It also includes the implications, applications, and future prospective of the project in closing students' learning gaps.

Section 2: Quantitative Study

Research Design and Approach

The quantitative focus of this study was to validate if using the assessment data of students could close their learning gap in math and English language arts, utilizing the data reform concepts of Johnson (2002) and the researched of Halverson, Grigg, Prichett, and Thomas (2005). This study employed a comparative, within-group design to examine the impact or change from before the multifaceted intervention to after. The quantitative design allowed for the investigation on the impact of the local school site's multifaceted learning gaps intervention on student academic achievement in Math and ELA. According to Boswell and Cannon (2014) the quantitative design is important when using numeric evidence to improve or validate existing practices. The systematic approach of the quantitative design allow researchers to analyze the significance difference between the pre and post treatment values within a single testing group and confirms or disconfirms the validity of interventions used within a study (Creswell, 2013). I chose this comparative quantitative method because it's the most direct approach that will allow me to address the effectiveness of the school site's intervention practices as well as compare and evaluate the academic performance of the low performing students within this study using a within-group design (Boswell & Cannon, 2014; Creswell, 2013).

Justification of Design and Design Derivation from the Problem

The quantitative design for this study began with the students' 2012 standardized assessment data. To verify the 2012 assessment results, the study school site's data specialist and teachers created baseline assessments to identify any correlation between the baseline assessment results and the 2012 standardized assessment results. Pre and

post assessments were then implemented per academic unit which provided insight into where students' learning gaps existed. The quantitative data gave me insight into the effectiveness of the inquiry practices put in place by the study school site administrators to close the learning gaps of each student. Based on the results of the quantitative data I was able to confirm the identification of the academic weakness of each student and evaluate if the differentiated instruction provided, based on their weaknesses, was effective in closing their learning gaps. Analyzing the quantitative data also allowed me to look deeper into specific areas where each student struggled and needed additional support in mathematics and ELA. The within-group design allowed for the examination of growth from the baseline assessments to the post intervention assessments. A single group of sixth-grade students served as the sample, and the outcomes were evaluated using a paired sample and a within-group design approach.

Setting and Sample

Sample Population

The study school site is a Title 1, intermediate middle school servicing Grades 6 through 8 in the Bronx, New York. In its sixth year of servicing students, the school's student population consists of 301 students. Student demographics includes 34% Blacks, 62% Hispanics, 1% Whites, and 3% Native Hawaiian or other Pacific Islander, and 2% Asian. Data show 7% of the students are English language learners (ELL) and 25% have IEPs. The student population comprises 55% boys and 45% girls with a 90% attendance rate (New York City Department of Education, 2013).

Sampling Method

The students were selected by simple random sampling from a pool of students who scored in the low bottom third of the school's population with an attendance record of 85% or greater, and received a Level 1 or a low Level 2 on the 2012 New York State mathematics or ELA standardized assessment or both. A simple random sample is defined as a sample in which every member of the population has an equal chance of being chosen (Gravetter & Wallnau, 2008). It is the simplest form of sampling to deal with mathematically (Pearson, 2010). Johnson and Christensen (2007) believed the random sample method allowed each individual in the population to be represented within the sample.

Sample Size

The sample size selection of this study was a random sample of the study school site's sixth grade student population. The sample size consisted of 26 sixth-grade students. The 26 students chosen, had an attendance records of 85% or greater with performing at a Level 1 or a low Level 2 on the 2012 New York State math or English language arts standardized assessment or both (New York City Department of Education 2013). The sample size selection of 26 sixth grade students and the selection criteria was based on the study school site's inquiry requirements of a subgroup selection of 15-30 students. The 26 students of this subgroup was selected by School XY Z's data specialist based on their standardized and school base assessment scores, attendance, and the performance levels of each.

Eligibility Criteria of the Sample

The student criteria selection for this study consisted of sixth-grade students who

scored in the low bottom third of the school site's population, whose attendance record was 85% or greater, and who received a Level 1 or a low Level 2 on the New York State mathematics or ELA standardized assessment or both. A selection criteria was chosen for this study to address the research questions posed and to eliminate the arrayed of data provided from the school's student population. According to Hulley, Cummings, Browner, Grady, and Newman (2011) using a selection criteria allows researchers to find subjects that will address the research question rather than address the overall population. The authors claim that it also minimizes the researcher from being bias.

The student selected were considered low performing students compared to that of their peers. According to their performance levels and proficient rating they performed academically below their current grade level compared to that of their peers and were considered unknowledgeable or borderline knowledgeable of the content taught. According to The Educator Guide: New York City Progress Report Elementary/Middle School (2009), the performance level of New York City students is measured by a scale score that demonstrates the level of understanding that each student has based on his or her grade level. A performance Level 1 indicates that a student does not demonstrate an understanding of the content expected at his or her grade level and does not meet the learning standards set for that current grade level. Student selected for this study were therefore categorized as performing below grade level and were unable to understand the content taught at the grade level that they were currently in.

A proficient rating was used to assess the eligibility criteria of each student with in this study. A proficient rating was the level of performance of each student. According to Rosenberg (2004), "*Proficient* is essentially a cut score . . . on a test" (p. 4). The

proficient rating of 1.99 corresponds to the highest score a student can attain and still be at performance Level 1.The proficient rating of 1.00 corresponds to the lowest score a student at a performance Level 1 can attain. The students were identified as part of the lowest bottom third of the population for mathematics and ELA based on the previous New York State exam. These data were supplied by the New York State Board of Education and published on the New York City Board of Education ARIS database (The Educator Guide: New York City Progress Report Elementary/Middle School, 2009). Each student was expected to receive a proficient Level 2 or above on his or her mathematics and ELA standardized assessments to be considered knowledgeable of the content areas taught during the school year. Student chosen for this study were considered unknowledgeable or not academically at their grade level of the content taught and would need additional support using the inquiry practices specified by the school site's practices.

Identifying and selecting the number of students for this study depended on attendance, performance level, teacher's accurate use of the school's inquiry process, and the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a) guidelines, which recommend that each school maintains small groups of 15 to 30 students to focus on the needs of each child.

The framework of the Children First Intensive model was used for this study as well as the inquiry practices of the teachers at the study site. As a guide for this research, the New York Children First Intensive model required a small focus group that consisted of 15-30 students (New York City Department of Education, 2008a). To maintain a focus group of 15-30 students, the data specialist created a subgroup of students based on the

cooperation and assessment calendars of each mathematics and ELA teacher, the criteria for participation of this study, and the 2012 standardized and baseline results of each student.

The students who part took in this study were identified and selected by the school's data specialist and were anonymous to me as the researcher. All data gathered from the students were coded and identified as Student 1, Student 2, Student 3, etc. The practices of this study supported the school's routine structure and did not interfere with the daily procedures of the school.

The data specialist and school aide assisted me by retrieving all data analysis related to this research and removed all identifiers from the data produced for retrieval and analysis during this study.

I met with the study school site's principal, data specialist, and school aide to inform them of expectations, goals of this research, the purpose of this study, and their rights as participants in this study and as members of the school community. Under the Health and Human Service Policy of Human Research Subject, the principal received the contact information from the Committee Chair member and the Director of the Research Center at Walden University. The criteria and procedures of this study followed the regular curriculum, policies, and procedures set forth by the study school site.

Characteristics of Sample

The sample for this study consisted of 26 underperforming students who scored at a performance Level 1 or a low Level 2 on the New York State mathematics or ELA standardized assessment or both. These student were listed in the school's bottom third and could not function on their grade level academically. Of the sample group, 15

students scored a Level 1 on the ELA standardized exam and 7 scored a low Level 2. On the standardized mathematics exam, 8 students scored a Level 1 and 4 students scored a low Level 2. In mathematics and ELA, 8 students failed both the ELA and Mathematics standardized exam. All of the students were on grade level and were not over aged. Five of the students have repeated the sixth grade and only 7 students had an IEP.

Instrumentation and Material

The first quantitative instrument to commence this study begun with the 2012 New York State Standardized mathematics and ELA assessments results posted on the New York City Board of Education ARIS database. The standardized assessment results identified the learning objectives and standards students did not understand. It also measured the learning gaps of each student, their performance levels, and guided the future instructions of teachers (Mertler, 2007). The ARIS database was also used by the data specialist and teachers to (a) specify the learning standards that each student failed to master, (b) outline the performance level of each student, (c) compare the performance level and scale score of each student, and (d) identify the learning gaps of all the Level 1 and low Level 2 students. According to Fertig (2009), the ARIS database shows school communities the students' standardized assessment scores, sorts the test results of students by subgroups. This information helps educators to use the assessment results to raise the test scores and close the achievement gaps of students. The ARIS database also allowed the data specialist and teachers to review the past and present assessment and performance results of each Level 1 and low Level 2 students. In addition, the database identified whether a student has an IEP or if a student is fluent in English--important details to teachers, school administrators, and data specialist who must provide students

with the proper academic support.

The teachers and assistant principals created formative baseline assessments using questions taken from prior New York State mathematics and ELA exams. The questions chosen were aligned to the mathematics and ELA state and CCLS. Each question chosen by the inquiry team helped validate the findings of the 2011-2012 mathematics and ELA standardized assessment results. The formative baseline data helped to address the learning gaps discovered and aid teachers' curriculum planning and their classroom instructions. According to Lund and Kirk (2002), performance baseline assessments are aligned to state standards and allow students to demonstrate their proficiency of knowledge and skills in real-world settings as well as assess their higher level thinking skills. The author believes that using this type of assessment will give educators the ability to analyze and measure the skill performance level of each student. According to Gallavan (2009), measuring the performance level of students helps educators achieve a better understanding of the students' progress and mastery toward each learning goal.

The mathematics and ELA formative baseline were used and consisted of multiple-choice questions, short-response items, and extended-response questions. The mathematics baseline exam was given in three parts. The first part consisted of multiple-choice questions that were worth one point each and were scored using a Scantron machine. The second part of the mathematics baseline consisted of short responses. Each short response was worth two points and was graded using a holistic rubric. The third part of the mathematics exam was the extended-response questions that were worth three points each and was graded using a holistic rubric.

The ELA assessment was administered in two sessions that consisted of multiple-

choice questions, short-response items, and extended responses. Part one of the ELA assessment was multiple-choice questions that were worth one point each and were scored using a Scantron machine. The Scantron was used to provide quick analyses of each student's results. The second phase of the ELA assessment entailed short responses that included open-ended questions worth two points each. The third part of the ELA baseline assessment included extended responses that contained writing and reading comprehension components. The third part of the writing and reading comprehension was worth four points each. Holistic rubrics simulated to that of the 2012 mathematics and ELA standardized assessments were used to score the short-response questions as well as the extended-response questions. The school site measured and compared the students' short responses using the rubric to the student's responses based on New York State's expectation.

The number of questions given on the mathematics and ELA baseline exams were based on the totality of the learning standards that students struggled with on the 2011-2012 mathematics and ELA standardized assessments. The CCLS for the 2012-2013 school year were addressed on each baseline assessment. According to Drake (2012), many 21st century schools are integrating the CCLS within their schools' curriculum to improve instructional strategies, assessments, and the teaching content of teachers. Adding the CCLS to the baseline assessments therefore helped teachers prepare students for the 2013 Common Core standardized assessments as well as prepare students mentally for the challenges of the newly formatted 2013 mathematics and ELA Common Core standardized assessments.

Once the formative baseline results were collectively analyzed and the difficult

standards for students identified, the data specialist, and teacher assessed the current academic needs of each student. This process entailed providing feedback on the standards that students struggled with, recognizing the skill set not mastered by each student, and identifying the school's inquiry group of students. The 26 student participates of the inquiry group were students who fit the criteria of this study and who need immediate academic intervention.

There are four marking periods each school year. For each marking period, the mathematics and ELA teachers assessed students using thematic pre- and post-unit assessments as well as formative benchmark assessments. These assessments were used to identify the prior knowledge of each student as well as the areas where students lack content knowledge. Pre assessments were given at the beginning of each unit to assess students' knowledge. Post assessments were used at the end of each unit to assess students' overall understanding of what was taught; benchmark assessments were also used to measure students' comprehension of the unit being taught. All benchmark, pre- and post-assessments included multiple-choice questions, short-response items, and extended-response questions. This format was used to familiarize students with the new 2013 standardized assessment design as well as track the progress of each student. According to Kallick and Colosimo (2008), using standards-based benchmark assessments are powerful tools that can be used to monitor the progress of performance-based goals (p. 33).

Formative benchmark assessments were created by teachers and were administered based on the smart goal being assessed for each student. Johnson and Christensen (2007) believed that assessments should be customized when a researcher is

looking at a specific content or task. According to Love (2008), formative assessments help teachers to diagnose the needs of their students as well as adjust their instructional planning to support those needs. Furtak (2009) believed that formative assessments aid teachers in modifying their teaching while learning is taking place. Formative assessments "can be taught of as assessment for learning and not of learning" (Furtak, 2009, p. 3). The pre- and post-assessments and benchmark assessments were used to gauge if students obtained 75% or greater mastery on the standards being assessed. If a student did not obtain 75% mastery of a skill, then the student was not able to move unto his or her next smart goal. Consequently, any learning standard not mastered by the student was scaffold until mastery of a learning goal was achieved.

A conclusive summative post exam was administered at the end of the research using opened-ended and multiple-choice questions similar to that of the New York State mathematics and ELA exams. The summative post assessment was used to determine what students knew and did not know after participating in the study school site's inquiry process. The summative post assessment was used to help inform teachers "about the future study choices by and for students" as well as report the progress of each student (Black, Harris, Lee, Marshall, & William, 2003, p. 123). The multiple-choice questions were administered and analyzed by the data specialist. The data specialist and the mathematics and English language teachers graded the open-ended questions. The simulated exam was used to compare the students' previous New York State standardized test scores with that of the formative performance baseline assessment given. The comparison was used to determine if the objectives of each smart goal was met and if the learning gap of each student had been closed at the conclusion of this study (Ainsworth &

Viegut, 2006).

Additional practice scaffolding materials were created for differentiated instructions by teachers. The differentiated instruction given was labeled and leveled as low, developmental, or excelling to address the diverse needs of each student. Balka, Hull, and Miles (2009), Gallavan (2009), and Young and Hadaway (2006) believed scaffolding promotes learning and allows teachers to address the specific learning needs and challenges of each student allowing students to clearly understand the concept taught.

Computerized Assessments

Technology sources such as Think Through Mathematics, Achieve 3000, and Acuity, were implemented as scaffolding resources. These technological resources were used to enhance students' understanding in mathematics and ELA. It also helped students to specifically focus on the skill sets that they struggled with while providing them with the resources needed to close their learning gaps. The mathematics teachers utilized Think Through Mathematics and Achieve 3000 as an additional source for instructional support. Think Through Mathematics is a program on line that differentiates students' learning in mathematics and prepares students to meet the Common Core expectations of the New York State standardized assessments (Think Through Mathematics, 2013). Achieve 3000 is a computerized program that enhances the differentiated classroom instructions for teachers that traditional instructions cannot (Moe & Chubb, 2009). Each computerized resource was used as scaffolding tool and consists of basic instructions and quizzes that increase in level of difficulties.

The ELA teachers utilized the New York City Acuity computerized database for additional support. The Acuity program provided the school with interim and formative

assessments in mathematics and ELA for students with immediate assessment results for teachers (Tuttle, 2008). According to Armstrong and Anthes (2001), computerized assessments are a stable estimate of students' content knowledge and can be administered quickly, allowing scores to be reported by the end of each test session.

Data Collection and Analysis

The data collection of the formative benchmark and summative assessments was collected quarterly per marking period for 7 months. The first collection of data began with the mathematics and ELA formative baseline assessments that were administered in October at the beginning of the 2012-2013 school year. The pre- and post-assessments given at the beginning and end of the school year (baseline and summative assessments) were a simulation of the New York State Mathematics and ELA standardized assessments.

Teachers created benchmark assessments as needed to assess the mastery of students' smart goal as well as their comprehension of the unit being taught. The teachers used the same procedures as the baseline and summative assessments to grade and analyze the students' benchmark assessments. The number of multiple-choice questions, short responses, and extended responses were based on the performance data analysis of each student as well as the discretion of the teachers. The data specialist scored all of the multiple-choice responses. The short responses were scored by teachers. The multiple-choice questions were scanned by machine to provide immediate feedback as well as allow the data specialist and teachers flexibility to tailor their instructions immediately when needed. The grading policy of the study school site was systematic, which created consistency in the analysis and interpretation of the scores calculated to track the progress

of each student. The information gathered from each assessment was used to gauge the efficiency of the study school site's inquiry practices in closing students' learning gaps. Students who demonstrated mastery of a smart goal with a calculated score of 75% or greater were able to move on to another smart goal that they were non-proficient on based on their assessment results. Smart goals were created based on the 2012 assessment results as well as the pre and post assessment results given by teachers. The paired *t* test was used to examine the differences in the pre- and post-assessment results for this study. For both math and ELA, the independent variable was time with two levels (pre and post intervention). The dependent variables for the analyses were the post intervention scores. Therefore, the change in students' scores could be evaluated.

The analysis of the data retrieved helped to inform the data specialist, teachers, and myself of the performance and proficiency levels of each student as well as the areas of academic deficiencies in mathematics and ELA. The data derived from this study consisted of seven pre and post assessments in math and four pre and post assessments in English language arts, all covering the standards where the learning gaps was discovered. The data gathered was used by the study site to create and implement the proper instructional resources needed to differentiated classroom. Resources such as quarterly formative and summative assessments, computerized assessments, classroom lessons, and special written instructional assessments were gathered and used to address the learning needs of each student.

The investigation and collection data within this of this study adhered to the study school site's regular curriculum, school policies, and procedures set forth by the school's principal, Walden's IRB, and the New York City Department of Education. This

research focused primarily on the “disparity in academic performance between groups of students” while addressing the effectiveness of the practices of using differentiating instructional practices in the study school site (O’Reilly, 2008, p. 22).

Intervention and Duration of Data Collection Processes

The time taken to conduct this research was 7 months: from December 2012 to July 2013. During the course of this study, the regular inquiry processes of the study school site was continued by meeting with the mathematics and ELA inquiry data specialist. These meetings were used to update me on the inquiry progress and any areas of difficulty that caused students to struggle during this study; feedback of the inquiry process from the quantitative data results was monitored. The determination of each student’s improvement and learning difficulties was monitored by their mastery level of each learning goal, the 2012 mathematics and ELA standardized assessment data results, interim assessments scores, teacher-made assessments, academic discipline projects, and the CCLS task assigned. As per the school site’s procedures, if a child receives 75% on a learning standard assessment given by their teachers then that student would have mastered the standard or skill being assessed. If a child did not master the standard or skill being assessed, then additional materials are given mimicking the same skill set needed for each student to achieve mastery. Once a student demonstrated mastery level of a skill set or standards then that student was allowed to move on to his or her next learning goal.

As part of the intervention practices of the study school site, each student met with his or her mathematics and ELA teacher three- to four- times weekly based on the study school site academic program scheduling. For ELA, double-blocked classes

included 90 minutes of classroom instruction that consisted of 45 minutes of unit-aligned instruction and 45 minutes of remediation instruction. For single block instructions, 45 minutes differentiated instructions was implemented through Achieve 3000 technology. In mathematics, 90 minutes instructional blocks consisted of 45 minutes of unit-aligned instruction and 45 minutes of standards-based review and remediation. In mathematics, for a single, 45-minutes instructional block, students completed a learning task through Think Through Mathematics for differentiated instruction. Students' progress was documented weekly from teacher's observational and conference notes and student assessment data. All findings were reviewed in the common planning meeting of each mathematics and ELA teacher during his or her grade meetings with the assistant principal. The data specialist analyzed and shared all unit pre and post assessments and unit benchmarks with the school administrators and ELA and mathematics teachers. All formative and summative exam questions were used to address a learning standard that students did not understand or master. The teachers retrieved the questions directly from the New York State mathematics and ELA item-analysis test bank. Each question chosen was based on the specific academic need of each student. According to Ainsworth and Viegut (2006), test bank questions allow educators to select specific targeted test items aligned to power standards.

Based on the preliminary findings on the New York State standardized mathematics and ELA exams, the classroom teachers and assistant principals created a formative baseline assessment to retest the students on the difficult standards discovered from their data analysis. The formative baseline exams consisted of former New York State questions that addressed the standards that students performed poorly on for the

2012 mathematics and ELA standardized exam. It also identified the common core standards that students should have known at their current grade level and the standards that teachers needed to address in their preparatory lessons for the 2013 Mathematics and ELA Common Core standardized assessments. The questions used for each assessment were aligned to the New York State CCLS and were used to assess student's understanding, track their areas of difficulties, and assess their prior knowledge. According to Bambrick- Santoyo (2008, 2010), Heacox (2009), Popham (2010), and Sindelar, (2011), analyzing assessments to identify the individual errors of each student will help teachers identify the concepts that students misunderstood and aid them to address those concepts within their classroom instructions. This in turn will initialize more practices of differentiated instructional opportunities within teachers' lesson plans and classroom instructions.

Once the formative baseline assessments were given and reviewed, the data specialist, assistant principals, and teachers, and I analyzed the students' results and compared their findings to the ARIS report. After collecting the quantitative data, the process of analyzing the standardized and baseline formative exams followed. Through translating and analyzing the data, I was able to identify the standards and learning skills that students struggled with on their assessments.

Throughout this study, teachers conferred regularly with students all the students regardless of the proficiency levels. These teacher-student conferences allowed teachers to address student's data results as well as help students create smart goals to promote student involvement and student accountability. The accountability of students also entailed students (a) meeting the criteria level of 75% proficiency on their smart goal, (b)

tracking the goals they did not meet or met using a survey check-off list, and (c) providing detailed feedback to their teachers during their conferences to help improve their learning experiences. According to Brophy (2010), helping students frame their learning goals encourages them to take more responsibility for their own learning. A student-learning survey was also implemented during the study by the school's data team to address the expected CCLS, by grade level and skill set, that students should have mastered. However, because of lack of teacher support, the student-learning survey was not used by all the students to validate the findings; therefore, it was not incorporated into this study.

Reliability and Validity Instruments and Processes

The paired *t* test was used to examine the differences in the pre- and post-assessment results for this study. According to Morgan, Leech, Gloeckner, and Barrett (2010), the paired *t* test allows researcher to compare dependent variables under two different pre- and posttest conditions using the same participants. The Kolmogorov Simirnov test was used to test the normality of the data. The Level 1 and low Level 2 students were first assessed using the 2011-2012 New York State mathematics and ELA standardized assessments. Their results were then revaluated using the baseline assessment created by the teachers and assistant principals. These assessments were used to test and retest the various learning gaps of students. Various benchmark assessments and scaffolding resources were also given to address the same standards addressed on the New York Standardized Assessments.

Baseline and benchmark formative and summative assessments were used to monitor the progress of each student and indicate where students' learning gaps were

filled or still deficient. This process allowed me to test and retest the effectiveness of the inquiry practices of the study school site using the assessment score results of its students. According to Girden (1992), this "order of treatment can bias the results because of practice, carry-over, or fatigue" (p. v).

The Cronbach's alpha was used to test the quantitative aspect of this research as well as test the reliability. According to Warner (2007), "the Cronbach Alpha provides a reliability coefficient that tells us, in theory, how reliable our estimate of stable entity that we are trying to measure" (p. 854). The Cronbach's alpha was used to correlate the assessment scores of each student and indicated their level of improvement. This also allowed the data specialist and teachers to examine if the assessments given to students were reliable in closing their learning gaps as well as compare the effectiveness of using each assessment and differentiating resources to close the learning gaps (Salkind, 2006).

Validity

Validity is the accuracy in which variables are measured in research. Carmines and Zeller (1992) said it is the extent in which "any measuring instrument measures what it is intended to measure" (p. 17). For this research, the instruments used to measure the dependent variable were school initiated assessments and it is assumed that the instruments have construct validity, content validity, and criterion validity.

Protection of Participants and Role of the Research

This study followed the study school site's regular curriculum, school policies, and procedures set forth by the New York City Department of Education for conducting research in a New York Public School. This study was conducted as a secondary research, which allowed me to collect data retrieved from the study school site's inquiry

research without student or parent consent. All student data retrieved was done anonymously-protecting the students' identity. The notification to participants was done through the study school site officials as part of their regular inquiry process. All data collected was gathered from the study school site's principal, two data specialist, and a school aid. I received the New York City Department of Education Institutional Review Board (IRB) approval as well as the school's principal permission to conduct this research before commencing this study. The school's principal, the two data specialist, and the school aid were all notified of their rights and the rights of school's community under the IRB regulations. This ensured a minimal risk of violating the privacy and rights of the principal, data specialist, school aid, and any contributors of this study. Each consent form was hand delivered and I reviewed the rights of each person to refuse to participate at any given time during this study. The principal, data specialist, and school aid all signed consent forms to participate in this study.

A data usage agreement form was filled out by the study school site's principal for consent to collect data for this study. The New York City Department of Education IRB, the study school site's principal, the data specialist, and school aid were advised of all contact information pertaining to this research. The confidentiality of all consenters was maintained. The principal and data specialist secured all data and maintained the confidentiality of all students participating in this study. Data retrieved will not be linked to any consenters or student of the study school site. No human participants were harmed in this study. The benefits and procedures of the study were discussed and shared with school site's principal including the final results of this study and the project of this study.

As the researcher, my role entailed analyzing data retrieved from the inquiry practices of the study school site. The quantitative data allowed me to use the numeric data to reevaluate and validate the school's numeric findings. The data retrieved from this study was collected as part of the school's regular routine practices. The data specialist used the principal's office to store securely all of the collected data. The data specialist removed the identifying marker of each student before any data relating to this study were given to this writer.

The data specialist, classroom teachers, and school administrators monitored and kept all data of students' learning functions and mastery levels. Teachers used portfolios to collect students' assessment data, provide feedback from teacher-student conferences, and gauge the level of progress of each student.

The results of the findings were based on the unit pre and post assessments (formative), benchmark assessments, the CCLS survey, and the summative assessment results of each student. Data retrieved during this study were analyzed by me to determine if students' learning gaps were closed, narrowed, or still deficient. The end-of-year CCLS survey for mathematics and ELA was not used in this study because of the low percentage of students who completed the survey.

Results

Introduction

The results of this section reports and discusses the analyses conducted of the mathematics and ELA pre and post assessments (formative and summative) results conducted within this study. Initially, one-sample Kolmogorov-Smirnov tests as well as measures of skewness and kurtosis were conducted on the pre and post assessment data to ensure normality, an assumption of the paired-samples *t* test. The Kolmogorov-Smirnov test and the paired samples *t* test were also used to address the research question: RQ: What is the impact of the local school site's multifaceted learning gaps intervention on student academic achievement in math and ELA?

Following this, descriptive statistics were conducted using the formative and summative assessment results to describe the central tendency and variability of these measures. This was followed by paired-sample correlations as well as the paired-samples *t* tests that were conducted to determine whether significant changes in scores were present over time.

Mathematics Results

Table 1 illustrates the one-sample Kolmogorov-Smirnov test conducted on the mathematics data along with measures of skewness and kurtosis. The mathematics data retrieved for this analysis was taken from the pre and post assessments given to student for four academic semesters over 7 months. The analyses of the assessments were conducted to determine whether the measures were normal and could be appropriately included in paired-samples *t* tests focusing upon the changes in scores over time.

The one-sample Kolmogorov-Smirnov test failed to indicate statistical significance in any case, indicating that these measures are not significantly non-normal.

Next, with respect to the measures of skewness and kurtosis, measures above three or below negative three were considered indicative of substantial skewness or kurtosis. Substantial positive skewness as well as kurtosis was indicated with respect to Unit 4 pretest scores with substantial skewness or kurtosis not indicated in any other case. Overall, the results in Table 1 indicate normality with respect to these measures with paired-samples *t* tests therefore being conducted.

Table 1

One-Sample Kolmogorov-Smirnov Tests, Skewness, and Kurtosis of the Pre and Post assessments in Mathematics, N = 12

Unit	*K*	*p*	Skewness	Kurtosis
		Pretest		
1	.742	.640	2.376	1.845
2	.691	.726	-.558	-1.043
3	.776	.584	-.290	.942
4	1.102	.176	3.910	6.118
5	.515	.953	1.043	.012
6	.584	.885	1.465	.241
7	.521	.949	.215	-1.272
		Posttest		
1	.540	.932	-.173	.257
2	.778	.581	-1.274	1.749
3	.578	.892	-1.308	.620
4	.536	.936	-.988	.089
5	.577	.893	.534	.907
6	.929	.354	-1.224	-.426
7	.616	.843	-2.564	2.788

Table 2 illustrates the descriptive statistics conducted on these data. The measures reported consist of the mean, sample size, standard deviation, and standard error of the mean. Overall, means were found to increase substantially over time with respect to all

cases. Standard deviations were also found to be high with respect to these measures.

Table 2

Paired-Sample Statistics of the Pre- and Post-assessments in Mathematics, N = 12

Pair/unit	*M*	*SD*	*SEM*
		Unit pretest	
1	24.583	13.249	3.825
2	19.083	6.288	1.815
3	30.250	14.398	4.156
4	22.333	17.416	5.028
5	23.333	11.348	3.276
6	21.000	10.287	2.970
7	25.917	14.286	4.124
		Unit posttest	
1	36.500	16.290	4.703
2	35.583	12.972	3.745
3	57.333	15.341	4.428
4	43.250	17.628	5.089
5	46.000	18.650	5.384
6	38.167	5.890	1.700
7	59.417	16.440	4.746

Table 3 summarizes the paired-samples correlations conducted on the mathematics data. Significant correlations were found with respect to Unit 1 and 3 pre- and posttests scores. In both cases, very strong, positive correlations were indicated between the scores. This indicates a high degree of correspondence between these two sets of scores. The remaining correlations were not found to be statistically significance. However, when considering the size of the correlations, it is also suggested that there is a fairly high degree of correspondence between these pre- and posttests measures as well.

Table 4 shows the results of the paired-samples *t* tests conducted on these data. Statistical significance was found in the mathematics assessment scores of students. Overall, the results indicate that all unit scores significantly increased over time to show improvement in students' scores. These results suggest the efficacy of using scaffolding resources and differentiated instruction to close the learning gap of students in all cases.

Table 3

Paired Samples Correlations Using Mathematics Pre and Post assessments, N = 12

Pair	*Correlation*	*Corre.*	*p*
1	Unit 1	.701	.011
2	Unit 2	.540	.070
3	Unit 3	.633	.027
4	Unit 4	.487	.108
5	Unit 5	.448	.144
6	Unit 6	.149	.645
7	Unit 7	.442	.150

Table 4

Paired Samples t Tests of Mathematics Pre and Post assessments, N = 12

Pair	Mean diff.	*SD*	*SEM*	*t*	*df*	*p*
1	-11.917	11.766	3.397	-3.508	11	.005
2	-16.500	10.942	3.159	-5.224	11	.000
3	-27.083	12.767	3.685	-7.349	11	.000
4	-20.917	17.748	5.123	-4.083	11	.002
5	-22.667	16.935	4.889	-4.637	11	.001
6	-17.167	11.069	3.195	-5.373	11	.000
7	-33.500	16.329	4.714	-7.107	11	.000

ELA Results

The following set of analyses was conducted on the English language arts (ELA) data. Table 5 illustrates the results of the one-sample Kolmogorov-Smirnov tests and the measures of the skewness and kurtosis conducted on the pre- and post-assessments for students over the course of 7 months. First, with regard to the one-sample Kolmogorov-Smirnov tests, significance was not indicated in any case. These results indicate that significant non-normality was not present with respect to any of the data results. Additionally, with regard to the measures of skewness and kurtosis, no values above three were found and no values below negative three indicated either. Overall, these results indicate no significant non-normality with paired-samples *t* tests being conducted on these data.

Table 5

One-Sample Kolmogorov-Smirnov Tests, Skewness, and Kurtosis of ELA Pre- and Post-assessments

Unit	*N*	*K*	*p*	Skewness	Kurtosis
			Pretest		
1	21	.705	.703	.510	-.988
2	22	.730	.660	2.072	.977
3	22	.643	.803	-.298	-.743
4	22	.817	.517	-.902	.687
			Posttest		
1	21	.796	.550	.676	-1.037
2	22	.810	.528	1.224	-.274
3	22	.702	.708	.912	.282
4	22	.707	.699	-1.037	-.535

Next, Table 6 shows the descriptive statistics conducted on these data. Mean scores were found to decrease with respect to Unit 1, with means found to increase over time in all other assessment results. Standard deviations were also found to be high with respect to the data collected.

Table 7 illustrates the paired-samples correlations conducted on these data. Statistical significance was indicated in all cases with the exception of Unit 1, which was found to achieve a probability level of .07. In all cases, correlations were found to be strong to very strong, indicating a high degree of correspondence between the pre- and posttest ELA scores.

Table 6

Paired Samples Statistics of ELA Pre- and Post-assessments Data

Pair/unit	*N*	*M*	*SD*	*SEM*
		Unit pretest		
1	21	40.57	18.408	4.017
2	22	24.50	13.859	2.955
3	22	33.27	13.217	2.818
4	22	36.86	15.484	3.301
		Unit posttest		
1	21	37.86	13.406	2.925
2	22	42.09	12.660	2.699
3	22	53.14	19.679	4.196
4	22	48.64	16.334	3.483

Table 7

Paired Samples Correlations Using Pre- and Post-assessments for ELA

Pair	*Correlation*	*N*	*Corre.*	*p*
1	Unit 1	21	.404	.070
2	Unit 2	22	.671	.001
3	Unit 3	22	.532	.011
4	Unit 4	22	.839	<.001

Table 8 below shows the results of the paired-samples *t* tests conducted on these data. These analyses found statistical significance in all cases with the exception of Unit 1 data. Specifically, scores from Units 2 through 4 showed significant increases over time.

Table 8

Paired Samples t Tests Using the Pre- and Post-assessments for ELA

Pair	Mean diff.	*SD*	*SEM*	*t*	*df*	*p*
1	2.714	17.872	3.900	.696	20	.494
2	-17.591	10.817	2.306	-7.627	21	.000
3	-19.864	16.893	3.602	-5.515	21	.000
4	-11.773	9.066	1.933	-6.091	21	.000

Conclusion of Findings

The research questions posed for this study was:

RQ: What is the impact of the local school site's multifaceted learning gaps intervention on student academic achievement in math and ELA?

The initial test used to address the research questions was the paired *t* test. Utilizing the paired *t* test allowed me to check the reliability of the pre and post assessment results for the math and ELA assessment within this study. For each academic unit, students were given pre and post assessments to assess their gain in knowledge based on the practices instilled within the study school site's inquiry practices. The collection of the quantitative results of the math and ELA exam and the process of analyzing the data over a seven

month period, allowed me to validate that using the assessment results of students could close their learning gaps in math and ELA. The Kolmogorov Simirnov test was used to test the normality of the data discovered in assessing and reassessing students' learning gaps per unit assessed. The Kolmogorov Simirnov result and the paired *t* test both showed an increase in the math and ELA scores of students using differentiating practices and student assessment data within the study.

The results gathered from the pre and post assessments indicated that students' assessments results could be used to close students' learning gaps in mathematics and ELA. The results showed significant increases in student scores in all cases with the exception of one student, corresponding with Unit 1 ELA data. The results gathered also suggested a strong efficacy when using differentiated and scaffolding resources to close the learning gap of students. The results from the analyses of the assessment results addressed the research questions and validated that using student's assessment data and differentiating classroom instruction was effective in closing students' learning gaps based on the significant increase of the pre- and post-assessment results. Therefore, students' learning gaps can be closed using the math and ELA assessment data of students and differentiating classroom instruction as implemented by the practices of the study school site.

With students' learning gaps still widening in the New York City public school system, the results of this project has led to the creation of a research- based handbook to be used during the professional development sessions of teachers and school administrators. The handbook (see Appendix A) addresses how to use students' assessment data to close their learning gaps. It is my desire to facilitate professional

development training within various New York City school districts to inform educators of the importance of using student assessment data to drive classroom instruction based on the practices implemented within this study.

Limitations

Possible limitations of this study could involve the motivational level of each student. According to Creswell and Plano Clark (2003), the participation levels of each student in taking each assessment given seriously and truthfully were also possible limitations of a study.

Summary

Section 2 of this project study reviewed and discussed the methodology and reasons for choosing the study design. Section 2 reviewed the design and procedures of this research. The use of this study was thoroughly explained in relation to the research questions posed and the intended resources and usage of the research instruments were indicated within this section. The results section of Section 2 addressed the analyses of the data retrieved, my findings of the statistical measured outcomes of each variable, and the statistical instruments used to validate my findings.

Section 3: The Project

Introduction

The project created for this study was a handbook for teachers and school administrators emphasizing the use of students' assessment data to identify and close their learning gaps. The result of this study proved that using student's assessment data to differentiate instructions was a key component in closing or narrowing students' learning gaps. The project handbook included the effective best practices experienced by the researcher during the project study. The design of the handbook suggests that teachers and administrators participate a 5-day professional development session prior to using the book. The handbook contains samples and practice worksheets to be implemented during each session of the professional development. Some of the topics that the handbook addresses for teachers and administrators are how to analyze students assessment data, how to differentiate classroom instruction, the importance of knowing your students, and the importance of reflecting on instructional practices.

This section describes the handbook developed for this study. This section includes the description of the handbook, the rationale for creating a handbook, reviews of literature that supports the handbook, how the handbook will be implemented, and the evaluation system that was used to evaluate the handbook.

Description and Goals

The creation of this handbook derived from the results of the research located in

Section 2 of this study. The research conducted proved that the learning gap of students could be closed using their assessment results and differentiated classroom instructions.. Based on the results founded, a professional development handbook was created for stakeholder to implement within their learning communities. The goal of the handbook was to share the practices within this study that were effective in closing or narrowing students' learning gaps with school administrators and teachers to implement within in their classrooms.

This professional development handbook created from this study will be used as a resource to inform educators and school administrators on how to use effectively students' assessment data to close their learning gaps. The goal of this handbook was to structuralize a universal, data-reform procedure based on the study school site's inquiry practices implemented and used to close or narrow students' learning gaps. The purpose of creating the professional development handbook for teachers and administrators was to identify the data practices that were effective throughout this study and implement them within any school-based inquiry team. The following data practices were addressed within the project's handbook: (a) acquiring and analyzing students' assessment results to identify their gaps in learning; (b) targeting students and their specific weakness; (c) creating goals; (d) sharing data results and goals with learning community, students, and student's family; (e) knowing the whole student to understand how students learn; (f) aligning the curriculum to meet the specific needs of students; (g) differentiating classroom instruction; (h) using scaffolding instructional resources to improve student learning; (i) assessing student's improvement through formative feedback; and (j) evaluating what works and does not work in your data reform practices.

There are various learning outcomes aligned to the project's handbook that teachers will accomplish by the end of the professional development sessions outlined in the handbook. By utilizing this project, teachers will be able to (a) analyze and assess student's performance using their assessment results, (b) reflect upon their data findings and make informed decisions to improve their practices, (c) align their curriculum to meet the specific needs of their students, (d) differentiate their classroom instruction using student's formative and summative assessments results, (e) understand the importance of being knowledgeable of their students to improve student outcomes and performances, (f) evaluate and reflect upon their practices, and (g) provide students with the best resources to improve their learning.

Rationale

Closing the learning gap has been a difficult task for the nation's educational leaders for over 40 years (Editorial Projects in Education Research Center, 2011; Hargrove, 2011). In a 2008 report by the New York City Department of Education it was recorded that students who enter middle school performed at or below a low Level 2 performance level with little chance of reaching a Level 3 proficient level by the eighth grade (New York City Department of Education, 2008b). Faced with these statistics, the New York City Department of Education school system administrators needed to adjust their approach to help students succeed.

Recognizing the need for student improvement and left with vague processes on closing students' learning gaps, educators were left with the responsibility of developing their own theories and practices to close the achievement gaps of students (New York City Department of Education, 2008b). According to McCall, Hauser, Cronin, Kingsbury,

and Houser (2006) and Ravitch (2011), many of the practices and programs inspired by NCLB have been unsuccessful or undependable to duplicate with the probability of meeting the NCLB's 100% goal in 2014 being very low. According to the authors, many school administrators had to implement their own practices.

With insufficient resources of what methods are effective in closing or narrowing students' learning gaps, I chose to create a research-based handbook for school communities to use as they attempt to close the learning gap of students. Based on the study results in Section 2, which showed that students' learning gaps was closed by using their assessment data, I chose to create a professional development handbook for teachers based on the results of this study(see Appendix A). This handbook allows teachers and administrators to learn at their own pace and can be used as a reference guide for teachers to use once they have received instructional guidance.

The handbook outlines a solution set for closing students' learning gaps locally and nationally. The results of my study and the correlated practices of the New York City Children First Intensive model, the concepts of Johnson (2002), and the theories of Halverson et al. (2005) have proven that the methodologies incorporated within the project are effective in closing students' learning gaps. Utilizing these practices within the project will create a pragmatic system for schools to use in closing students' learning gaps.

Review of Literature

Theoretical Practices Used to Guide the Project and Address the Problem

The theoretical practices of inquiry used to guide the project included the *Children First Intensive Inquiry Team Handbook* (New York City Department of

Education, 2008a), the concepts of Johnson (2002), and the theories of Halverson, Grigg, Prichett, and Thomas (2005). Each theorist concluded that using students' assessment data for planning was critical in closing students' learning gaps. Within this section, I closely scrutinized the three theoretical practices and applied the ideologies to the handbook created. The literature review provided great insights into the connection between the "gap" problem and the theoretical practices implemented. In the handbook, I discusses the findings used to support the practices implemented within this study.

Supported Theories and Interconnected Analysis

The theories implemented within the project's handbook were founded upon three theoretical beliefs exercised by the staff at the study school site. The three methodological practices used in this study are the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), the theories of Johnson (2002), and the notions of Halverson et al. (2005). The theories listed were used to guide the creation of the project's handbook for this study.

The Children First Intensive Inquiry Team Handbook

The *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a) theorized that student data point to three steps that can be taken to close students' learning gaps. The three steps summarized are in the following statements:

- Phase 1 - Identify the targeted population of students and their specific academic areas of weaknesses.
- Phase 2 - Make strategic changes that are necessary to move the targeted population to success based on their data.

- Phase 3 - Revisit what works and does not work. Make the necessary adjustments to improve student learning and align the school's curriculum to meet the needs of each student.

Phase 1 of the Children First Intensive program addressed the process of analyzing student data to identify where students' learning gaps exist. By identifying the gaps in student learning teachers are able to develop curriculum that allow them to differentiate their classroom practices based on the specific needs of each student (Bambrick-Santoyo, 2010). Analyzing students' data will help inform the classroom instruction of teachers. According to Langer, Colton, and Goff (2003), teachers become more informed and instruction more purposefully when students' data are analyzed. Mertler (2007) proposed that using student data to guide instruction would allow teachers to "critically examine their curriculum and instructional practices relative to their students' actual performance on standardized test" (p. 136). He believed that this would also allow teachers to make accurate, informed decisions. Fullan, Hill, and Crevola (2006) alleged that analyzing students' data is effective in helping teachers determine the learning stage of students as well as identify their strengths and weaknesses. The authors suggest that once student data have been analyzed teachers will be able to tailor their instruction for both whole and small group settings.

Creating learning goals is one of the components within the project. Utilizing this component within the study allowed teachers to create learning goals with students and develop a collaborative responsibility of learning on both the part of the teachers and students. The process of having students' partake in setting their learning goals also empowers students to monitor their success through their academic progress and the

achievements of each learning goal created. According to Kallick and Colosimo (2008) and Stronge and Grant (2013), creating learning goals helps teachers to make informed decisions when setting learning targets, developing a plan of action, and monitoring student progress. Utilizing Phase 2 of the Children First Incentive process within the handbook will enable teachers to make their own decisions on how to improve student learning and aid teachers and school administrators to track the effectiveness of their use of the assessment data of students (Lachat, Williams, and Smith, 2006).

Phase 2 of the Children Intensive program calls for strategic changes to be made based on the evaluation of students assessments. Through the evaluation process of the project, teachers were able to closely review and analyze their teaching practices. The evaluation process also helped to identify the causes of the learning gaps and helped teachers to implement the proper strategies to improve student learning. Allocating this process within the handbook will help teachers and school administrators make the necessary revisions needed to improve students' learning, assess how students interpreted the standards taught, and dissimilate students' reasoning given for each answer on standardized exams (Benson, 2008). According to Lafortune (2009), evaluating, analyzing, and reflecting on one's practice helps to improve the professionalism of staff members and leads to positive changes within an organization.

Coinciding with the evaluation process, descriptive feedback will be addressed in the project's handbook. Edwards (2010) and Heacox (2009) indicated that descriptive feedback uses assessments to identify the specific strengths of students, points out where improvement is needed, guides teachers on what to do to close the learning gap, and allows students to become engage in their own learning. Implementing this practice

within the research helped school leaders and teachers make the necessary strategic changes to improve student learning. Heacox (2009) said, "When teachers use assessment for learning, students benefit from descriptive feedback." (p. 38). Utilizing the feedback and evaluation process of the project will allow teachers to create the proper resources needed to improve students' understanding of a specific skill through differentiated instruction.

Differentiated instruction is essential in improving student learning (Heacox, 2009; Kelly & Shaw, 2009; Zimmerman, 2010). According to Tomlinson and Mc Tighe (2006), differentiated instruction allows teachers to apply and focus on various practices that ensures students' learning as well as addresses the individual needs of each student. The authors believed that, "Differentiated instruction focuses on whom we teach, where we teach and how we teach. Its primary goal is to ensure that teachers focus on processes and procedures that ensure effective learning for varied individuals" (p. 3). Implementing differentiated instruction within the handbook will help teachers and students work collaboratively in setting and prioritizing learning goals. It will also hold students accountable for their own learning (Brooks & Brooks, 2001; Gardner, 2006). According to Bender (2012), educational success depends on students taking responsibilities for their own learning.

The Phase 3 of the Children First Intensive program enables teachers to align their curriculum to meet the specific needs of each student. By aligning their curriculum to meet the needs of each student, teachers and administrators create a system of review where they are constantly reviewing their practices as it relates to students and teachers. Phase 3 of the Children First Incentive causes teachers and students to adapt to the

instructional changes needed to improve students' learning thereby causing school communities to become more conducive to change. According to Ainsworth and Viegut (2006), schools that inhabit a culture of constant changes for improvement will be successful.

Johnson's Theory of Practice

Identifying and analyzing the assessment results of students is a focal point of Johnson's (2002) theoretical approach to close students' learning gaps. The author theorized that it is through analyzing students' data that teachers are able to identify the level of academic performance of each student and their learning approaches. This methodology, according to Bambrick- Santoyo (2010), creates an effective data-driven community that is motivated by data. Within the study, this course of action helped to ensure that the learning gaps and the learning style of students were identified to help students meet their learning goals and achievement levels.

Knowing students from a socioeconomic perspective was a process of adapted change observed within this study and incorporated with the project. Johnson (2002) recommended that data-driven communities analyze data from a national and economical perspective in order to understand the diversity in students' learning gaps from a socioeconomic standpoint. According to the author, when data are analyzed in this manner, data-driven communities will better understand the myths and stereotypes of how and why students learn and dismiss all stigmas associated with students' learning. My observations during this research revealed that this process allowed teachers and school administrators to compare the performance level and demographics of their students to that of other students within the school's district and within the City of New

York. Awareness of students' socioeconomic status widened the teachers understanding of the school's population and its educational practices. It also helped teachers and school administrators implement the necessary changes needed for success. According to Lachat (2001) and Sirotnik (2004) data awareness must be understood from a social, political, and economic perspective in order for the goals set by schools to be realistic and for the continuous improvements of schools.

There were similarities discovered in the theories of Johnson (2002) and the Children First Incentive model implemented within the project. The third, fourth, and fifth stages of Johnson's (2002) theories correlate to Phases 1, 2, and 3 of the Children First Incentive inquiry processes. The similarities discovered were the following: (a) analyzing student data, (b) extracting relevant information from the data, (c) examining the academic culture of the school, (d) creating a vision and plan for the school, (e) sharing data findings and goals with the learning community and student's family, (f) differentiating instruction appropriately for each student, (g) providing the necessary resources to aid students, and (h) monitoring the progress of the school's culture. The similarities discovered and implemented proved to be effective methodology for this study.

The Data-Driven Instructional System

The data-driven instructional design system (DDIS) focuses on school leaders using students' assessment data and other relevant information to guide the school leaders' decisions in planning, instructional practices, and setting reachable goals for student improvement (Blink, 2014; Gregory & Chapman, 2007; Halverson et al., 2005; Kelley & Shaw, 2009). Researchers Halverson et al. (2005) believed that the DDIS helps

learning communities identify the common mistakes made by students using their assessments and behavioral results.

There are six components to the DDIS model implemented in the project's handbook of this study. The six components are (a) data acquisition, (b) data reflection, (c) program alignment, (d) program design, (e) formative feedback, and (f) test preparation. As with Johnson (2002), the data acquisition of DDIS utilizes existing student data (e.g., standardized assessment data, formative and summative assessment data, student demographics, guidance information of students, and classroom grades) to enhance the understanding of the whole student and how they learn from various perspectives. The process of data acquisition is implemented within the project and will be addressed during the professional development sessions with teachers and school administrators. The acquisition of student data will help administrators and teachers interpret the results of the state standardized assessments and create a baseline exam to validate the findings of the standardized test results. This will help teachers to better understand their students and their learning processes as they work to close the learning gaps. According to Kelly and Shaw (2009), data acquisition entails collecting, processing, and reflecting upon data to assess students' learning gaps and the areas in need of improvement for school administrators. Utilizing this process will allow schools to choose the best practices and resources to improve their schools.

The second phase of the DDIS process, data reflection, will be used to create learning goals for school communities, teachers, and students. As with the descriptive feedback process addressed in the Children First Intensive model, this phase will help school leaders identify the specific strengths and weaknesses of teachers, students, and

the inquiry practices of schools. According to Blink (2014), "Data reflection makes time for stakeholders to examine data and identify areas in need of improvement" (p. 6). Clauset, Lick, and Murphy (2008) believed that when learning communities evaluate and reflect upon their practices, take responsibilities for students' learning, and create an environment of continuous learning, then that school team is seen as a proficient team.

The third and fourth processes of DDIS, program alignment and program design, necessitate creating instructional curriculum aligned to the needs of each student, the state standards, and classroom instructional practices. Provisions should also be made to provide teachers with the professional development resources needed. As with Phase 3 of the Children First Intensive model, the program alignment stage requires teachers' instructional practices to be aligned with that of the school's curriculum, the New York State Standards, and the New York State Core Curriculum. By aligning the curriculum to the state standards, school instructional leaders will have to reconfigure their curriculums and practices to meet the needs of students. According to Squires (2009) and Inman (2009), by aligning the school's curriculum and teachers' lesson plans to the state and city standards, schools will be committed to address the learning concerns outlined in the standards. Addressing the program alignment and the design structure of the DDIS model within the project's handbook will lead to the restructure of school's curriculum and program, which should ensure that the required CCLS taught are implemented and aligned within the school's curriculum. The restructure and alignment will also provide teachers with the necessary resources and training needed to improve student outcomes (Blasé, Blasé, & Phillips, 2010).

To help assess the efficiency of the handbook usage, formative feedback and test

preparation processes were incorporated within the project based on the DDIS model. According Furtak (2009), Kelly and Shaw (2009), and McInerney et al. (2009), formative feedback serves as an intervention to change that helps students to improve their learning outcomes. Utilizing this process within the handbook will help school communities make continuous improvements based on their analysis and evaluations of the process instilled within their practices of inquiry. According to Black et al. (2003), the core function of formative feedback is for the learner to first understand the evidence about the gap in learning and then make the necessary changes based on the evidence presented.

The test preparation phase of the DDIS model monitors the effectiveness of closing students' learning gaps. This phase will allow teachers to apply and enforce test preparation strategies within their instructional block to help students prepare for the New York State mathematics and ELA standardized assessments. It will also create a school-wide practicum of teachers using student's data to assess their understanding of the standards taught. Mertler (2007) found that teaching to the standards is an appropriate practice if the instruction is parallel to the content standard that is assessed through standardized assessments. The effectiveness of the test preparation phase will be evident in the data collection phase through the results of the formative and summative assessment results.

The theoretical practices of the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), Johnson (2002), and Halverson et al. (2005) were complementary of each other. The methodologies combined within the project's handbook will create a data-driven community that is flexible to change when needed to improve student learning. Each method implemented will allow learning

communities to analyze students' data, provide academic scaffolding resources for students, monitor and measure all student-related data carefully, and provide learning opportunities for students that meets their individual needs. According to Saunders (2008), the effective data-reform school should have interwoven practices within their communities that analyze, monitor, and measure the efficiency of their programs, policies, and practices in order to be successful in providing educational equity.

Implementation

The project created from this study is a professional development handbook for teachers on closing students' learning gaps. The handbook will first be implemented at a local level and will be introduced as a summer professional development for teachers. The professional development will be scheduled for 5 full days, Monday through Friday. The project's handbook will also be used as a reference for teachers throughout the school year. The professional development will be offered in June and in August giving teachers the opportunity to attend the five sessions at their leisure. The project will be reintroduced again in September to teachers at the beginning of the school year during their mandated professional development time. Those teachers who do not attend the summer professional development will be required to attend the full professional development during the first week of their return to work. All incentives for the project's professional development will be provided by the principal.

Day 1 of the professional development will be an introduction of the handbook. The dialog and presentation will be on acquiring and analyzing student data. Teachers and administrators will work in groups and review the recent standardized assessments, students' responses, and students' results. From the findings teachers will then assess the

questions asked on the test, the standards associated with the question, and the skill sets needed to answer each question correctly. From the results, teachers will then determine where the gaps in student learning occurred and identify the standards and skills needed for students to master the standards.

The second day of the professional development will incorporate targeting students and their specific weaknesses to move them to success. Any specification or criteria of how to target students will be based on the principal's discretion. For example, in this study the study school site's principal targeted students who performed in the bottom third of the school's population. The bottom third consisted of students who received low scoring on the standardized assessments, that could not demonstrate an understanding of the content or learning standards set at their current grade level. Keep in mind that learning gaps can be found among high and low level performing students. The primary focus of the project's handbook will be on closing the learning gaps of low performing students.

On the third day of the professional development, teachers will gather according to the core subjects of mathematics or ELA. This will allow core-subject teachers who are familiar with the content and standards to work together to address and align their curriculum as needed based on their expertise. This will also foster the creation of an interdisciplinary curriculum per academic subject, which will allow teachers to utilize the targeted standards in their lesson plans and curriculum. The fourth day will consist of an overview of the best practices for differentiating classroom instruction, using scaffolding instructional resources to improve student learning, and creating targeted goals.

Day 5 will conclude the professional development. This session will cover ways

to share the data results of students and goals for improvement with the learning community, students, and families of students. This informational session will also review the importance of knowing the whole student in order to understand how students learn. The latter part of the training will review analyzing student data to assess student's improvement through formative feedback while evaluating what practices works and does not work within the inquiry process of the learning community.

Potential Resources and Existing Supports

The success of this handbook depends on the resources provided by the principal. To make the handbook a success, the principal will have to coordinate and provide the professional development times, location, meals (breakfast and lunch), and materials needed for the teachers. This will include creating incentives for the teachers to attend the summer portion of the professional development and providing copies of the project's handbook for the teachers. Another resource that must be provided by the principal will be the current, standardized test results of students as well as a summary of the biographical information of students they will be instructing for the upcoming school year. Access to computers, chart paper, pens, journals for taking notes, and any curriculum resources for planning will be needed for teachers. A copy within the school's professional library of the New York City Children First Intensive model, the concepts of Johnson (2002), and the theories of Halverson et al. (2005) should be assessable to teachers who choose to read more on the theoretical practices of the project's handbook.

Existing support of the project will come from any assistant principal, data specialist, or coach who will be able to provide additional training during the implementation of this project. Also, professional development days for teachers during

the school year must be provided so that time can be used to address any uncertainty of any of practices within this handbook as well as give teachers additional time or training needed for using any of the points in the handbook.

Potential Barriers

The greatest barrier foreseen with the implementation of this handbook is the cooperation of teachers and time. This professional development does interrupt teachers' personal vacation time during the summer. To use students' assessment results to close their learning gaps, requires teachers to first identify their gaps, assess their potential needs, target students who need additional support, and create a curriculum based on the results of the data. This entails knowing their student's proficiency before the school year begins. According to Bambrick- Santoyo (2010) and Gallavan (2009), for students to be successful learners, teachers must be knowledgeable of their students. This will require teachers giving up a week of their summer vacation to attend the professional development sessions of the project.

Another potential barrier is the financial support needed to conduct the professional development of this project. School administrators will have to pay teachers out of their school budget to attend the summer professional sessions. If the finances are not available to pay teachers as well as pay for the resources needed to implement the project, then the attendance of teachers will be nearly nonexistence. Making available this project before school starts will give teachers the insight, data, and tools needed to identify students' learning gaps and provide them with the instruction and resources needed to close their gaps in learning. Ultimately, without the financial provisions necessary a great barrier to implement the project exists.

Proposal for Implementation and Timetable

The implementation of the project will commence as a five day summer incentive professional development. Two opportunities will be given to teachers to attend in the summer. One will be offered immediately after the school year ends in June and the other will be conducted at the end of August. A third session will be offered in September to teachers at the beginning of the school year. The third session will be completed as a mandated professional development requirement for teachers. Throughout the school year, teachers will be offered support and additional professional development as needed in utilizing the project within in their classroom.

Teachers are required to attend professional developments offered by the school once a week and are mandated once a month to attend professional development sessions led by the school's administrative team. These times will be used as needed to offer additional support to teachers. In addition, teachers have preset planning times within their schedules per week that will allow them to seek additional support for using the project from their peers, coaches, school administrators, and data specialist. These planning times will allow teachers time to evaluate the project's effectives and determine what additional changes and resources are needed to best meet the needs of students as well as their professional needs.

Roles and Responsibilities

The roles and responsibilities of the project developer, the school administrators, and teachers are vital to the success of the project. As the developer, my role is to make sure that the research-based strategies implemented within the handbook are valid and effective in closing students' learning gaps. The roles and responsibilities of the school

administrators and teachers are to participate during the full week of the professional development and implement the practices and procedures within the handbook during the school year. Specifically, the administrators need to provide incentives for teachers to work during their summer break. They also need to provide the resources, additional training, and support for teachers during the school year based on the theories established within the handbook. Teachers will be responsible for incorporating the practices of the handbook within their curriculum. Teachers will also need to attend the professional development meetings created based on the handbook's directives throughout the year and provide feedback on the project's usefulness.

Project Evaluation

The evaluation of this project will be multifaceted. The first evaluation tool will be a teacher feedback worksheet filled out by teachers and administration at the end of the professional development sessions to assess if the learning outcomes were met (see Appendix A).The second evaluation tool will be the usage of the formative and summative assessment results of students as well as their standardized assessment results. These assessments will be used to evaluate if students' learning gaps are closed based on implementing the practices within the project and will be ongoing throughout the school year. Any closing or decrease of the learning gap will demonstrate the effectiveness of this project. Teachers and administration will be able to evaluate the effectiveness of the project at the end of the year based upon improved student test scores on the standardized assessments. If the strategies implemented within the project works, then learning communities will decide whether to continue using the project's handbook for the next school year.

Implications Including Social Change

Local Community

Closing students' learning gaps locally and nationally has been a great challenge for stakeholders. Schools nationwide were challenged by the mandates of NCLB to implement their own practices to close students' learning gaps. To address this issue locally, this project was created from the research conducted for this study. The results in Section 2 proved that using students' assessment data and differentiated instruction could close students' learning gaps, thereby, validating the effectiveness of the practices within the project's handbook.

Utilizing the theories and practices implemented within the project will be effective to local stakeholders seeking an effective resource in closing students' learning gaps. This project is significant to the local community because it will help to narrow or close students' learning gaps, increase the state assessments scores of students, establish practical practices for closing students' learning gaps, improve students' output, and improve the Annual Yearly Progress of schools that are failing because of less than proficient student assessment results.

Far-Reaching

Closing students' learning gaps goes beyond the local level of implementing this project. The hope of this project is that it will be received beyond the local level and become a source of reference for schools nationwide to close students' learning gaps. In addition this project has potential to be used as an as a vital tool for other researchers to expound upon results for future studies.

Conclusion

In this section, a detailed description of the project was given along with the literature review of the project, its implementation, it barriers, and the evaluation system that will be used to assess the project's effectiveness. The results of this study, in Section 2, validated the project's creation and its effectiveness in closing students' learning gaps. Section 4 will further expound upon the project's development, evaluation, strengths, weaknesses, and limitations based. Section 4 will also address the project's implications for future research and its impact on social change.

Section 4: Reflections and Conclusions

Introduction

I conducted a quantitative study to investigate a potential method of closing students' learning gaps at a middle located in the Bronx, New York. This study specifically used students' assessment data in mathematics and English language arts to inform the practices used at the study school site to close student's learning gap. The study results showed that student assessment data can be used successfully to close students' learning gaps and identified some effective practices for doing so. I grew as an educator, as a researcher, and as a leader within my school community from conducting this study. I also, upon completing and reflecting upon my experiences over the years of preparing, conducting, and completing this study, discovered my abilities to be an effective project developer, scholar, researcher, and a liaison of social change.

Section 4 of this study contains information regarding the project's strengths and weaknesses, its limitations, the development and evaluation of the project, and details of my journey as a researcher. It will also address the project's implications for future research and social change and provide insight of my self-analysis as a researcher.

Project Strengths

The project design had three key strengths in addressing the research problem of how to close the achievement gap of students in mathematics and ELA. One of the strengths was that it provided practical, structural guidelines and routines for identifying the standards with which students struggle. Second, the research results showed that the project could help school communities identify the skill sets that students lacked through pre and post assessments to help close or narrow students' learning gaps. Third, the

project gave insight to teachers and administrators about how to differentiate classroom instructions using the practices implemented within this study (see Appendix A).

Recommendations for Remediation of Limitations

Various limitations exist within this project. One of the limitations is time. While conducting this study, teachers complained about the lack of professional development time needed to implement new resources and practices properly within their instructional time. To address this limitation, administrators need to create incentives for teachers to participate in professional development sessions designed to teach proper use of the handbook. By creating incentives for teachers to attend professional development sessions, teachers will familiarize themselves with the handbook at their leisure, which will allow them to receive additional time to use the resources of the manual. This will also allow teachers to receive one-on-one training as needed on how to use the practices within the handbook effectively.

Another limitation of this project's usage is the accuracy of student's assessment results. The accuracy of the assessment results of students is important in implementing the practices within the handbook effectively. In order for teachers to pin point the learning gap of students, it is important that the testing results of students are accurate. This concern was addressed by teachers who expressed that students were not taking the assessment seriously and completed the assessment too quickly. To remediate this limitation for the project, students have to "buy into" their own learning. According to Brandy and McColl (2010), students buying into their own learning will provide students with clearer expectations of the purpose of their efforts and allow them to become more actively engaged in learning. Addressing this limitations provides data accuracy in

identifying where students' learning gaps exist.

Scholarship

Over the course of this study, I learned the importance of scholarly research in education and the value of being consistently knowledgeable in my area of study through professional literature. Utilizing the resources and personnel of Walden University allowed me reflective upon my approach to this study as an educator and a scholar. According to Schon (1983), reflection is a continuous practice for researchers causing the researcher to extend his or her reflective practices from the research to the field of careers. Through reflection, I have learned to evaluate my experiences as learning tools for my growth as an educator and as a scholar of education.

Reflection has taught me that it is very important to know my students as individuals--the whole child--and not just through their numeric data. By knowing and understanding my students, I was able to structure my lessons to meet the specific academic needs of students as well as render instruction from a social emotional perspective so that they can learn and relate to the lessons taught within the classroom. In a study conducted by Strachan (2014), the researcher discovered that when teachers address the overall needs of the students, an increase on the assessment scores of students occurred. By implementing the findings within my instruction, my students' test scores improved as well as their classroom interactions with their peers and me.

Finally, through reflecting as a scholar and researcher, I that using students data to improve their learning takes time and requires collaborative teamwork to affect positive changes. I discovered that reflection is not just about my observances and experiences but it is about the action that takes place after the reflection process. By conducting this

study, I am confident that this research will inform other learning communities and aid to improve the data reform practices of other schools to identify and enhance the learning needs of students.

Project Development and Evaluation

An obvious disparity existed for the students in my local school and school district and that problem caused me to develop this project. As I evolved as an educator by taking on responsibilities outside of my role as teacher, I saw the need for schools to create a systematic and universal procedure to close or narrow students' learning gaps in mathematics and English language arts. A first step included reviewing the existing student assessment data and the performance levels of the students. These data were compared to the district data and the national data. Careful review showed the existence of learning gaps. Somehow, the instructional delivery in the classrooms did not meet the needs of the students. I met with inquiry teams within the school district to gain a deeper understanding of the problem and possible reasons for the learning disparity among our students. I wondered if teachers were more informed of what their students knew and what they needed to learn, and focused instruction to address those needs, would the performance level of students improve in mathematics and English language arts. Moreover, if instruction were differentiated for students in mathematics and English language arts based on assessment data could that improve their learning. From these theories of the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), the theoretical concepts of Johnson (2002), and the research of Halverson et al. (2005), I conducted my project study and utilized my results to create a professional development resource for teachers to close students' learning

gaps.

The first 2 years and 5 months of my research consisted of necessary work for Sections 1 and 2 of this study. My own original research began after receiving Walden's IRB approval, Walden's URR approval, and the New York City's IRB approval. For 7 months, I collected and analyzed student assessment data. The data retrieved from this study showed strong efficiency in the school team's practices of using assessments and scaffolding resources to close students' learning gaps. The final analysis from this research indicated that this study is an important asset to teachers and administrators who desire to close students' learning gaps. From the findings within this study, I created the project, a resource handbook, intended to aid teachers and administrators with effectively using assessment data.

Creating an evaluation system for this project is very important in determining its effectiveness and success. The evaluation of the project's effectiveness will be based on a teacher survey (see Appendix B) that will be filled out at the end of completing the professional development sessions of how to use the resources within the handbook. If the desired outcome of student's improvements is not achieved then the project will have to be revaluated for improvement.

Leadership and Change

It is important for an effective school leader to implement changes that will address gaps in and improve student and teacher learning. Observing and effective leader is paramount. The principal of the study school site proposed inquiry practices that allowed me to understand more fully the importance of being an effective school leader. By observing the principal, I realized that an effective leader possesses skills that demand

attention and warrant believability. The goals and policies needed to improve school environments and students' learning have to be accepted by the staff. Effective principals offer an open door policy for teachers to share their ideas when needed.

The principal of the study school site empowered teachers to take leadership roles in facilitating professional development and sharing resources with other staff members. By empowering the teachers to voice their ideas and concerns, extending an open door policy for teachers, and providing professional development for the entire school staff, the school community responded positively to the goals and visions of the principal for closing students' learning gaps. This caused teachers and administrators to work together collaboratively to affect positive changes, which in turn, led to the improvements of student learning and positive teacher engagement. According to Hawley and Valli (2007), successful school learning communities work collaboratively to improve students' learning. Irvin, Meltzer, and Dukes (2007) believed that the open-door policy of school leaders "helps to create a culture of celebration, collegiality, and continuous improvements" (p. 148). It is through strong leadership, willingness of the school's community to be flexible to change, and the desire to improve student learning that the study school site staff produced improvements in the assessment results of its students within this study.

As the developer of this study, I would like to implement the leadership styles learned to facilitate the various staff developments using the project. This will allow me to share my results as well as help teachers implement the methods and strategies of this study within their classroom practices. I anticipate conducting follow-up sessions with teachers and administrators to gain additional feedback. This follow-up will help to create

a routine of structured practices for teachers to implement within their classrooms and empower teachers to take on leadership roles to support each other.

Analysis of Self as a Scholar

Reflecting upon my journey through this doctoral study, I realized it has been a long journey but it has been a very beneficial one. The challenges of the entire doctoral program as well as conducting this research has revealed to me the inner strengthens that I never knew that I had. Through my various scholarly readings, research, analyzing, defending, writing, and revising, I truly understand the work and effort required to be defined as a scholar.

As a scholar of Walden University and an educator, I have learned that learning is ongoing and does not stop at receiving a doctoral degree but it is consistently obtaining knowledge and wisdom to improve myself, supporting others, and bringing positive changes to diverse learning communities. Through my application of the teachings as a doctoral student, I have obtained the respect and admiration as a researcher from my colleagues and supervisors. I believe that their regard of me did not just stem from them knowing me personally, but it was because I implemented the research design practices with professionalism and displayed acquired knowledge learned from this study. This enabled them to respect me as a scholar and a practitioner.

As a scholar, Walden's doctoral program has strengthened my capability as a researcher and has prepared me for my future role of becoming an educational leader. This program has motivated me to become more involved in the data reform practices of my school and district to incur positive social changes.

Analysis of Self as a Practitioner

Through this study, I learned a lot about myself as a practitioner. Being in the educational system for over 14 years, I became a drone to the policies, practices, and expectations placed upon me. There was little enthusiasm to strive to become better professionally. As a practitioner of this study, I began to reexamine my work habits and worth as an educator. I realized that I can make a difference and that my opinion does matter.

By engaging in the various courses and research conducted throughout my doctoral program, I restructured my approach on how to become a better educator, leader, researcher, scholar, and practitioner. I began to implement ways to improve myself and became actively, professionally involved. With the various readings, research, and completion of my course assignments, I was motivated to become more knowledgeable of the steps needed to close students' learning gaps. As a practitioner, I increased my participation by working with the administrative staff, teachers, and the school's data specialist to improve student achievement.

My self-analysis as a practitioner increased my beliefs that using student data could help close their learning gaps and that by collaboratively working together, educators could help improve student learning, increase the performance levels of students in all academic subjects, and use student's assessment data to inform their practices. My current goal is to facilitate various educational practicums within the New York City school districts. Practicums will guide others in ways to close students' learning gaps using the results from this study. My ambition is to inform educators of the importance of using student data to drive classroom instructions and to provide support to

teachers on how to differentiate their classroom instructions to close the learning gaps in mathematics and ELA.

Analysis of Self as a Project Developer

As a project developer, I learned to manage my time more constructively to develop an effective project. Creating this project has given me an in-depth understanding and a great respect for other researchers and theorists of the effort required to create scholarly work. Conducting this study and creating this project has also informed and trained me to look at data through various lenses and not just from one perspective. Developing this project has inspired me to utilize my research and project results to conduct various professional developments to inform other learning communities of the importance of using student data to close learning gaps.

The project created has increased my confidence to know that I can make a difference in improving students' learning by using their assessment data as well as improve the quality of teaching through the application of the practices implemented within this research and project.

The Project's Potential Impact on Social Change

The potential impact and importance of this project on social change affects both local and national educational stakeholders. The social changes of this project will offer learning communities a systematic approach to identify students' learning gaps, improve differentiated instructional practices within the classroom, and close students' learning gaps using the inquiry practices implemented in the project.

As indicated in this research, the problem that most educators face in closing students' learning gaps is a lack of guidance and a systematic method that will meet the

diverse needs of their students and close their gaps in learning (New York City Department of Education, 2008b; McCall, Hauser, Cornin, Kingsbury, & Houser, 2006). The results from this study has proven that using students' formative and summative assessment data, as well as scaffolding resources can close and narrow students' learning gaps. The results of this study and the project obtained from it will not only benefit the local schools but other stakeholders who seek to use the project nationally.

The results of this study will benefit all educational leaders as well as outside stakeholders who seek to improve student learning. In the areas of analyzing student data effectively, differentiating classroom instructions, and identifying the learning needs and styles of students within the classroom, I hope to provide teachers with the proper training and practices in these areas to create a community of successful learners, thus allowing school communities to reflect upon their current practices and take from my training the resources needed to improve upon their data reform practices. According to Anthes (2001), Armstrong and Anthes (2001), Chubb and Loveless (2002) Decker (2003) Halverson et al. (2005), Kozioff, LaNunziata, Cowardin, and Bessellieu (2000), Timperley and Parr (2007), and Williams (2003), school officials who implement data-reform practices within their schools have shown improvement on assessment results and have increased the performance levels of their students.

Implications, Applications, and Directions for Future Research

Implications

The results of this study and its project contain educational implications that would provide teachers and school leaders training on implementing effective data practices in narrowing or closing the learning gap of students. Specific implications

would be to train teachers on how to use student data to identify the learning standards that students fail to master. After identifying the standards that students performed poorly on, training on how to identify the skill sets or areas of learning that students are lacking should be conducted to address teachers' understanding of how students comprehend, analyze, and answer assessment questions. Once the standards and skill set that students fail to master have been disclosed, then application of training on understanding the learning styles of students and on classroom differentiated instruction should follow to train teachers on how to utilize the assessment data results of student to inform their classroom practices.

Teachers who participate in these professional development trainings should improve upon their instructional practices as well as make informed decisions on the best practices for their students to meet the specific learning needs of each child. According to Langer, Colton, and Goff (2003), when teachers are informed through student data then classroom instruction becomes more purposeful. Mertler (2007) believed that teachers make better instructional decisions when they are able to exam their practices and align it to student results. By implementing these training, teachers will be able to quickly assess students' performance, focus on student progress, and track the effectiveness of their classroom and data practices (Lachat, Williams, & Smith, 2006).

Applications

Applications of this study have shown positive results and improved efficacy in student learning by using the assessment data of students to close their learning gaps in mathematics and ELA. One possible application of the project created would be for building leaders to provide training for teachers who struggle with using student data on

the foundational practices. Training on these practices would include (a) analyzing student data, (b) extracting relevant information from the data, (c) differentiating instruction appropriately for each student, (d) providing scaffolding resources to aid students, and (e) monitoring the progress of each student. According to the results of this study and the beliefs of the *Children First Intensive Inquiry Team Handbook* (New York City Department of Education, 2008a), Johnson (2002), and Halverson et al. (2005) these methods have proven to be effective in closing students' learning gaps.

Further suggested applications of this study and project would be for teachers to create clear learning goals for students geared towards their specific academic needs. Within this study, teachers who created clear learning goals were able to get students involved in their learning. By providing clear expectations teachers were able to expel the generalizations of the state and CCLS and improve student's understanding of what they were expected to know and achieve at the end of each lesson and academic unit. According to Ahern and Kirby (2011), when students are aware of their learning goals, they become more active in their learning development and are more receptive to classroom instructions, thus improving their metacognitive development. The authors believed that this allows students to learn independently on their own time and at their own pace. Application of this practice has also shown connection between improved student learning and the increase practice of differentiated instructions within this study. According to Hattie (2012), providing students with clearer expectations through their learning goals will quickly allow teachers to identify and address the learning needs of students thus allowing teachers to benchmark their lessons as needed.

Directions for Future Research

Conducting this research has proven that students' learning gaps can be closed or even narrowed using the practices instilled within this study but the results could be more effective if students took their assessment results seriously. As stated within the research, it was discovered that some students were not motivated to take their formative and summative assessments seriously. Some students were reported as being unengaged in taking their assessments, using their answer sheets to create designs and answering their assessments quickly without considering the validity of their answers. According McInerney et al. (2009), students who did not take their assessments seriously and were unmotivated, performed poorly on their assessment in comparison to their counterparts. This in turn produced uncertainty in the cogency of their assessment results. The authors concluded that students who were motivated and took their assessment seriously showed substantial increase in their test scores thus validating their test scores and the efficiency of the resources used to assess them. The lack of seriousness and lack of motivation of student involvement on assessments therefore affected the odds of identifying and addressing the gaps in student learning (Kramer & Swing, 2010; McInerney et al., 2009; and OECD, 2000).

The lack of student involvement in taking their assessments seriously led to the implementation of practices by the study school site's principal for teachers to become more aware of the socioeconomic status of their students. According to OECD (2009), socioeconomic status is "an individual's position in society and is measure in terms of income, education, occupation, or by combining these and other measures" (p. 294). By developing an understanding of the socioeconomic status of students, the school staff and

I began to understand the relationships between the income of parents, the education of parents, the age of parents, the neighbor of students, their home conditions, and their learning outcomes. Through this brief research we realize that students who performed low on assessments were either living in foster care conditions, their parents worked 12-14 hour shifts, a few students ate only when they received school meals, some parents were more than half the age of the teacher population, and some students just did not consider the assessments to be important. With these factors in mind, we realize that the events that affected students before they entered school were predicated on their learning results and academic performance. In a study conducted by Heck (2004), he discovered that the socioeconomic status of students was linked to student growth and student achievement. He suggested that the effects of the socioeconomic status of students should be considered when making policies and assessments. He further implied that future indicators should be created to monitor the relationship between socioeconomic status and school growth because "they can provide information on the school's capacity, types of instructional strategies, and change processes implemented to improve learning outcome" (p. 301). Okafor (2012) also hypothesized that the students' socioeconomic status affects the climate of a school and warned administrators to consider the status when creating effective schools. The author proposed that, given the right healthy climate, schools can "transform the human input it receives from its environment into successful people, notwithstanding the low socioeconomic background and the academic burden each student brings" (p. 2). In addition, Nicholas (1995) and Tomlinson and Moon (2013) suggested that by understanding the needs and background of students, we motivate them to learn, therefore, increasing their academic outcome.

In my understanding of the effects of the socioeconomic factors that affect student learning through this research, I realized there was little research addressing this topic. If the socioeconomic status of students is indeed a factor in closing students' learning gaps, then the results of this study could be a factor in closing students' learning gaps and improving student outcomes. This project could be the catalyst for other researchers and stakeholders to improve student learning outcomes, close students' learning gaps, and motivate students to take their assessments more seriously, thereby, improving school reform practices and students' learning outcome.

Conclusion

Section 4 of this study focused on my reflections, insights, and the conclusion of my research. In this section, I addressed the strengths, weakness, and limitations of my study that allowed me to evaluate my areas of growth as a researcher as well as evaluate the effectiveness of my practices in addressing the research questions. The impetus of this study derived from a local problem within my school district on closing students' learning gaps in mathematics and ELA using their assessment data. With many possibilities of effective practices that could work, I desired to learn more about what actually works, thus leading me to conduct this study. By conducting this study, I was able to understand more thoroughly that this research topic was beyond the scope of the study school site's local problem but was a national problem for educators and school leaders.

Implementing the inquiry practices of the study school site showed measurable improvements when using differentiated instructions and the assessment data of students to close their gaps in learning. The importance of this research, the project's handbook,

its implications, and possible applications could be implemented for future research studies on closing students' learning gaps. Future studies on this topic could bring about social changes that provide educators and school leaders with the complete tools needed to improve student learning and close the achievement gaps of students in all academic subjects. This research could also promote a universal practice for educators that would provide guidelines for educators on how to promote successful learners, teachers, and students, for educational success.

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Appendix A: Professional Development Manual

CLOSING STUDENTS' LEARNING GAPS THROUGH THEIR ASSESSMENT RESULTS

CREATED BY

OLIVEAN STRACHAN

PREFACE

Meeting the academic needs in a diverse learning environment of differentiated learners is a challenge that principals and educators have to deal with in closing the learning gap of students. With various opinions and theories being advocated on how to close the learning gap, educators are left without concrete methods on how to narrow or close the learning gaps of their students effectively. For the last two decades, policymakers and educators have been without consistency when applying what actually works to close or narrow the achievement gap. The limited provisions, resources, and knowledge on how to improve student achievement produced fragmented strategies, proposals, and programs used by policymakers, school district administrators, and communities that were unable to identify and address the variables that affect the socioeconomic, racial, and ethnic-group differences in academic achievement (Williams, 2003).

With the lack of consistent resources and knowledge of how to close students' learning gaps, this handbook was created as a practical resource for educators and school administrators to use in closing students' learning gaps using their assessment results. This handbook will be used in a five-day training for teachers and school administrators. Stakeholders will be able to use the strategies implemented within this resource to strategically analyze data from formative, summative, and benchmark assessment to create lessons for large and small group instruction. The lessons created will be differentiated to the specific needs of each child to close their gaps in learning.

The practices within this handbook are based on the theoretical methodologies and practices of the New York City Children First Intensive model (2008), the concepts of Johnson (2002) and the theories of Halverson, Grigg, Prichett, and Thomas (2005). These various practices has proven to be effective in a recent project study conducted in a New York City public school and will address the following data reform practices: (a) acquiring and analyzing students' assessment results to identify their gaps in learning; (b) targeting students and their specific weakness; (c) creating goals; (d) sharing data results and goals with learning community, students, and student's family; (e) knowing the whole student to understand how students learn; (f) aligning the curriculum to meet the specific needs of students; (g) differentiating classroom instruction ; (h) using scaffolding instructional resources to improve student learning; (i) assessing student's improvement through formative feedback; and (j) evaluating what works and does not work in your data reform practices.

Closing Students' learning gaps Using Their Assessment Results

Professional Development Agenda

I. Day 1: Introduction of Handbook. Acquiring and Analyzing Student's Assessment Results
II. Day 2: Creating Goals- Activities #1 and #2 Worksheets
III. Day 3: Sharing Data Results and Goals and Knowing the Whole Student to Understand How Students Learn- Activities #3 and #4
IV. Day 4: Differentiating Classroom Instruction and Using Scaffolding Resources to Improve Student Learning- Activities # 6- #8
V. Day 5: Assessing Student's Improvement Through Formative Feedback and Evaluating What Work and Does Not Work- Activity # 9 and Completion of Teacher Feedback Professional Development Worksheet

Learning Outcomes

The expected learning outcomes of using this handbook and participating in the professional development will allow stakeholders to (a) analyze and assess student's performance using their assessment results; (b) reflect upon their data findings and make inform decisions to improve their practices ;(c) align their curriculum to meet the specific needs of their students; (d) differentiate their classroom instruction using student's formative and summative assessments results; (e) understand the importance of being knowledgeable of their students to improve student outcome and performance; (f) evaluate and reflect upon their practices; and (g) provide students with the best resources to improve their learning.

Acquiring and Analyzing Student's Assessment Results

Why is it important?

In a research conducted by Black and William (1998), the authors reviewed 250 articles worldwide on using student's assessment to improve student achievement. The authors discovered in their research that using student's assessment results does increase the achievement of low performing students. Fullan, Hill, and Crevola (2006), Langer, Colton, and Goff (2003), and Mertler (2007), further discussed that analyzing student's data allows teachers to determine the learning stage of each student as well as identify their strengths and weaknesses academically.

Analyzing student's data helps to determine the following:

1. What students learned during the school year.
2. Where students' learning gaps exist.
3. Which standards to focus on.
4. How to compare student's performance by subgroups (e.g., by racial group, gender, students with disabilities, ELL students, or students in the free and reduced meals program), to that of the school's general population.
5. What analytic information is needed for you to further inform your instruction.
6. How to plan your instruction to meet the needs of your targeted population.
7. What adjustments are needed in creating your curriculum and instructional planning.

8. What interventions are needed.
9. What resources are needed to close students' learning gaps.

Procedures for Analyzing Student's Data

Step 1. Work in content groups or in the groups aligned to your content area of teaching for the upcoming school year.

Step 2. What are the testing requirements and how are students expected to meet those requirements? What are the scale scores for passing the standardized exams?

Step 3. Interpret your schools data and identify your targeted students. Hold discussions of the outcome discovered in your findings.

Step 4. Use the following questions to guide your discussion.

- What does the data tell you about the student's performance on the standardized assessment?
- Who are your low performing students? Who are your borderline students for failing?
- What are the standards of focus? The standards that appears to be most difficult for students.
- What does the results tells us of the student's understanding of the standards?
- What learning skills are needed to answer the questions correctly?
- What does the data tell us to inform our classroom instructions?

Step 5. Choose a format to represent your data for whole group discussions that will make your findings easy to understanding (e.g., Bar graph, line graph, table, chart etc.).

Step 6. Focus your discussion on your findings and consider ways to improve the results. How can we address the focus standards as a community?

Step 7. Discuss the findings of each group and share out the results. Keep in mind the following questions.

- What questions arose from analyzing the assessment results?
- What were some similar problems found in high and low performing students?
- What should be the school's focus standards based on your analysis?
- What skills need to be re-taught within the classroom?
- What should be your next instructional steps?
- How can you work collaborative to implement the strategies across the curriculum to close students' learning gaps discovered?

Step 8. Based on your findings discuss and begin to create long term and short term goals for the school community based on your findings. Focus questions: How do you move students to proficiency and close their learning gaps? How do you monitor student's progress?

Step 9. Stay focus on the data results not on your personal opinions.

Targeting Students and Their Specific Weakness

After analyzing students data the next process of focus is to select underperforming students. To begin targeting low performing students use the following suggested procedures: (a) identify the content area (s) of focus that students struggle in; (b) identify the standards that students struggle with (i.e., common core standards and performance indicators); (c) identify the skills that address the standards; (d) identify

students based on schools' target specifications and performance range(e.g. select students whose attendance is consistent and who attends school regularly); and (e) analyze the performance of students in other content areas using their progress report, or any other resources used to assess the progress of students during the school year. These steps will help to specifically target the areas where students struggle and identify their patterns in learning. Once the targeted students and their learning gaps are discovered, create your SMART learning goals for instruction and your SMART goals for the school community.

Flow Chart of Targeting Low Performing Students

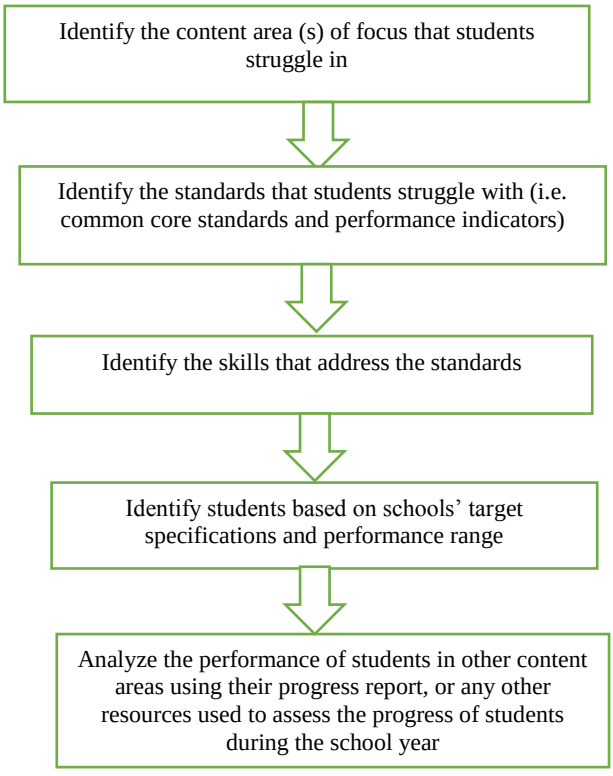


Figure 1. Diagram of steps to target low performing students.

To emphasize the process of targeting students and their weakness, Table 1 gives a general example of how to target students based on the school's content of focus, target specifications, performance range, standards of weakness, and the skills needed to address the standards.

Table 1

Grade 6 Targeting Students Based on Performance Range and Standards of Focus

Content of Focus	**Target Specifications**	**Performance Range of Targeted Students**	**Standards of Weakness/Focus**	**Skill Set Needed**
ELA	All students in the citywide and school's lowest third	Schools bottom third which includes Level 1 and low level 2 students from previous school year standardized assessments. Level 1: 148-290 Low Level 2: 291-305	*CCSS.ELA-LITERACY.W.6.1.A *CCSS.ELA-LITERACY.W.6.1.B. *CCSS.ELA-LITERACY.W.6.1.C	*Introduce claim with evidence *Support claim(s) with clear reasons and relevant evidence, using credible sources demonstrating understanding *Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons
Math	All students in the citywide and school's lowest third	Schools bottom third which includes Level 1 and low level 2 students from previous school year standardized assessments. Level 1: 139-284 Low Level 2: 285-299	*CCSS.MATH.CONTENT.6.RP.A.1 *CCSS.MATH.CONTENT.6.RP.A.2 *CCSS.MATH.CONTENT.6.RP.A.3	*Ratio relationship between two quantities *Unit rate a/b associated with a ratio *Use tables to compare ratios

Work with your content group to further target individual students by specific standards and skill sets needed to create learning goals and to differentiate your classroom instructions. As you identify low performing students by your school's selection criteria, begin to narrow your selection of students by analyzing their previous assessment scores to assess the trends in their data. This will help to assess the urgency of closing the learning gaps of each student as well as minimize your target groups. Always be willing to revise your selection criteria and the selection of students based on new information discovered in the targeting process.

Creating Goals

Creating learning goals is one of the most important steps to improve student achievement. The collaboration of teachers, students, and principals in creating goals establishes uniformity in school practices and beliefs that helps stakeholder make inform decisions, develop plan of action, and effectively monitor student and school progress.

What are SMART learning goals?

Learning goals emphasizes what teachers want students to learn or achieve from their instructions. Learning goals are meaningful, measureable, and manageable. SMART goals are specific, measureable, attainable, relevant, and time limited. SMART learning goals for students are created based on the learning needs of students and are formed from student data. Conceived collaboratively and titled SMART learning goals, these goals are defined as focus, realistic, clear, specific, measurable, attainable, relevant, time limited, and comprehensive for effective instructional results. The product of creating SMART learning goals is to identify actions that students are expected to demonstrate in terms of knowledge and skills in completion of a lesson, unit, or course. SMART

learning goals are used to measure student's progress toward achieving the goals created. They are also used to inform educators and students if the goals created are met or not met. SMART learning goals must be aligned to curriculum, state content standards, instruction, and assessments to be effective (Conzemius & Morganti-Fisher, 2012; Haar & Foord; 2013).

Developing SMART Goals

To create SMART learning goals start by doing the following:

1. Identify the weakness of students within the content using the data analysis of their assessments.
2. Identify what skill sets are needed to address the standards discovered that cause students to struggle.
3. Identify what you want students to learn to base on your data analysis and the skill set needed to address the area of student's weaknesses.
4. Be **Specific** in what you want students to learn.
    - Specific= Simple, clear, and well defined. It is the What, Why, and How of creating your goals.
5. Set **Measurable** goals. Use actions words to make sure your goals are measurable (e.g., Student will explain, identify, describe, create, etc.)
    - Measurable = Tangible evidence of what you want to accomplish. How am I going to measure my goal?
6. Create **Attainable** goals that are realistic to the academic development of your students. Do not create goals that will set your students up to fail.

- Attainable =Achievable= is the goal realistic? Is it attainable for students based on their performance skills?

7. In creating goals, be aware of your student's current abilities, skills, attitudes, and learning styles to address the specific needs of that child. Students must possess the appropriate knowledge, skills and abilities to achieve a goal.
8. Goals should be **Relevant.** Your goals are the results of your measured outcomes. It is result based.
    - Relevant= Result based= what will the outcome of the goal look like?
9. Set a **Time** frame for your goals to be accomplished.
    - Time limit= When should I reach my goal?
10. Aligned your goals to your curriculum, standards, classroom instructions, and classroom assessments.
11. Have students partake in creating their SMART goals. According to Brophy (2010), helping students frame their learning goals encourages them to take responsibility for their own learning. This encourages students to take pride in their own learning.
12. Inform parents and learning community of student's SMART goals. This will create systematic involvement of parents, teachers, and students working together to improve student learning.
13. Evaluate your practices for areas of improvement. Make sure that the process of creating SMART goals is ongoing to consistently assess and determine the specific needs and areas of improvement.

The Process of Creating Smart Goals

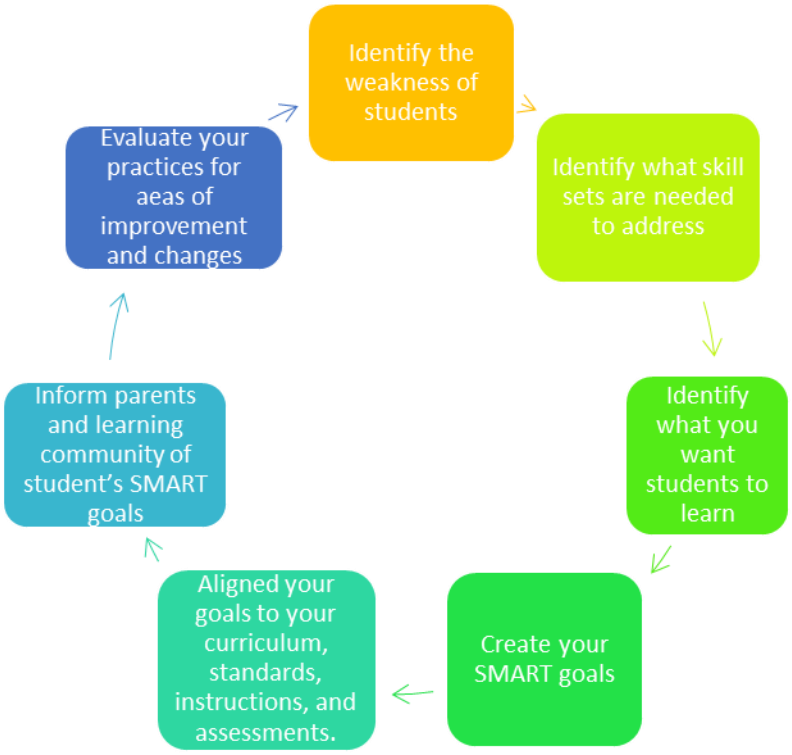


Figure 2. The continual process of creating SMART goals.

Examine Table 2 below. Use the example in Table 2 to create SMART goals for Table 3, Activity #1 Worksheet. Use the Table 4's Activity# 2 Worksheet to help create SMART goals in your content group. Table 4's worksheet can be used to create goals for your individual goals, instructional goals, setting school goals, and setting goals with students.

Table 2

Goal		S.M.A.R.T. Learning Goal
I will improve my 8th grade students' mathematical literacy in geometry.		In order to ensure mathematical literacy in each of the three content areas for eighth-grade geometry, I will incorporate essay questions into unit assessments that require elaboration of mathematical reasoning so that by the end of the 2012–13 school year, 80 percent or more of my students demonstrate proficiency on essay questions on the end-of-the-year eighth-grade geometry assessment.
S.M.A.R.T. Learning Goal Analysis		
S	Is the learning goal **S**pecific?	**Yes.** The goal is narrowly focused on **"three content areas for eighth-grade geometry"** and involves the incorporation of **"essay questions into unit assessments that require elaboration of mathematical reasoning."**
M	Is it **M**easurable?	**Yes.** The goal calls for **"80 percent or more"** of students to demonstrate proficiency.
A	Is it **A**ttainable?	**Yes.** The goal uses action words such as **"ensure," "incorporate"** and **"demonstrate."**
R	Is it **R**elevant?	**Yes.** The goal sets high but attainable expected outcomes for students.
T	Is it **T**imed?	**Yes.** The goal should be met **"by the end of the 2012-13 school year."**

Note. Table was altered for this handbook. The original chart taken from the Massachusetts Department of Elementary and Secondary Education, 2012, "Massachusetts Model System for Educator Evaluation Participant Handouts for Workshop 3:S.M.A.R.T. Goals", and retrieved from www.doe.mass.edu.

Use Table 3 to create a S.M.A.R.T. learning goal using the components of the S.M.A.R.T. criteria. This will be Activity# 1 within this manual.

Table 3

Activity #1 Practice worksheet.

Goal		**S.M.A.R.T. Learning Goal**
I will improve my 8th grade students' mathematical literacy in geometry.		In order to ensure mathematical literacy in eighth-grade geometry, I will incorporate essay questions into unit assessments that require elaboration of mathematical reasoning so that by the end of the 2012–13 school year, 80 percent or more of my students demonstrate proficiency on essay questions on the end-of-the-year eighth-grade geometry assessment.
S.M.A.R.T. Learning Goal Analysis		
S	Is the learning goal **S**pecific?	
M	Is it **M**easurable?	
A	Is it **A**ttainable?	
R	Is it **R**elevant?	
T	Is it **T**imed?	

Table 4

Activity Worksheet #2

Goal		**S.M.A.R.T. Learning Goal**
S.M.A.R.T. Learning Goal Analysis		
S	Is the learning goal **S**pecific?	
M	Is it **M**easurable?	
A	Is it **A**ttainable?	
R	Is it **R**elevant?	
T	Is it **T**imed?	

Sharing Data Results and Goals

Closing students' learning gaps have been linked to parents and communities becoming involved in students learning. It's through the involvement of parents, teachers, and the general community can positive changes be made to close the learning gaps in schools and improve education for students (Haycock, 2001; Shannon & Bylama, 2002; & Sadovnik, O'Day, Bohrnstedt, & Borman, 2013).

The following information on sharing student's data and goals with parents, teachers, and general communities was taken from the Harvard Family Research Project (2013), titled, "Tips for administrators and teachers, and families: How to share data effectively." Full rights was given in utilizing this resource by the Harvard Family Research Project. Below are the research-based tips on sharing student's data directly retrieved from the Harvard University Graduate School of Education. Some of the processes are applicable for sharing student's SMART goals. Relevant SMART goals were added as part of the process of sharing student's data.

Tips for Sharing Student's Data and Goals

Administrators: Helping Families Make Use of Data

- Provide families with resources about student data. Include training when needed on how to utilize these resources. The resources should include how to access and understand data such as standardized test scores as well as how to log onto online parent portals and make sense of the information.

- Make sure that families are aware of any new education reform initiatives that will impact their child's learning, especially when state or district assessments change. For example, as states adopt the Common Core Standards, many families are finding that they need help in understanding what skills and knowledge their child will need in order to do well on tests aligned with the new standards.
- Help families understand how teachers and others in the school use student data and why this information is valuable. For instance, explain to families that teachers use data to adapt teaching strategies to students' needs as well as to help students work toward specific learning goals. Knowing how teachers use data helps reassure families that the data are used in meaningful ways and that their child is not seen as just a set of numbers.
- Ensure equity in families' access to student data. Whenever possible, make certain that families have access to information in their native language. Also, designate certain computers in the school for families to use to access online parent portals. Partner with community centers and libraries to establish computer kiosks where families can access the portals.
- Ask families if the student progress notes or school-wide data reports that they receive are easy to understand. Find out what information parents find valuable, and ask if other types of data exist that they would like to receive in these reports. To gather more feedback about their ideas and

needs, consider holding a parent focus group or conducting a parent survey.

- Involve the larger community in reaching out to families to help them access, understand, and act on student data. Work with community partners and parent leaders to help families understand the importance of attending orientations, open houses, and parent–teacher conferences. Families can learn about the school's data-sharing practices at these events and they can learn how to use data to support their child's learning.

Teachers: Sharing Data with Families

- Approach sharing data with families in the context of the whole child. Be prepared to reassure parents that their child's progress is more than the sum of test scores or attendance records by supplementing this information with daily classroom observations. These might include the child's social and problem solving skills and contributions to class discussions.
- Be sensitive to families' diverse cultural and linguistic backgrounds and recognize that these can influence the ways that you communicate with them. Ask parent and community liaisons or other staff about using culturally and linguistically responsive ways to connect with families.
- Maintain accurate and timely data on student progress, and ensure that this information is accessible to families. Provide parents with a brief definition or explanation of data (SMART goals) that have been sent home or posted on an online parent portal. Doing so will help clarify what that information really says about their child's progress.

- Talk with other teachers to determine the best ways to share different types of data with families. Determine which data are best discussed in a personal meeting, which data can be shared during a phone conversation, and which data can simply be posted online.
- Review the data directly with students, if it is developmentally appropriate to do so, and tell them that you plan to share the information with their family. This approach gives students an opportunity to talk to their parents about the data—such as a test score or a disciplinary citation—before their parents see them on a portal or in a progress note, and allows students to develop a greater sense of responsibility for their school progress.
- Identify support staff, including parent liaisons and guidance counselors, to work with families when needed. These staff might help with translation assistance and referrals for academic or other support services in the community. These individuals can also help facilitate parents' ongoing use of resources such as online parent portals and assist parents with implementing action steps to advance their child's learning.
- Take time to develop a trusting and respectful relationship with families. Establishing a sense of trust will help families feel comfortable talking with you about their child's progress and help them be open to suggestions about how to address challenges.

Teachers: Talking with Families about Student Data

- Be mindful of privacy when meeting with families to discuss their child's progress. The most meaningful discussions will occur when family members can

talk about their child's progress openly and honestly, so be aware of whether others can overhear conversations that might involve sensitive topics.

- Give families a voice. Don't feel the need to provide all the data or answers to student learning issues yourself—invite families to share their own data and observations of their child to make them active partners with whom you share a clear objective.
- Find an appropriate time during parent–teacher meetings to specifically discuss test scores, other formal performance results, and student's SMART goals. Starting off with these data—which can seem more impersonal than other observations of a student's classroom functioning—may not be the best place to begin a conversation.
- Be sure to share a range of data, including test scores as well as day-to-day observations of the student's behavior and performance. Inform parents of the SMART goals created with students and their progress of fulfilling their goals. Present samples of the student's work to illustrate progress and to move the conversation beyond numbers and percentages. Help families understand what the data suggest about their child's overall academic progress and any learning challenges that need to be addressed.
- Avoid as much education jargon as possible, including acronyms or terms such as "summative" and "formative." Keep in mind that people not directly involved in an education setting are often unfamiliar with many of these terms. Create a glossary of the most commonly used words and phrases to help families

understand those "edu-speak" terms related to assessment and performance that they are likely to see in print and online.

- Focus conversations on the potential for growth and improvement. Use the student's progress data to co-develop an action plan for growth, and discuss the specific roles that you, the parent, and the student will play in achieving goals.
- Provide families with resources to enrich their child's learning, and help them understand the best way to use the resources. These resources may include websites, activities, and lists of afterschool programs. Giving families a variety of resources is helpful, but try not to overwhelm them with too many—focus on those that are most relevant to their child's needs.

Even with these steps in place, you will still encounter obstacles with sharing data with families. Please note that these practices are not the be all and end all of how to share student's data and SMART goals.

Knowing the Whole Student to Understand How Students Learn

It's important to know students beyond their numeric and general school data. In the 21st Century classroom teachers and administrators have to know their students from a socioeconomic point of view, as a whole individual. According to OECD (2009), socioeconomic status is, "an individual's position in society and is measure in terms of income, education, occupation, or by combining these and other measures" (p.294). According to Strachan (2014), by developing an understanding of the whole student, educators begin to understand the effects of student's economical, demographical, and social emotional makeup on their learning performance and learning gaps. The author's researched showed that when learning communities are aware of the whole student and

the events that affect students at home and in school, there is improvement in the learning results and academic performance of students. Heck (2004) and Okafor (2012) believed that the socioeconomic status of students affects the climate of a school and should be considered in creating effective schools.

Getting to know your students should be done at the beginning of the school year and continued throughout the year. This process is cyclic and should be considered a very important tool in closing the learning gap of students and understanding their performance on assessments.

Sharing Data Results and Goals

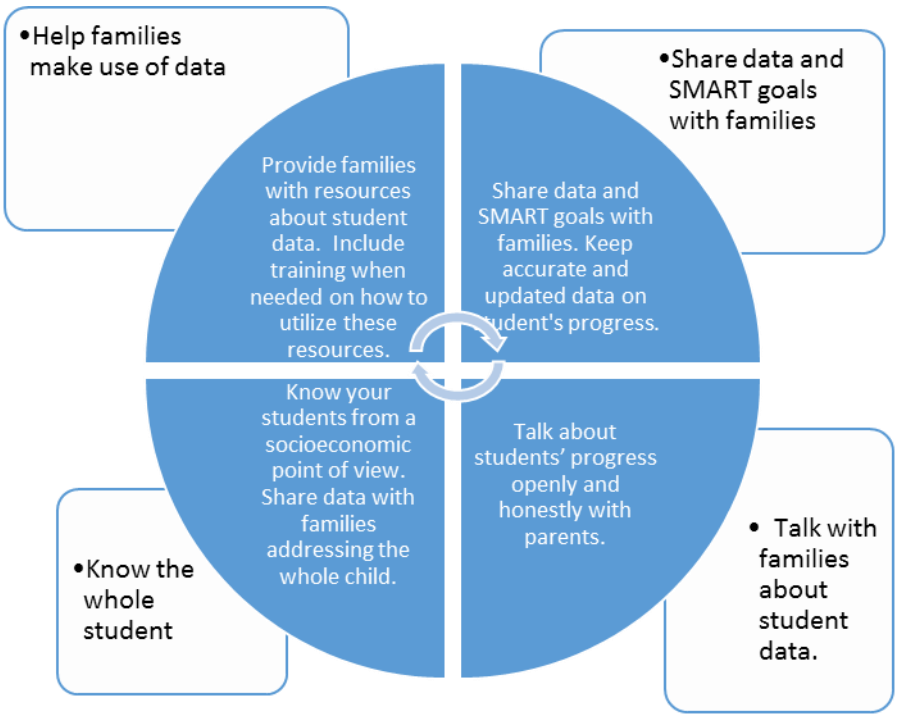


Figure 3. Quick points on sharing student's data and SMART goals.

The Parent/ Student Activity worksheets, Figure 3 and 4, are samples that can be used at the beginning of the school year to better understand and know students and their parents.

Figure 3 Activity 3

Student's Name_____ Class_____ Date_____

Parent/Student Survey 

Please complete this survey with your child and have your child return it the next class session.

1.) Parent/Guardian Name(s): _____

2.) Any allergies your child has: _____

3.) Any disabilities or special needs your child has: _____

4.) Expectations or goals for your child in his/her content areas this year:

_____

5.) How many hours does your child spend in after school activities (e.g., Soccer, ballet, etc.): _____

6.) Does your child have easy access to a computer or the internet? _____

7.) Does your child have a library card? _____

8.) Does your child need additional support when completing assignments?

_____

9.) This school year I look forward to_____

10.) I would like to learn more about _____

11.) A goal I would like to set for my child's learning ____ _____

12.) Any questions, concerns, comments:

Parent/Guardian Signature: _____

Thank You!!!!!!!

Figure 4 Activity 4

Student's Name_____ Class_____ Date_____

Student Ice Breaker- Getting to Know You

For this Ice Breaker you will get to know your classmates through this writing and speaking activity. Please create your own questions and choose 3 people to survey. Use the sample questions to help your create your questionnaire.

Examples

1. What's your full name?
2. How old are you?
3. What do you like to do in your spare time?
4. How many siblings do you have?
5. Where do you spend most of your time after school? On the weekend?
6. What your favorite subject in school? Why?

Create your questions and survey three other students.

Questions	Student 1	Student 2	Student 3

Write a short summary of what you've learned after interviewing three students.

For example: Student 1 (Tom) likes to go swimming after school and lives with his dad. Student 2 (Joe) goes home after school and has two siblings. Student 2 (Hillary) babysits afterschool, loves to read and likes to listen to music. Hillary also wears glasses but her mother cannot afford new ones.

_____

_____

_____

Aligning the Curriculum to Meet the Specific Needs of Students

Aligning the school's curriculum and teacher's lesson plans to city and state standards addresses the learning concerns of students and empower stakeholders to achieve the goals created for student improvement (Inman, 2009; Johnson, 1996; Squires, 2009). Through the alignment and implementation of the Common Core Standards, educators are able to cover multiple skills in teaching to increase critical thinking and problem-solving skills. Aligning the curriculum enforces educators to extend their practices outside of their content area to other curricular areas to create rigor within their instruction. This being said, it's essential that your curriculum is aligned to the Common Core standards, the state standards, the school's goals, and your assessments, in order to advance students' learning and close their learning gaps.

The following table (Table 2) derived from the practices of Mooney and Mausbach (2008) and Tweed (2007) provides a detailed check off list for planning, developing, and aligning your curriculum to the city and state standards. This check off list will help you align your lesson, your data analysis findings, the Common Core Standards, your assessments, student goals, and your instructional resources to your curriculum while planning. Use this check off list during your common planning time to beginning creating your curriculum and lesson planning. Keep in mind that curriculum planning is ongoing and revisable based on the needs of your students and the outcome of your student's data results (Mooney and Mausbach; 2008). Use the example worksheet in Table 3 to help create your curriculum map. Your curriculum should be planned prior

to commencing the school year and evaluated regularly to establish effective routines in creating constructive practices and rigorous instructions for students (Drake, 2012).

Table 2

Curriculum Alignment Focus Check Off List

Steps	Curriculum Alignment Focus	Check When Completed
1.	Analyze the existing curriculum maps/Scope and Sequence documents.	
2.	Review the targeted standards discovered from analyzing student's data and the standards you will address for the school year.	
3.	Analyze the interrelationship between the content area under revision and other content areas for identifying cross-curricular needs.	
4.	Decide what learning experiences will enable students to learn what they need to know and to do.	
5.	Plan/implement rigorous lessons that ensure that each student has adequate opportunities to learn based on student's individual needs.	
6.	Make sure your curriculum, lessons, and assessments are clear and focused based on the learning outcomes, standards, and the needs of your students.	
7.	Determine the type of assessments you will implement within your curriculum (e.g., quizzes, test, prompts, formative assessments, teacher observations, student self-assessments, journals, portfolios, etc.)	
8.	Make sure your formative, benchmark, and summative assessments are effective and are linked to standards that reflect the important content that is taught.	
9.	Conduct assessments and use data to provide feedback; re-plan and re-teach, or repeat as needed.	
10.	Plan for additional professional development when needed.	

Figure 5 Activity 5: Sample Worksheet for Creating a Curriculum Map.

CURRICULUM MAP

Course /Subject:	***Unit Number:***
Duration:	***Grade :***
Essential Questions: ***1.*** ***2.*** ***3.***	***4.*** ***5.*** ***6.***

Big Ideas of Unit :	
Materials:	
Unit Description	
Common Core Standards	

Goals/Unit Objectives *Students will be able to…* *(The overall goal, as well as objective, outlining the concept, knowledge, skill, or application students can demonstrate upon lesson completion)*	**Learning Outcomes** *How does this lesson support the unit goals / enduring understandings? How does this lesson build on the previous lesson in this instructional sequence? How does this lesson support the next lesson in this instructional sequence?*	**Assessment (Evidence)** How do you demonstrate student's understanding? Examples: questions, entire tests, portfolio, guidelines or rubrics, Exit slips.	**Instructional Strategies** *(Best practices used to explicitly teach skills & concepts)* Group/Individual Instruction Critical Thinking Compare and contrast activities Reflective activities Observations Rigorous questioning	**Bloom's Taxonomy** *Which levels of Bloom's Revised Taxonomy are you targeting within the unit?* ***Remembering*** ***Analyzing*** ***Understanding*** ***Evaluating*** ***Applying*** ***Creating***
		Formative Assessments: Summative Assessments		**Differentiation of Curriculum** *-Who are your targeted students?* *-What scaffolding resources are you using?*

Differentiating Classroom Instruction

Differentiating your classroom instruction does not happen overnight. It's a continuous process to places the needs of students first and focuses your classroom instruction on the interest and learning styles of your students. According to Heacox (2012), differentiated instruction engages students in activities base on their academic needs, strengths and preferences.

Differentiation of instruction involves changes in one or more of the three areas of instruction: Content, Process, and Product. Content is the topic or subject your will address in your instruction that is aligned to national or state standards. It is what you teach and what you expect students to learn within your classroom instructions. To differentiation content Heacox (2012) gives three strategies to implement with your instructional practices: (a) match students with activities according to their skill set and achievement level; (b) give students rigorous tasks and choices on topics that they can explore using higher level of thinking; and (c) provide students with basic and advance resources that is at their level of understanding.

Process in differentiation is how you instruct students and how you expect them to learn. The procedures of process in teaching includes but is not limited to modeling, using manipulatives, using audio resources, and using visuals aids. Engaging students through these facets will address student's kinesthetic, audio, and visual learning styles. This will also help students to understand, interact, and connect with the content.

Product is how students demonstrate what they have learned. It is the results of what they have learned through assessments or completion of a task. Products reflect student's understanding, thinking, and ideas. To assess the end results of student's work

an evaluation tool or rubric must be given and explained to students before assigning a task or activity for students to complete.

The process of differentiating instruction is based on rigorous instruction that is flexible to the needs of student's. To successfully implement differentiation within your classroom instruction, it is important that you choose the right assessment tools for students, know the whole student (i.e., not limited to, their home environment, social and emotional intelligence, learning needs, psychological need, etc.), and address their style of learning. You must also provide students with resources that address their specific areas of weakness and provide rigorous instructions to close their weak areas in learning. Differentiation must therefore be continuous in teaching, students' learning, and in assessing the specific learning needs of students.

Below are differentiation worksheets taken from Heacox (2009) to help guide you in differentiating you classroom instructions. Figure 6, *Teacher Inventory on Differentiation Practices and Strategies*, is a teacher inventory worksheet that will help you reflect on your differentiated practices and strategies. Use Figure 6, Activity 6, as a resource tool to assess your current level of differentiation and evaluate your next steps for improvement. Please note that the phrase KUDO's in your reading means: What you want students to **K**now, **U**nderstand, and be able to **D**o. Figure 7, *25 Formats for Differentiation,* Activity 7, is a worksheet on various formats for presenting differentiation within your classroom instruction. Figure 8, *Differentiation All Students vs. Differentiation for Gifted Learners,* Activity 8, will help you address the cognitive differences of students in differentiation your instructions.

Activity 6 Teacher Inventory on Differentiation Practices and Strategies

TEACHER INVEN
DIFFERENTIATION PRACTICES AND STRATEGIES

Check the level at which you teach.

❑ Grades K–2 ❑ Grades 3–5 ❑ Grades 6–8 ❑ Grades 9–12

Read each statement below. Circle the response that most closely describes the extent to which you use the practice in your classroom. Use the following scale:

1 = never/almost never
2 = seldom
3 = sometimes
4 = frequently, consistently

Differentiation Practices and Strategies	Level of Usage
CURRICULUM	
1. I review my state/province's academic standards before I determine a curriculum unit's goals (KUDo's) or the goals for a lesson	1 2 3 4
2. I determine the assessments that I will use before I plan my unit activities so that there is alignment between curriculum, assessment, and instruction.	1 2 3 4
3. I ensure that all student tasks and products focus on clearly stated learning goals (KUDo's).	1 2 3 4
INSTRUCTIONAL PLANNING	
4. I preassess students to determine their readiness for each new unit or series of lessons.	1 2 3 4
5. I use ongoing (formative) assessment to adjust my instructional plans to respond to differing learning needs.	1 2 3 4
6. I use assessment data provided by my state or province or school to inform my instructional planning.	1 2 3 4
7. I gather information about my students' interests in curriculum topics.	1 2 3 4
8. I know my students' learning preferences. (Multiple Intelligences)	1 2 3 4
FLEXIBLE INSTRUCTION	
9. I use a variety of instructional strategies in my teaching.	1 2 3 4
10. I engage all my students in challenging learning experiences based on their specific needs.	1 2 3 4
11. I adjust the pace of instruction to students' learning needs, not everyone is doing the same thing on the same day every day.	1 2 3 4
12. I provide additional time, instruction, and support (e.g., scaffolding) to students based on their specific needs.	1 2 3 4

CONTINUED ➡

TEACHER INVENTORY ON DIFFERENTIATION PRACTICES AND STRATEGIES (CONTINUED)

FLEXIBLE INSTRUCTION CONTINUED				
13. I adjust curriculum topics and learning tasks to best meet my students' needs and ensure a challenging learning experience.	1	2	3	4
14. I match resources to my students' reading-readiness levels (e.g., Lexile scores).	1	2	3	4
15. I match resources to my students' level of knowledge about a curricular topic.	1	2	3	4
16. I use choice in topics, processes, or products to motivate my students.	1	2	3	4
17. I use a variety of choice formats with my students including such activities as tic-tac-toe boards, cubing, and RAFTS (Role/Audience/Format/Topics).	1	2	3	4
18. I use tiered assignments to match students with "just right, right now" tasks based on their learning needs.	1	2	3	4
19. I offer tasks reflecting my students' interests.	1	2	3	4
20. I design tasks based on student readiness; some students need more time, instruction, practice; others are "there" early.	1	2	3	4
21. I design tasks reflecting different learning preferences. (Multiple Intelligences)	1	2	3	4
22. If I use centers or stations, I either assign particular students to particular centers or match students with particular activities in each center based on their learning needs.	1	2	3	4
23. I plan and use flexible grouping in my classroom to organize students by their instructional needs.	1	2	3	4
24. I use a variety of ways to group my students (e.g., by interest, readiness, learning preference).	1	2	3	4

MY NEXT STEPS IN DIFFERENTIATION
Differentiation strategies I most frequently use:
Strategies I rarely or never use:
Circle two strategies from the bottom list that you are committed to try out in your classroom. Number them in the order you will implement them.

Figure 6. A guide worksheet to differentiate classroom instruction and planning next steps in differentiation. . From "*Making Differentiation a Habit: How to Ensure Success in Academically Diverse Classroom*," by Diane Heacox, 2009, pp. 13-14. Copyright 2014 by President and Fellows of Havard College. Reprinted with permission from Harvard Family Research Project (www.hfrp.org).

Activity 7 25 Formats for Differentiation

25 Formats for Differentiation

Formats Offering Student Choice

1. Choice of assignments designed by learning preference (Multiple Intelligences)
   Example: Students choose from a list of activities relating to a topic that reflect a variety of learning preferences: sing it, write it, diagram it, draw it, act it out, etc.
2. Choice of assignments skillfully designed by challenge and complexity level
   Example: Teacher uses a tic-tac-toe, show-and-tell, two-by-two, or other such choice board presenting differentiated tasks with teacher-planned choices.
3. Journal prompts provided by the teacher and selected by the students based on interest *
   Example: Students select from a list of writing assignments related to a theme, concept, or topic of study.
4. Choice of work style: individual, with a partner, in a small group *
   Example: Students do the same task but have a choice of ways to complete it.
5. Availability of study guides like notetaking templates or graphic organizers
   Example: Teacher-developed graphic organizers that capture key ideas from the text or lecture are used for preparation for assessments/exams.
6. Choice of topic by interest, same task *
   Example: All students complete the same task (e.g., construct an informational brochure), however, they choose the topic for their product (e.g., choose from a list of key topics related to the rain forest).
7. Choice of activity by interest *
   Example: All students choose to do particular parts of a group project (e.g., a newspaper project in which students choose the role of columnist, editorial cartoonist, editorial page editor, etc.).
8. Choice of topic, same task, leveled reading sources assigned by teacher
   Example: A compilation of articles related to the selected topics are placed in colored folders classified by reading level. Students select a topic and are directed to the folder containing the resources matched to their reading readiness.
9. Choice of ways to share information *
   Example: Students may write, present, draw, or diagram information.

Teacher-Prescribed Formats

10. Tasks based on readiness demonstrated in preassessment
    Example: Students are assigned to science labs involving different topics and different tasks based on their prior knowledge; all groups share their results with the class.
11. Tasks with similar content, different levels of difficulty or complexity
    Example: Students work with the same content, but are assigned to different activities based on their learning needs.
12. Tasks assigned based on learning preference
    Example: Bodily/kinesthetic students perform a skit, while Visual/spatial students create a poster.
13. Readings or research in small groups assigned by prior content knowledge *
    Example: One group explores introductory or foundational information; another explores more complex, in-depth, technical information. All groups share.

CONTINUED ➡

25 Formats for Differentiation (continued)

14. Tasks supported by greater scaffolding
Example: Students who need more support in their learning, or who need a complex task broken down into more accessible steps, are provided necessary templates, formats, or procedure checklists to increase their likelihood of success.

15. Tasks supported with technology resources
Example: Students who have extensive knowledge and interest in a particular topic are matched to online resources to extend their learning beyond the core curriculum. Other students use online sources to supplement or support text content.

16. Tasks demanding different levels of abstraction
Example: Some students are assigned more concrete applications to assist them in understanding; other students engage in tasks that demand more abstract thinking.

17. Tiered graphic organizers
Example: Students using the same content are assigned to particular graphic organizers differing in their degree of structure and level of complexity or abstraction.

18. Essay questions or journal prompts tiered by level of difficulty
Example: Essay questions reflecting varying levels of complexity or abstractness are assigned to particular students.

19. Tasks tiered by demonstrated readiness
Example: Students are assigned to particular activities based on their readiness levels (e.g., additional practice with vocabulary/skills, application of vocabulary/skills, extension of vocabulary/skills).

20. Same project, student roles assigned by teacher *
Example: Teacher assigns particular students in each group to take leadership roles based on their particular talents or learning preferences (e.g., the lead writer, the lead researcher, etc.).

21. Paired reading and question responses with partner of similar ability, struggling readers with teacher *
Example: Struggling readers can be better coached through reading and response by a teacher than by an age peer; other students may select to join the teacher's group if they wish.

22. Mini-lessons on skills or content by invitation and self-selection *
Example: Students who lack particular skills or content based on formative data are invited by the teacher to join the mini-lesson; other students may select to attend based on their own perceived needs.

23. Work partners assigned based on same content knowledge *
Example: Students work with partners who are at the same knowledge level related to the content being studied.

24. Same topic, different reading sources based on reading readiness
Example: All students read about the same topic but their resources vary by reading readiness.

25. Same topic, primary or paraphrased readings
Example: All students read about the same topic but some are assigned primary resources while others are given paraphrased readings (e.g., either Martin Luther King Jr.'s original speech, or a summary of his key points, ideas, and themes).

Figure 7. Worksheet of various formats to guide differentiate classroom instruction. From "Making Differentiation a Habit: How to Ensure Success in Academically Diverse Classroom," by D. Heacox, 2009, pp. 116-117. Copyright 2014 by President and Fellows of Havard College. Reprinted with permission from Harvard Family Research Project (www.hfrp.org).

Activity 8 Differentiation All Students vs. Differentiation for Gifted Learners

DIFFERENTIATION
ALL STUDENTS VS. DIFFERENTIATION FOR GIFTED LEARNERS

For All Students	For Gifted Learners
Applies state academic standards or provincial goals	Extends academic standards or goals into "next levels" of the curriculum area
Provides activities that reflect rigor and variety	Incorporates advanced, in-depth, and complex content and processes
Provides modeling, guided practice, and scaffolding as appropriate	Provides cognitively complex learning
Engages students in choices based on interest in topic, process, or product	Provides students opportunities to pursue interests that may be outside the school curriculum
Uses appropriate pacing; may remediate or accelerate	Accelerates learning as appropriate to the student's talents
Provides opportunities for collaboration with like readiness, interest, or learning preference peers	Plans for associations with expert-level mentors to extend learning
Adjusts instruction in response to ongoing learning progress	Individualizes learning plans and experiences based on interests, need, and readiness
Selects, adapts, and plans for differences in readiness, interests, and learning preference	Selects, adapts, and/or creates materials and activities that respond to exceptional gifts and talents
Incorporates appropriate technologies to lead to mastery or enrichment	Uses technology to extend content, process, or product differentiation
Provides descriptive feedback on learning progress	Provides "expert" feedback on authentic tasks
Increases independence, responsibility, and self-management	Increases skills for autonomous learning to reach high levels of independence
Uses assessment tools to identify and plan for learning preferences, readiness, and interests	Uses assessment tools to identify mastery and then eliminates, replaces, or extends learning tasks
Uses multiple assessment methods to monitor learning progress	Uses assessment data to identify exceptional learning needs and prescribe appropriate academic interventions

Figure 8. Worksheet of differentiating classroom instruction for all learners and higher thinking students. From "Making Differentiation a Habit: How to Ensure Success in Academically Diverse Classroom," by D. Heacox, 2009, p. 137. Copyright 2014 by President and Fellows of Havard College. Reprinted with permission from Harvard Family Research Project (www.hfrp.org)

Use chapters 1-4 and 11 of Heacox (2009), "*Making Differentiation a Habit: How to Ensure Success in Academically Diverse Classroom"*, to guide your differentiation practices. You will be given copies of these resources during the professional development session.

Using Scaffolding Instructional Resources to Improve Student Learning

What Is Scaffolding?

Scaffolding is teacher led support that is given during instruction. It is specifically tailored to the academic weakness of students to help them achieve their learning goals (Sawyer, 2006). Gallavan (2009),Young and Hadaway (2006), and Balka, Hull, and Miles (2009) believed that using scaffolding resources within instruction promotes learning and allows teachers to address the specific learning needs and challenges of students, in order for students to clearly understand the concept taught.

The method of scaffolding is an incessant practice within lesson planning and classroom instruction. Scaffolding addresses the specific areas of weaknesses of students and reinforces the learning standards or targeted goals being assessed.

How to Scaffold Your Instruction?

The following scaffolding practices can be implemented in any order. The list of processes for scaffolding can be used as a universal guideline for teachers during instructional planning.

1. Reevaluate the learning weakness of students using their assessment data gathered (i.e. formative, summative assessments, portfolios, student survey, etc.).

2. From your evaluation, identify targeted standards that address the weaknesses of students
3. Create SMART goals using your targeted standards and align them to the curriculum/lesson.
4. Share SMART goals with students and create learning tasks that address the targeted standards.
5. Provide students with resources that are tailored to their learning gaps and their style of learning. This may be done through modeling, discussing, retelling, prompting, etc. This may also include providing tailored resources that address student's targeted goals and skills set repeatedly using various differentiated levels of instructions.
6. Continue to provide students with the resources and instruction needed based on your knowledge of the content, learning standards, and your student knowledge of the whole student (i.e., students background knowledge, students' learning styles, students level of focus, and student's level of frustration).
7. Keep students motivated and encouraged in accomplishing their SMART goals.
8. Provide constant feedback to students and parents summarizing their progress and success.
9. Train student to monitor their progress by creating student's self- evaluation worksheets.
10. When confident that students are knowledgeable of the targeted standards, reassess them for comprehension to see if the learning gaps are closed.

11. Let the accuracy of student's responses guide your decisions to move them on to the next learning target.

Figure 9 is a sample of what should take place with teachers interacting with students during the process of scaffolding. Figure 10 breaks down the features of scaffolding into six categories. Figure 11 is a scaffolding worksheet for teachers to use when seeking to provide students with the right support based on their data results. Activity 9 is a work model for scaffolding. Activity 9A is a blank sample of the scaffolding model to be used when providing instructional guidance through differentiated instructions to students.

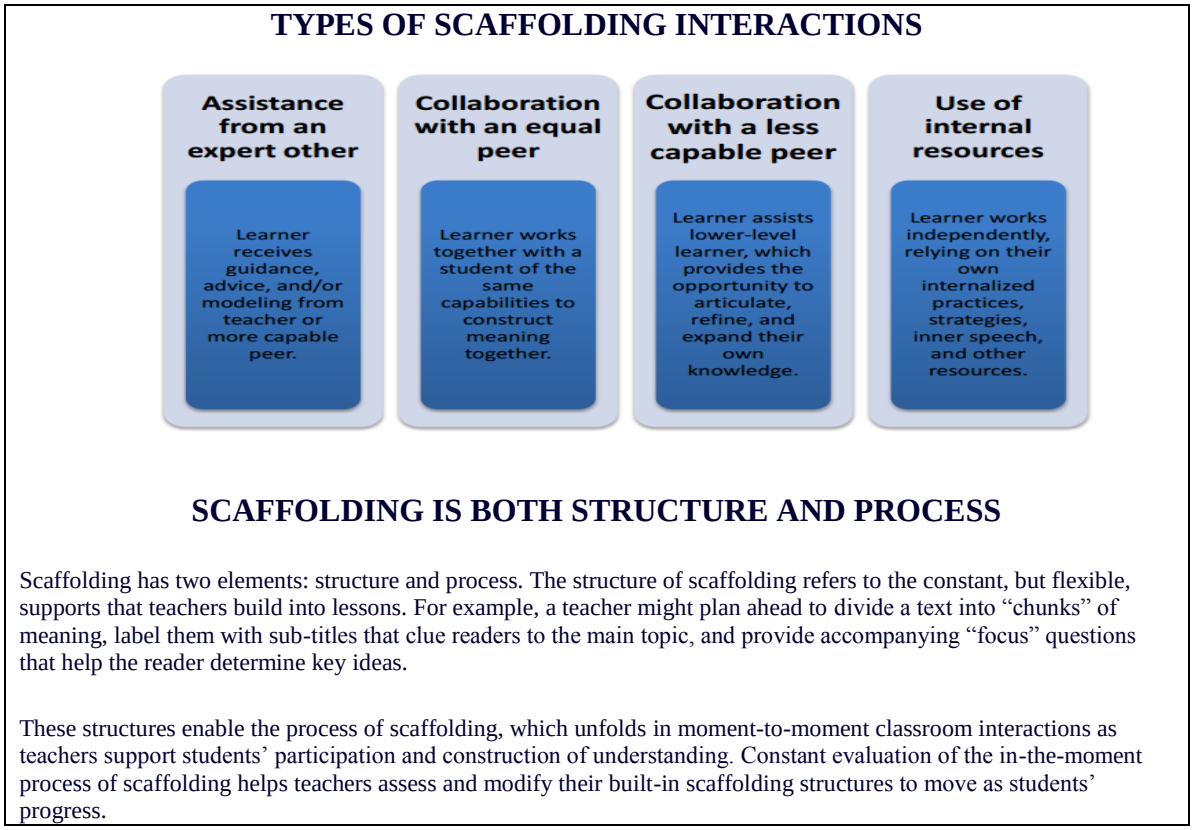
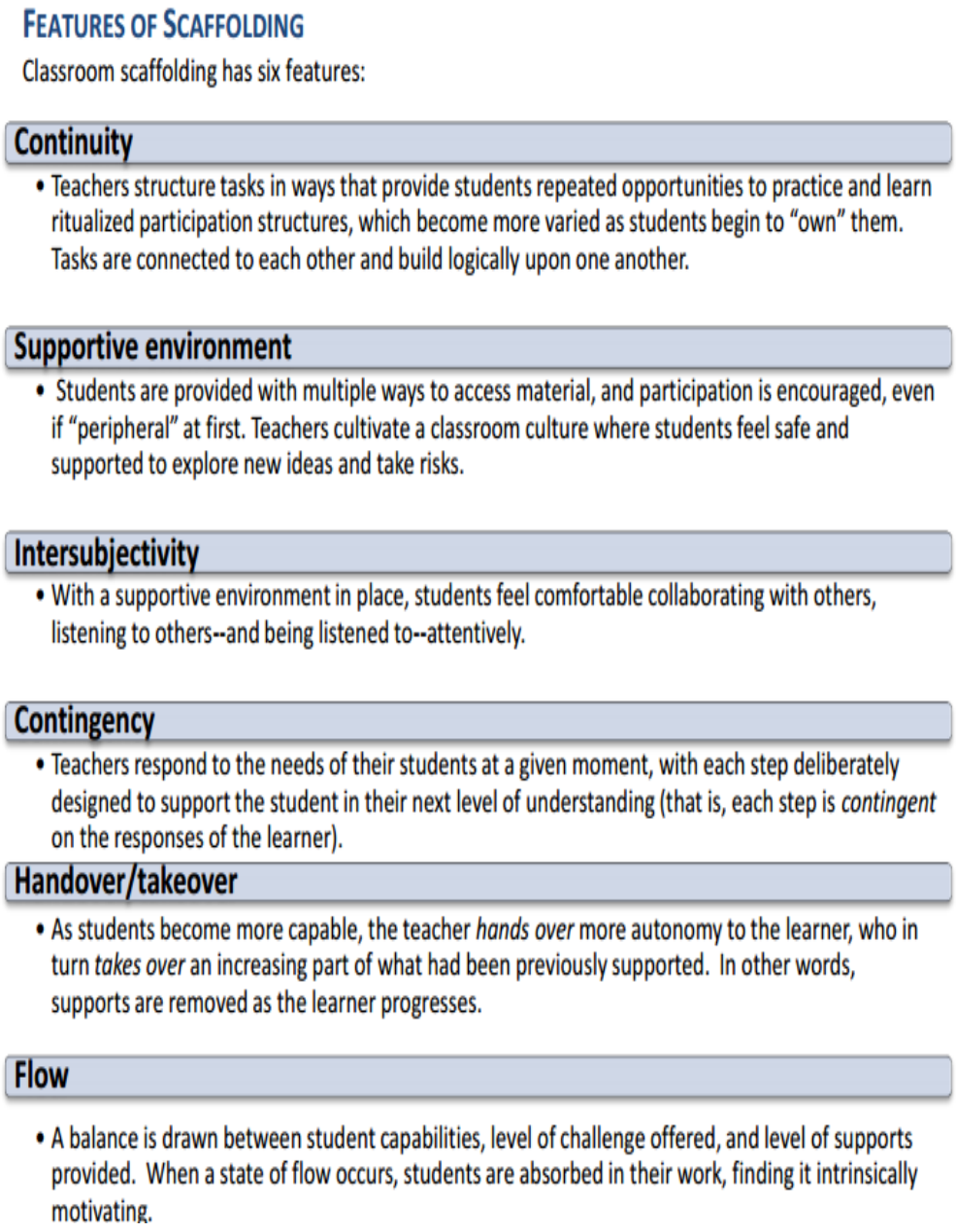


Figure 9. Scaffolding interactions, structure and process. Taken from the New York Department of Education (2013). "Scaffolding" Retrieved from: http://schools.nyc.gov.

Features of Scaffolding



FEATURES OF SCAFFOLDING

Classroom scaffolding has six features:

Continuity

- Teachers structure tasks in ways that provide students repeated opportunities to practice and learn ritualized participation structures, which become more varied as students begin to "own" them. Tasks are connected to each other and build logically upon one another.

Supportive environment

- Students are provided with multiple ways to access material, and participation is encouraged, even if "peripheral" at first. Teachers cultivate a classroom culture where students feel safe and supported to explore new ideas and take risks.

Intersubjectivity

- With a supportive environment in place, students feel comfortable collaborating with others, listening to others--and being listened to--attentively.

Contingency

- Teachers respond to the needs of their students at a given moment, with each step deliberately designed to support the student in their next level of understanding (that is, each step is *contingent* on the responses of the learner).

Handover/takeover

- As students become more capable, the teacher *hands over* more autonomy to the learner, who in turn *takes over* an increasing part of what had been previously supported. In other words, supports are removed as the learner progresses.

Flow

- A balance is drawn between student capabilities, level of challenge offered, and level of supports provided. When a state of flow occurs, students are absorbed in their work, finding it intrinsically motivating.

Figure 10. Scaffolding interactions, structure and process. Taken from the New York Department of Education (2013). "Scaffolding" Retrieved from: http://schools.nyc.gov

Student' Name Jose Perez Student's Class 6c

Date 6.13.2014

Scaffolding Planning Worksheet- Teacher Sample Activity 9

Content: Math

Lesson Title: How do we divide a fraction by a fraction?

Targeted Standard(s): CCSS.MATH.CONTENT.6.NS.A.1,

SMART Goal (s): I will be able to divide fractions by fractions and fractions by whole numbers.

Learning Style: Visual learner

Scaffolding Resources: http://www.webmath.com/divfract.html, division works

Scaffolding Strategies: Modeling, instructional guidance, targeted goal practice worksheets

If Jose needs additional support, I will remodel the problem using a different question and guide him through completing the task. Jose will receive additional practice worksheets addressing the targeted goals from his data analysis.

Planned Activity:

During one on one instruction, I guided Jose the practices using visual fractions models. Joe solved simple word problems involving division of fractions by fractions, such as (2/3) ÷ (4/3) will be used.

Observation:

Jose understood that he had to change the division sign to a multiplication sign and create the reciprocal of 4/3 to 3/4. Jose was stuck simplifying his answer to 1.

Assessment: Jose will demonstrate his understanding verbally and through modeling. He will also demonstrate his understanding through note taking and journal prompts.

Student' Name Student's Class

Date

Scaffolding Planning Worksheet – Activity 9A

Content:

Lesson Title:

Targeted Standard(s):

SMART Goal (s):

Learning Style:

Scaffolding Resources:

Scaffolding Strategies:

Planned Activity:

Observation:

Assessment:

Assessing Student's Improvement through Formative Feedback

To begin evaluating student's improvements through formative assessments, we must first define formative assessments.

What are formative assessments?

Formative assessments are ongoing assessments used by teachers to inform their instruction and monitor students' learning. More specifically, formative assessments identify student's strengths, weaknesses, and address the areas in students' learning that immediately needs to be addressed. According to Strachan (2014), formative assessments are assessments used by teachers to diagnose the needs of their students, predict students' performance on standardized assessments, and help teachers adjust their instructional planning to support those needs. Dwyer (2014) believed assessments are formative only when the information is shared with students and used to improve student learning. The feedback from formative assessments must therefore be provided by teachers to students. The ongoing process of teacher's strategically assessing students and providing them with their data results allows teacher to make the necessary adjustments to their instructions as needed, this is what makes assessments formative. This process allows teachers to also assess students understanding of a learning task or standards before moving them to the next targeted goals or level of learning.

Basic Principles to Assess Student's Improvement Through Formative Feedback

Research has shown that teachers who used formative assessments to drive their classroom instructions have improved students learning and their instructional practices (Ainsworth & Viegut; 2006). According to the Southeast Comprehensive Center (2012), "…federal laws, such as ESEA and IDEA 2004, as well as state policies have promoted

the use of formative assessment practices in schools and districts as an approach to narrow learning gaps and improve student outcomes" (p. 2).

Dwyer (2014) gave five basic research based strategies to improve students' learning implementing formative feedback. The strategies listed were allegedly proven effective for all learners from kindergarten to college students. The strategies given are:

1. For each important new concept or assignment, teachers should make the learning expectations clear and share with students the criteria for successfully meeting those expectations. This information should be provided on a daily basis and revisited at the end of each class to evaluate progress toward these goals.
2. Use data from classroom discussions, student answers and learning tasks to revise lessons and activities. Teachers can use various techniques that engage all students in discussion and use revealed evidence of student thinking and understanding as they plan future instruction.
3. Provide feedback that clearly and explicitly identifies what needs to be improved in order to move learners forward and promote students' understanding of concepts. To best meet students' immediate learning needs, teachers should use this evidence to adapt instruction in real time.
4. Encourage students to serve as instructional and learning resources for one another on a daily basis.
5. Encourage students to take responsibility for their own learning.
6. Formative feedback is essential to the assessment process as it allows teachers to collect the evidence they need to immediately address their students' learning needs. (p. 2)

Utilizing these five strategies, the author claims will produce the following student outcomes:

1. Students will become more engaged with lesson content and activities.
2. Students will support each other and take responsibility for their own learning within well-established criteria for quality.
3. Students will act on feedback in order to improve their assignments.
4. Students' learning will improve, as evidenced by test scores and other indicators. (p. 4)

Evaluating What Works and Does Not Work

What makes a data driven community truly effective is its ability to evaluate the systems in place. Through the evaluation process, teachers and administrators are able to identify the causes and effects of students' learning gaps then implement the proper strategies to improve student learning and close the learning gaps. According to the Children First Intensive Inquiry Team Handbook (2008) the most effective method of evaluating what practices work in closing students' learning gaps is for schools to:

1. Identify the measurement tools put in place to assess your success.
2. Evaluate the results of the tools used. How are you doing? What does your data show thus far?
3. Select one small positive change or a big improvement within your practice.
4. What indicators did you use? List the specific indicators of student improvement. Choosing the specific measures and indicators will validate and explain the increase in students' learning.

5. What does your data say? How did your students do? Evaluate your benchmark indicators (pre and post, summative and formative data).
6. Assess if your strategies are working and make adjustments as needed by implementing specific benchmarks to monitor student success as well as behavioral benchmarks.
7. Make changes based on resources that are already in place. This will allow more support with relatively little effort.
8. Measure and monitor your benchmarks frequently. If these benchmarks are not being met or if you do not see evidence that they are having a positive impact on student performance you need to adjust your plan.
9. Keep track every time a goal is accomplished. Once targeted goals are met move on to your next targeted goals.

Evaluation of your processes for closing students' learning gaps should be done strategically and consistently throughout the school year. Make changes as needed for the success of your students. Plan for professional developments as needed to address all concerns unanswered.

Conclusion

The practices within this handbook are ongoing and are effective if utilized consistently. Some of the practices in this handbook are interchangeable and can be used based on the individual or school needs to close students' learning gaps.

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Appendix B: Teacher Feedback Professional Development Worksheet

Name:_____ Position / Title: _____

Date:_____ Days Attend: _____

Please complete the following worksheet and hand it in to the instructor.

Rating Key:	1= Strongly Disagree	2= Disagree	3=Agree	4= Strongly Agree

The staff development:	Rating (circle)	Comments if any
1. enhanced my understanding of analyzing and assessing student's performance using their assessment results.	1 2 3 4	
2. helped me to reflect upon my data findings and make inform decisions to improve my practices.	1 2 3 4	
3. enhanced my understanding of how to align my curriculum to meet the specific needs of my students.	1 2 3 4	
4. enhanced my understanding of how to differentiate my classroom instruction using student's formative and summative assessments results.	1 2 3 4	
5. helped me understand the importance of being knowledgeable of my students to improve their outcome and performance.	1 2 3 4	
6. helped me to evaluate and reflect upon my practices to be more effective as a teacher.	1 2 3 4	
7. provided important resources for me to improve student learning.	1 2 3 4	

How will you use what have you have learned?

What was the most useful part of this staff development? Why?

What was the least useful part of this staff development? Why?

What additional training/support do you need?

Please feel free to use the back of this worksheet to write your answers.

Appendix C: ELA Student Assessment Report

Student assessment report was used to track the standards that students struggled with on the 2012 ELA New York State Standardized assessment as well as the standards they struggled with on the 2013 school baseline assessment.

ELA Standards of Focus 2012-2013

	ELA STANDARDS OF FOCUS 2012-2013				
its	*Standards of Focus from ELA standarized test and baseline*	*Standards of Focus Unit 1 (Key Ideas and Details/Craft and Structure)*	*Standards of Focus UnIt 2 (Key Ideas and Details/Craft and Structure)*	*Standards of Focus Unit 3 (Key Ideas and DetaIls/Craft and Structure)*	Standards of Focus Unit 4 (Key Ideas and DetaIls/Craft and Structure)
1	RI.6.1-6,6.9,RL.6.1-4 ,6.6,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
2	RI.6.1-4,6.6,RL.6.1-6 ,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
3	RI.6.1-4,6.6,RL.6.1-6 ,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
4	RI.6.1-3,6.9,RL.6.1-4,6.6, 6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
5	RI.6.1-4,6.6,RL.6.1-5	RL.6.1,RL.6.2,RL6.3,RL6.6, RL.6.7	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
6	RI.6.1-4,6.6,RL.6.1-4,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
8	RI.6.1-2,,,4,6.6,RL.6.1-4	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
9	RI.6.1-2,6.46.6,RL.6.1 ,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
10	RI.6.1-2,6.4,6.6,RL.6.1 ,6.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
12	RI.6.1-2,6.4,6.6,RL.6.1 ,6.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
13	RI.6.1-6,RL.6.2 ,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
14	RI.6.1-4,6.6,RL.6.1,.3-.4,.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
15	RI.6.1-.2,6.6,.9,RL.6.1-.4	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
16	RI.6.1-3,6.4,6.6,RL.6.1-.3 ,6.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
17	RI.6.1-4,6.6,RL.6.1-4,6.6,6.9	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
18	RI.6.1-4,6.6,RL.6.1-3 ,6.9,6.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6
19	RI.6.1-3,6.6,RL.6.1-2 ,6.6	RL.6.1,RL.6.2,RL6.3,RL6.6	RI6.1-6.4, .6,.9, RL 6.1-.4.6.6,6.9	RL6.1,.2.4.5	RL.6.1,.2,.4,.6

Appendix D: Mathematics Student Assessment Report

Student assessment report was used to track the standards that students struggled with on the 2012 Mathematics New York State Standardized assessment as well as the standards they struggled with on the 2013 school baseline assessment.

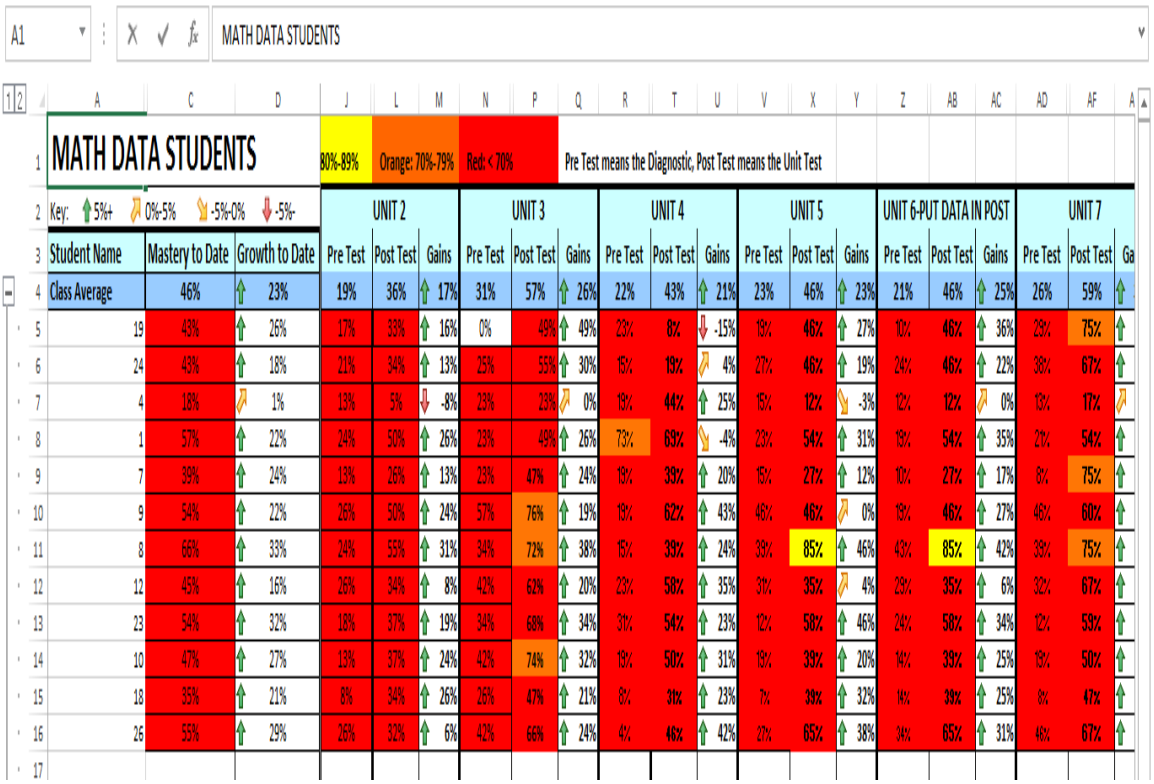
Math Standards of Focus 2012-2013

	A	B	C	D	E	F	G	H	I	J
1		MATH STANDARDS OF FOCUS 2012-2013								
2	Studen	Standards of Focus from Math Standardized Test and Baseline	Unit 1 Standards of Focus (Multiplying & Dividing)	Unit 2 StandardS of Focus (Ratios)	Standards of Focus Unit 3 (Introduction to Rational	Standards of Focus Unit 4 (Expres	Standards of Focus Unit 5 (Equations and Inequalities)	Standards of Focus Unit 6 (Concepts in Geometry)	Standards of Focus Unit 7 (Statistics)	
3	1	IF.5, 6RP3, 6EE.1, 6EE.3-4,6EE.6, 6EE.8, 6G1, 6S	5.N 5NF.4, 6.NS.1-2, 5NBT.6,	6.RP.1-3,6NS.5-8	6.NS.5-.8	6EE.3	6.EE.1-6.EE.9	6.G.1,6.G.2-.3	6.SP.1-.5	
4	4	5.NBT.6,5NF.4,6RP.3,6NS.1-.2,6EE5-5.EE.9	5NF.4, 6.NS.1-2, 5.NBT.6,	6.RP.1-3,6NS.5-8,5.N 5NF.4, 6.NS.1-2	6N.5-.8	6EE.2-.4	6.EE.5-6.EE.9	6.G.1,6.G.2-.3	6.SP.1-.5	
5	7	5NF.1,6RP.3,6EE1,6EE.3-.4,.6,6EE8,6G1,6SP1	5FN.1,.4-7; 6.NS.1	6.RP.1-3,6NS.5-8	6.NS.5-.8	6EE.2-.4	6.EE.5-6.EE.9	6.G.1,6.G.2-.3	6.SP.1-.5	
6	8	6.EE.2,6NS.7,6.RP.3,	5NF.5,6NS.6	6.RP.1-3,6NS.5-8	6.NS.5,6NS.5,(	6EE.2-.4	6.EE.2,6EE.5-6,.EI	6.G.1-6.G.4	6.SP.1-.5	
7	9	5NF.5,6NS., 6.NS.1-4,6.6.EE.2	5FN.1,.4-7; 6.NS.1	6.RP.1-3,6NS.5-8	6NS.56.NS.7	6EE.2-.4	6.EE.2-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
8	10	6,5NF.4,6RP.36.NS.7,6EE.2,6.NS.7,6RP.3,6.RP.3,	6.NS.1,6.NS.4	6.RP.1-3,6NS.5-8	6.NS.7,6NS.8	6EE.2-.4	6.EE.2,.5-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
9	12	6.NS.1-.3,6.NS.4,6.RP.3,	6.NS.1,6.NS.4	6.RP.1-3,6NS.5-8	6.NS.5,6NS.5,(	6EE.2-.4	6.EE.5-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
10	18	6.NS1, 6NS.4,5.NBT.6,5NF.1,5NF.4,	NBT.6,5NF.1,5NF.4, 6NS.1, 6NS.	6.RP.1-3,6NS.5-8	6.NS.5-.8	6EE.2-.4	6.EE.5-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
11	19	:.1,6RP.1-.3,6EE1,6EE.3-.4,.6,6EE.9,6G1,6SP1,6.N	5FN.1,.4-7; 6.NS.1-.4	6.RP.1-3,6NS.5-8	6.NS.5,6NS.5,(	6EE.2-.4	6.EE.1-6.EE.9	6.G.1,6.G.2-.3	6.SP.1-.5	
12	23	6.NS.1,6.NS.4,5NBT.6,5NF.1,6.NS.6-.7,6.EE.2	5FN.1,.4-7; 6.NS.1-.4	6.RP.1-3,6NS.5-8	6.NS.7,6NS.8	6EE.2-.4	6.EE.2,.5-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
13	24	5NBT.6,5NF.1,5NFN,6RP3,6NS.5,6EE.5-7,6G1	6.NS1-2, 5.NBT.6,5NF.1,6NS.1	6.RP.1-3,6NS.5-8	6.NS.6,.7,.8	6EE.2-.4	6.EE.5-6.EE.9	6.G.1,6.G.2-.3	6.SP.1-.5	
14	26	6,5NF.4,6RP.36.NS.7,6EE.2,6.NS.7,6RP.3,6.RP.3,	6.NS.1,6.NS.4	6.RP.1-3,6NS.5-8	6.NS.5,6NS.5,(	6EE.2-.4	6.EE.1-6.EE.9	6.G.1-6.G.4	6.SP.1-.5	
15										
16										

Appendix E: Mathematics Data Tracker

Mathematics Gain/ Loss Indicator

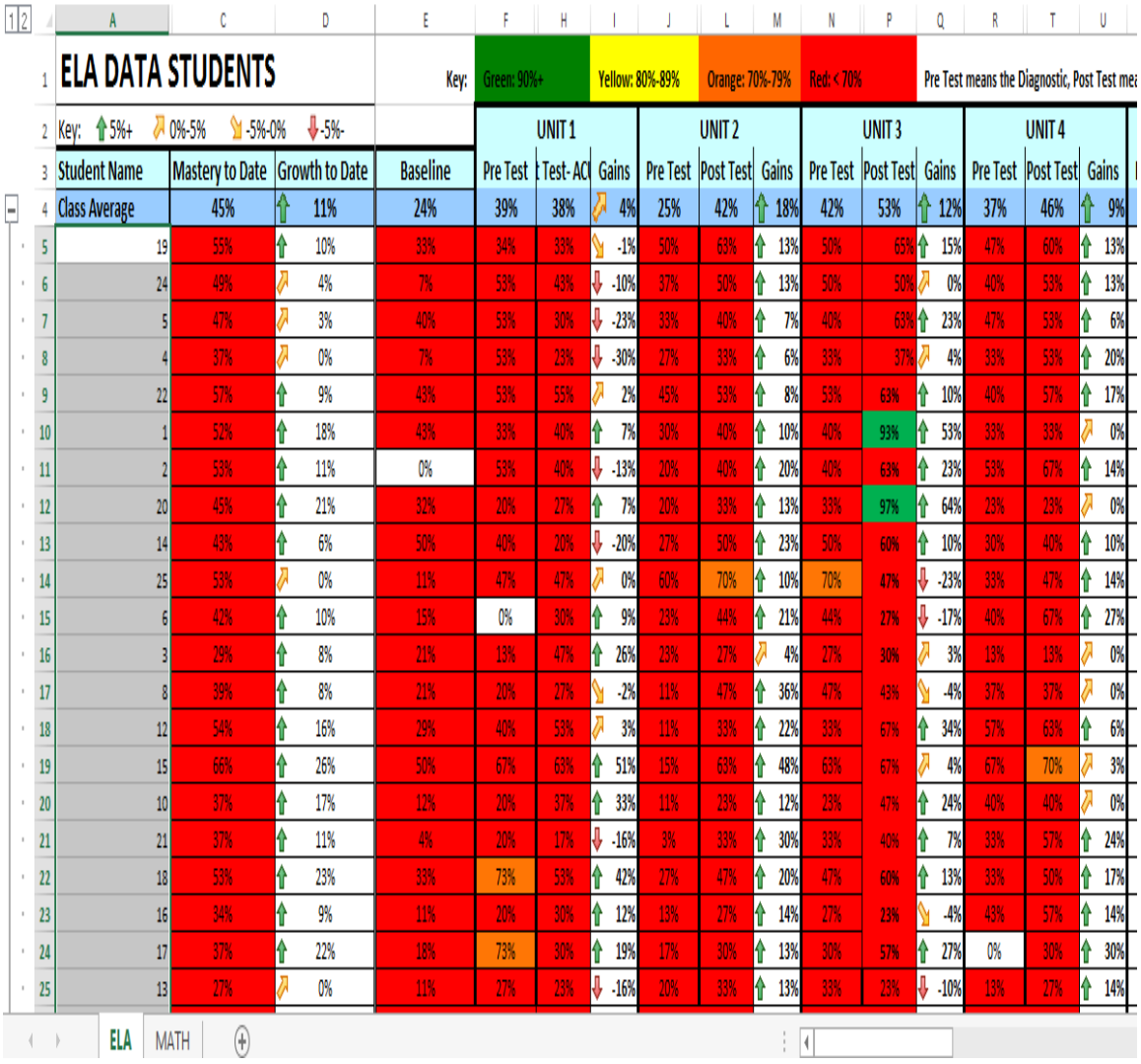
Data trackers were used by the study school site to indicate the gain or loss of students' improvement for each Pre and Post assessments per curriculum unit.



MATH DATA STUDENTS			80%-89%	Orange: 70%-79%	Red: < 70%	Pre Test means the Diagnostic, Post Test means the Unit Test																
Key: ↑5%+	↗0%-5%	↘-5%-0%	↓-5%-			UNIT 2			UNIT 3			UNIT 4			UNIT 5			UNIT 6-PUT DATA IN POST			UNIT 7		
Student Name	Mastery to Date	Growth to Date				Pre Test	Post Test	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Ga
Class Average	46%	↑ 23%				19%	36%	↑ 17%	31%	57%	↑ 26%	22%	43%	↑ 21%	23%	46%	↑ 23%	21%	46%	↑ 25%	26%	59%	↑
19	43%	↑ 26%				17%	33%	↑ 16%	0%	49%	↑ 49%	23%	8%	↓ -15%	19%	46%	↑ 27%	10%	46%	↑ 36%	28%	75%	↑
24	43%	↑ 18%				21%	34%	↑ 13%	25%	55%	↑ 30%	15%	19%	↗ 4%	27%	46%	↑ 19%	24%	46%	↑ 22%	38%	67%	↑
4	18%	↗ 1%				13%	5%	↓ -8%	23%	23%	↗ 0%	19%	44%	↑ 25%	15%	12%	↘ -3%	12%	12%	↗ 0%	13%	17%	↗
1	57%	↑ 22%				24%	50%	↑ 26%	23%	49%	↑ 26%	73%	69%	↘ -4%	23%	54%	↑ 31%	19%	54%	↑ 35%	21%	54%	↑
7	39%	↑ 24%				13%	26%	↑ 13%	23%	47%	↑ 24%	19%	39%	↑ 20%	15%	27%	↑ 12%	10%	27%	↑ 17%	8%	75%	↑
9	54%	↑ 22%				26%	50%	↑ 24%	57%	76%	↑ 19%	19%	62%	↑ 43%	46%	46%	↗ 0%	19%	46%	↑ 27%	46%	60%	↑
8	66%	↑ 33%				24%	55%	↑ 31%	34%	72%	↑ 38%	15%	39%	↑ 24%	39%	85%	↑ 46%	43%	85%	↑ 42%	38%	75%	↑
12	45%	↑ 16%				26%	34%	↑ 8%	42%	62%	↑ 20%	23%	58%	↑ 35%	31%	35%	↗ 4%	29%	35%	↑ 6%	32%	67%	↑
23	54%	↑ 32%				18%	37%	↑ 19%	34%	68%	↑ 34%	31%	54%	↑ 23%	12%	58%	↑ 46%	24%	58%	↑ 34%	12%	59%	↑
10	47%	↑ 27%				13%	37%	↑ 24%	42%	74%	↑ 32%	19%	50%	↑ 31%	19%	39%	↑ 20%	14%	39%	↑ 25%	19%	50%	↑
18	35%	↑ 21%				8%	34%	↑ 26%	26%	47%	↑ 21%	8%	31%	↑ 23%	7%	39%	↑ 32%	14%	39%	↑ 25%	8%	47%	↑
26	55%	↑ 29%				26%	32%	↑ 6%	42%	66%	↑ 24%	4%	46%	↑ 42%	27%	65%	↑ 38%	34%	65%	↑ 31%	46%	67%	↑

Appendix F: ELA Data Tracker

ELA Gain/ Loss Indicator



ELA DATA STUDENTS

Key: Green: 90%+ | Yellow: 80%-89% | Orange: 70%-79% | Red: < 70% | Pre Test means the Diagnostic, Post Test mea

Key: 5%+ | 0%-5% | -5%-0% | -5%-

				UNIT 1			UNIT 2			UNIT 3			UNIT 4		
Student Name	Mastery to Date	Growth to Date	Baseline	Pre Test	Test- ACI	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Gains	Pre Test	Post Test	Gains
Class Average	45%	11%	24%	39%	38%	4%	25%	42%	18%	42%	53%	12%	37%	46%	9%
19	55%	10%	33%	34%	33%	-1%	50%	63%	13%	50%	65%	15%	47%	60%	13%
24	49%	4%	7%	53%	43%	-10%	37%	50%	13%	50%	50%	0%	40%	53%	13%
5	47%	3%	40%	53%	30%	-23%	33%	40%	7%	40%	63%	23%	47%	53%	6%
4	37%	0%	7%	53%	23%	-30%	27%	33%	6%	33%	37%	4%	33%	53%	20%
22	57%	9%	43%	53%	55%	2%	45%	53%	8%	53%	63%	10%	40%	57%	17%
1	52%	18%	43%	33%	40%	7%	30%	40%	10%	40%	93%	53%	33%	33%	0%
2	53%	11%	0%	53%	40%	-13%	20%	40%	20%	40%	63%	23%	53%	67%	14%
20	45%	21%	32%	20%	27%	7%	20%	33%	13%	33%	97%	64%	23%	23%	0%
14	43%	6%	50%	40%	20%	-20%	27%	50%	23%	50%	60%	10%	30%	40%	10%
25	53%	0%	11%	47%	47%	0%	60%	70%	10%	70%	47%	-23%	33%	47%	14%
6	42%	10%	15%	0%	30%	9%	23%	44%	21%	44%	27%	-17%	40%	67%	27%
3	29%	8%	21%	13%	47%	26%	23%	27%	4%	27%	30%	3%	13%	13%	0%
8	39%	8%	21%	20%	27%	-2%	11%	47%	36%	47%	43%	-4%	37%	37%	0%
12	54%	16%	29%	40%	53%	3%	11%	33%	22%	33%	67%	34%	57%	63%	6%
15	66%	26%	50%	67%	63%	51%	15%	63%	48%	63%	67%	4%	67%	70%	3%
10	37%	17%	12%	20%	37%	33%	11%	23%	12%	23%	47%	24%	40%	40%	0%
21	37%	11%	4%	20%	17%	-16%	3%	33%	30%	33%	40%	7%	33%	57%	24%
18	53%	23%	33%	73%	53%	42%	27%	47%	20%	47%	60%	13%	33%	50%	17%
16	34%	9%	11%	20%	30%	12%	13%	27%	14%	27%	23%	-4%	43%	57%	14%
17	37%	22%	18%	73%	30%	19%	17%	30%	13%	30%	57%	27%	0%	30%	30%
13	27%	0%	11%	27%	23%	-16%	20%	33%	13%	33%	23%	-10%	13%	27%	14%

ELA | MATH

Appendix G: Letter Requesting Permission to Collect Data

December 2012

Dear Principal _____,

I seek your support in collecting data for my research entitled "Closing the learning gap in math and English language arts using student data". I seek to commence my study for the time frame of December 2012 to June 2013.

I am requesting your cooperation in the data collection process. I will coordinate the exact times of data collection with you in order to minimize disruption to your procedural daily activities.

Background Information:
The purpose of this study is to use student's assessment scores data scores to identify and close their learning gaps using your school's inquiry processes.

Voluntary Nature of the Study:
This study is voluntary. Everyone will respect your decision of whether or not you choose to be a part of this study. If you decide to join this study, you can still change your mind during or after the study. You may stop at any time.

Any information you provide will be kept anonymous. I will not use yours school's personal information for any purposes outside of this research project. I will not include your school's name or anything else that could identify your school, staff, or students in my reports. Data will be kept for a period of at least 5 years, as required by my university.

Risks and Benefits of Being in the Study:
The study presents no more than minimal risk to participants, since this study will be conducted as part of the school's regular inquiry practice. The duration of this study will follow your school's regular curriculum, school policies, and procedures set forth by the New York City Department of Education. All data will be collected by the inquiry team members and teachers. Identifiers will be included to create the data set but all identifiers associated to the data set will be removed prior to being given to me for review.

The anticipated benefit of this research is to close the learning gaps in mathematics and ELA of students. Through this research educators will be able to better differentiated their instructions to meet the learning needs of each individual students as well as plan

effectively to the improve student learning and close their gaps in learning. This research will also provide insight to the educational community of the importance of identifying the areas where students struggle or fail in academically and then provide the resources needed to build on that skill set to improve their learning.

This research will also create a consistent practicum for teachers and administrators and will ensure that students' goals are created and met based on their assessment results, performance levels, and teacher notes. It will also aid the school's community in monitoring and measuring all student related data more effectively.

Contacts and Questions:
You may ask any questions you have now. Or if you have questions later, you may contact me at _____. If you want to talk privately about your rights as a participant, you can call Dr. Leilan. She is the Walden University representative who can discuss this with you. Her phone number is 1-800-925-3368, extension 1210. My Walden University's approval number for this study is _____and it expires on July 24, 2013.

Please fill out the Data Use Agreement below. I am requesting your signature to document that I have cleared this data collection with you.

Thank you for your consideration.

Olivean Strachan

Appendix H: Principal Letter of Approval to Conduct Research

Department of Education
Dennis M. Walcott, Chancellor

Institutional Review Board
52 Chambers Street, Room 309
New York, NY 10007
Phone: (212) 374-7659
Fax: (212) 374-5908

APPROVAL TO CONDUCT RESEARCH IN SCHOOLS

To the Principal:

The research study described in the Proposal Submission Form has been approved by the Institutional Review Board (IRB) of the New York City Department of Education. (See the signed Approval Letter) This researcher is now seeking principals willing to cooperate in the study. Please sign below if you agree to have your school participate in this study.

In order to begin the study, the researcher must return this form – signed by the principal of each school that will be participating in the study to the IRB, Research and Policy Support Group (RPSG) before data collection begins.

NOTE:

Researchers who need to be in schools must have fingerprints on file at the Department of Education prior to field work.
Where data collection includes information from DOE administrative records, a data request must be submitted to RPSGresearch@schools.nyc.gov. Researchers may not request school or individual student records from school personnel.

Researcher/Principal Investigator Olivean Strachan

Title of Study Closing the learning gaps in math and English language arts using student data

Research Will Involve:

Cooperating School	School ATS Code (DBN district-boro-school number)	Grade (s)	Number of Classes	Number of Staff/Pupils	Start Date of Data Collection
[redacted]	[redacted]	6		26	[redacted]

[redacted]
Principal's Signature

12/10/12
Date

[redacted]
School

Appendix I: NYC Department of Education Letter of Approval to Conduct Research

Department of Education
Dennis M. Walcott, Chancellor

Research and Policy Support Group

52 Chambers Street
Room 309
New York, NY 10007 [redacted]

1 212 374-7659 tel
1 212 374-5908 fax

December 4, 2012

Dear Ms. Strachan:

I am happy to inform you that the New York City Department of Education Institutional Review Board (NYCDOE IRB) has approved your research proposal, "Closing the learning gap in mathematics and ELA using student data.." The NYCDOE IRB has assigned your study the file number of 279. Please make certain that all correspondence regarding this project references this number. The IRB has determined that the study poses minimal risk to participants. The approval is for a period of one year:

Approval Date:	**December 4, 2012**
Expiration Date:	**December 3, 2013**

Responsibilities of Principal Investigators: Please find below a list of responsibilities of Principal Investigators who have DOE IRB approval to conduct research in New York City public schools.

- Approval by this office does not guarantee access to any particular school, individual or data. You are responsible for making appropriate contacts and getting the required permissions and consents before initiating the study.
- When requesting permission to conduct research, submit a letter to the school

principal summarizing your research design and methodology along with this IRB Approval letter. Each principal agreeing to participate must sign the enclosed Approval to Conduct Research in Schools/Districts form. *A completed and signed form for every school included in your research must be emailed to* IRB@schools.nyc.gov . Principals may also ask you to show them the receipt issued by the NYC Department of Education at the time of your fingerprinting.

- You are responsible for ensuring that all researchers on your team conducting research in NYC public schools are fingerprinted by the NYC Department of Education. Please note: This rule applies to all research in schools conducted with students and/or staff. See the attached fingerprinting materials. For additional information click here. Fingerprinting staff will ask you for your identification and social security number and for your DOE IRB approval letter. You must be fingerprinted during the school year in which the letter is issued. Researchers who join the study team after the inception of the research must also be fingerprinted. Please provide a list of their names and social security numbers to the NYC Department of Education Research and Policy Support Group for tracking their eligibility and security clearance. The cost of fingerprinting is $115. *A copy of the fingerprinting receipt must be emailed to* IRB@schools.nyc.gov .

- You are responsible for ensuring that the research is conducted in accordance with your research proposal as approved by the DOE IRB and for the actions of all co-investigators and research staff involved with the research.
- You are responsible for informing all participants (e.g., administrators, teachers, parents, and students) that their participation is strictly voluntary and that there are no consequences for non-participation or withdrawal at any time during the study.
- Researchers must: use the consent forms approved by the DOE IRB; provide all research subjects with copies of their signed forms; maintain signed forms in a secure place for a period of at least three years after study completion; and destroy the forms in accordance with the data disposal plan approved by the IRB.

Mandatory Reporting to the IRB: The principal investigator must report to the Research and Policy Support Group, within five business days, any serious problem, adverse effect, or outcome that occurs with frequency or degree of severity greater than that anticipated. In addition, the principal investigator must report any event or series of events that prompt the temporary or permanent suspension of a research project involving human subjects or any deviations from the approved protocol.

Amendments/Modifications: All amendments/modification of protocols involving human subjects must have prior IRB approval, except those involving the prevention of immediate harm to a subject, which must be reported within 24 hours to the NYC Department of Education IRB.

Continuation of your research: It is your responsibility to insure that an application for continuing review approval is submitted six weeks before the expiration date noted above. If you do not receive approval before the expiration date, all study activities must stop until you receive a new approval letter.

Research findings: We require a copy of the report of findings from the research. Interim reports may also be requested for multi-year studies. Your report should not include identification of the superintendency, district, any school, student, or staff member. Please send an electronic copy of the final report to: irb@schools.nyc.gov.

If you have any questions, please contact Dr. Mary Mattis at 212.374.3913.

Good luck with your research.

Sincerely,

Mary C. Mattis, PhD
Chair, Institutional Review Board

Appendix J: Data Use Agreement

DATA USE AGREEMENT

This Data Use Agreement, effective as of September 2012, is entered into by and between Olivean Strachan and the New York City Department of Education. The purpose of this Agreement is to provide Data Recipient with access to a Limited Data Set ("LDS") for use in research in accord with the HIPAA and FERPA Regulations.

1. Definitions. Unless otherwise specified in this Agreement, all capitalized terms used in this Agreement not otherwise defined have the meaning established for purposes of the "HIPAA Regulations" codified at Title 45 parts 160 through 164 of the United States Code of Federal Regulations, as amended from time to time.

2. Preparation of the LDS. The New York Department of Education shall prepare and furnish to Data Recipient a LDS in accord with any applicable HIPAA or FERPA Regulations

3. Data Fields in the LDS. In preparing the LDS, The New York City Department of Education shall include the data fields specified as follows, which are the minimum necessary to accomplish the research: the 2012 New York City Mathematics and ELA standardized assessment results including all data associated with the ARIS database such as students names, test scores, their performance levels, their attendance, their aggregated bottom third results, performance measure, and skill base. No student identifiers such as names and student identification numbers will be used in presentation of this research and will only be known by the researcher.

4. Responsibilities of Data Recipient. Data Recipient agrees to:

    a. Use or disclose the LDS only as permitted by this Agreement or as required by law;

    b. Use appropriate safeguards to prevent use or disclosure of the LDS other than as permitted by this Agreement or required by law;

    c. Report to Data Provider any use or disclosure of the LDS of which it becomes aware that is not permitted by this Agreement or required by law;

    d. Require any of its subcontractors or agents that receive or have access to the LDS to agree to the same restrictions and conditions on the use and/or disclosure of the LDS that apply to Data Recipient under this Agreement; and

    e. Not use the information in the LDS to identify or contact the individuals who are data subjects.

5. Permitted Uses and Disclosures of the LDS. Data Recipient may use and/or disclose the LDS for collecting data and will not disclose participant's names under any circumstance in this study.

6. Term and Termination.

    a. Term. The term of this Agreement shall commence as of the Effective Date and shall continue for so long as Data Recipient retains the LDS, unless sooner terminated as set forth in this Agreement.

    b. Termination by Data Recipient. Data Recipient may terminate this agreement at any time by notifying the Data Provider and returning or destroying the LDS.

    c. Termination by Data Provider. Data Provider may terminate this agreement at any time by providing thirty (30) days prior written notice to Data Recipient.

    d. For Breach. Data Provider shall provide written notice to Data Recipient within ten (10) days of any determination that Data Recipient has breached a material term of this Agreement. Data Provider shall afford Data Recipient an opportunity to cure said alleged material breach upon mutually agreeable terms. Failure to agree on mutually agreeable terms for cure within thirty (30) days shall be grounds for the immediate termination of this Agreement by Data Provider.

    e. Effect of Termination. Sections 1, 4, 5, 6(e) and 7 of this Agreement shall survive any termination of this Agreement under subsections c or d.

7. Miscellaneous.

    a. Change in Law. The parties agree to negotiate in good faith to amend this Agreement to comport with changes in federal law that materially alter either or both parties' obligations under this Agreement. Provided however, that if the parties are unable to agree to mutually acceptable amendment(s) by the compliance date of the change in applicable law or regulations, either Party may terminate this Agreement as provided in section 6.

    b. Construction of Terms. The terms of this Agreement shall be construed to give effect to applicable federal interpretative guidance regarding the HIPAA Regulations.

    c. No Third Party Beneficiaries. Nothing in this Agreement shall confer upon any person other than the parties and their respective successors or assigns, any rights, remedies, obligations, or liabilities whatsoever.

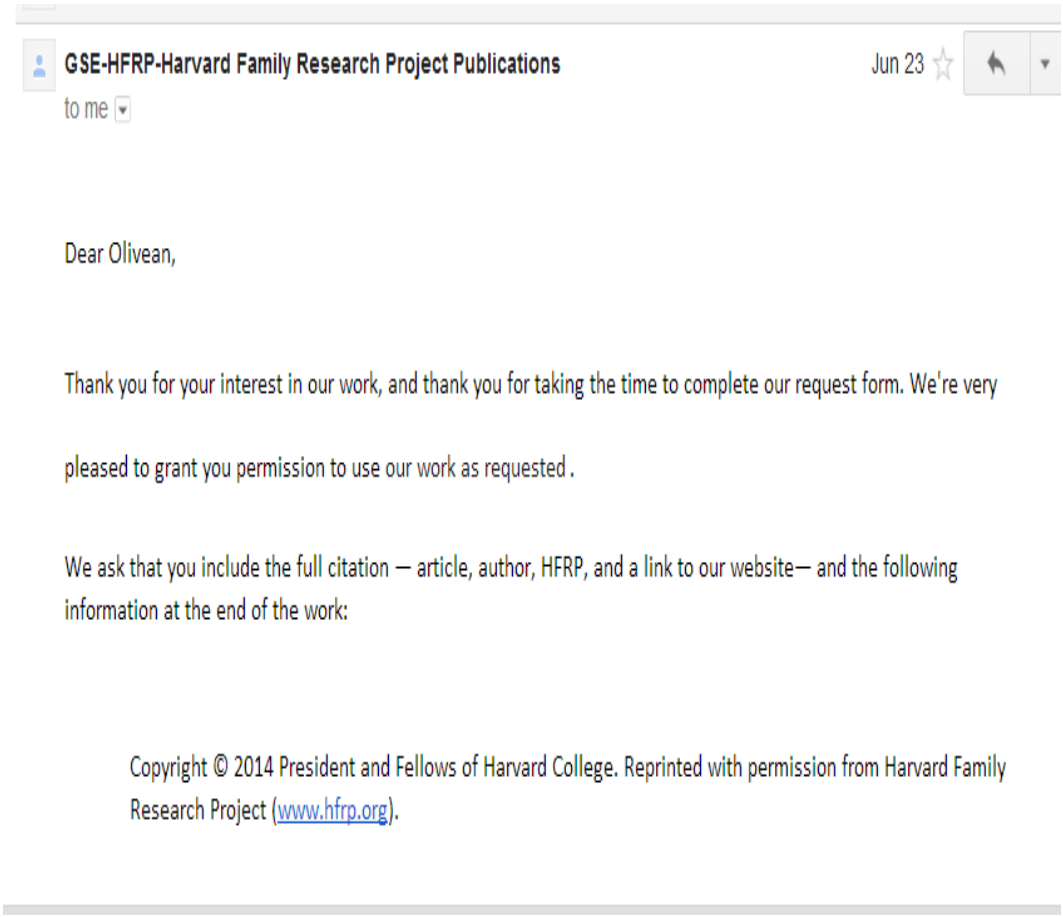
d. Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

e. Headings. The headings and other captions in this Agreement are for convenience and reference only and shall not be used in interpreting, construing or enforcing any of the provisions of this Agreement.

IN WITNESS WHEREOF, each of the undersigned has caused this Agreement to be duly executed in its name and on its behalf.

DATA PROVIDER	**DATA RECIPIENT**
Signed: _____	Signed: _____
Print Name: _____	Print Name: _____
Print Title: _____	Print Title: _____

Appendix K: Consent of Harvard Family Research Project



GSE-HFRP-Harvard Family Research Project Publications Jun 23

to me

Dear Olivean,

Thank you for your interest in our work, and thank you for taking the time to complete our request form. We're very pleased to grant you permission to use our work as requested.

We ask that you include the full citation — article, author, HFRP, and a link to our website— and the following information at the end of the work:

> Copyright © 2014 President and Fellows of Harvard College. Reprinted with permission from Harvard Family Research Project (www.hfrp.org).

Appendix L: Walden IRB Approval Number

Dear Ms. Strachan,

This email is to notify you that the Institutional Review Board (IRB) has approved your application for the study entitled, " The Impact of a Multifaceted Intervention on student Math and ELA Achievement “

Your approval # is 07-25-12-0062817. You will need to reference this number in your doctoral study and in any future funding or publication submissions.