SHIFTING MATHEMATICS PLANNING AND INSTRUCTIONAL

PRACTICES TO ALIGN WITH THE EXPECTATIONS OF THE

COMMON CORE STATE STANDARDS:

A MULTI-FACETED APPROACH

by

Catherine Green Dingle

An education leadership portfolio submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Education in Educational Leadership

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ACKNOWLEDGMENTS

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ABSTRACT

As a result of the shift to the Common Core State Standards (CCSS), the expectations for teaching and learning have changed significantly. During the time of No Child Left Behind, the state department of education provided grade level standards on which Fairview County Public Schools based their curriculum. The curriculum was circular in nature and focused on exposure to concepts and skills, rather than mastery. The same concepts and skills were introduced throughout many grade levels, which promoted surface level learning. The CCSS, however, are focused on depth of understanding and mastery; the standards build on one another from year to year, and students are expected to use that knowledge to expand and deepen their understanding as the years go on. The expectations for learning at each grade level have also become more rigorous; for example, complex texts and complex mathematical concepts are now introduced in earlier grade levels. In order for students to be successful with the CCSS, teachers must change the way that they plan for instruction as well as the way that they deliver instruction.

This Education Leadership Portfolio describes strategies that were designed and implemented at one elementary school in an effort to shift mathematics planning and instructional practices to better align with the CCSS expectations. I engaged in activities to increase my knowledge of mathematics and professional learning so that I

could lead the improvement efforts successfully and support teachers in a meaningful way. A variety of professional learning experiences was provided to help teachers increase their content-area knowledge and expand their repertoire of strategies to teach mathematics.   The results of these professional development strategies on teacher practices are discussed and recommendations are made to inform future professional learning activities focused on shifting mathematics planning and instructional practices.

Chapter 1

INTRODUCTION

This Education Leadership Portfolio is situated at East Lake Elementary School, which is located within Fairview County Public Schools in a mid-Atlantic state. Beginning in the fall of 2011, the school district began the transition to the Common Core State Standards (CCSS). From that point forward, expectations for teaching and learning changed significantly in our school. My portfolio is focused on helping teachers shift their mathematics planning and instructional practices to better align with the expectations that accompany the CCSS. Throughout this portfolio, I describe my own development as a learner and a leader, and how the teachers and I engaged in a variety of professional learning experiences.

This portfolio is organized into five subsequent chapters, a list of references, and ten appendices. Chapter 2 describes the organizational context of Fairview County Public Schools and East Lake; the overarching problem and background leading up to the improvement strategies; my role at East Lake; and the improvement goal for which strategies were implemented. Chapter 3 provides a summary of the improvement strategies. Chapter 4 discusses the results of the improvement strategies, highlighting evidence to date of shifts in teacher practices and their impact on student learning. Chapter 5 describes the success of the improvement strategies, which improvements strategies need to be redesigned, and recommendations to address the

shift in planning and instructional practices in the future. In Chapter 6, I reflect on my

development as a scholar, problem-solver, and partner while enrolled in the Ed.D.

program at the University of Delaware. The list of references includes all research

articles, publications, electronic resources, and books that informed my work for the

Education Leadership Portfolio. The appendices include my original proposal and

each completed artifact that addressed the improvement goal.

Chapter 2

PROBLEM ADDRESSED

I became the principal of East Lake in Fairview County Public Schools in July of 2011. At the same time that I became the principal at East Lake, the school district began the transition to the CCSS. Expectations for teaching and learning in our school changed drastically as a result of the new standards. My portfolio focuses on how our school is adjusting to these new expectations, particularly related to instructional planning and practice for mathematics. In this chapter, I will describe the organizational context of East Lake and Fairview County Public Schools; the problem area on which I focused and why; the student achievement and observational data that existed at the start of my work; and lastly, my roles and responsibilities as an elementary school principal in the district.

Organizational Context

Fairview County Public Schools (FCPS) is a rural school district located within an hour's drive of two metropolitan cities, and serves approximately 15,000 students. The district is the 14th largest in its mid-Atlantic state. It is also a full inclusion district; this means that all students, regardless of learning difference or English proficiency level, attend the neighborhood school.

East Lake Elementary demographics. East Lake is a Title I school that serves students in preschool (age three) through grade five. There are approximately

490 students, 70% of whom receive free and reduced meals. East Lake has the highest poverty levels in the district; additionally, more than 50 students are considered to be homeless. An added challenge is the mobility rate that has increased over the last several years; each year, roughly 50% of students enter and/or withdraw. East Lake has an ethnically diverse student population that differs significantly from the overall district population that is predominantly white. At East Lake, slightly more than half of the students are white (55%), the remaining students are African American (22%), multi-race (12%), Hispanic (9%), and other (2%, including American Indian and Asian/Pacific Islander).   Approximately 16% of the students receive special education services (PowerSchool, 2013).

In order to meet the varied needs of the student population, the vision and mission statements were revised in the spring of 2013 with the help of staff members and parents. The updated vision and mission statements that drive actions of the school community are as follows.

> *East Lake Vision*
>
> East Lake Elementary School is a learning community dedicated to
> the continued development and growth of ALL students to provide
> them with their *Passport to the Future!*

> *East Lake Mission*
>
> In order to provide ALL students their *Passport to the Future*,
> we will EMPOWER them by:
>
> - **E**mphasizing and building on their strengths;
> - **M**otivating them to reach their individual learning goals;
> - **P**romoting positive self-perception and reflection;
> - **O**ptimizing open and collaborative communication;
> - **W**elcoming and respecting diversity;
> - **E**quipping them with knowledge and skills; and,
> - **R**ecognizing their accomplishments to reach their
>   greatest potential!

At East Lake, there are 66 staff members, including administration, teachers, related service providers, and support staff. Of the 66 staff members, there are 42 certificated staff members including classroom teachers, special educators, specialists,

and Title I-funded intervention resource teachers. In the district, certificated teachers received tenure after three years of satisfactory service. Seventeen certificated teachers (40%) have not yet received tenure at East Lake.

East Lake professional development opportunities. The district offers multiple opportunities for collaborative practice and professional development for its teachers. Every Wednesday, students are dismissed early to allow an hour and a half for teachers to engage in collaborative planning and professional learning opportunities. The teacher contract specifies that the first Wednesday is considered to be "Teacher Wednesday," in which teachers can engage in activities of their choosing; the second Wednesday is "Coordinator Wednesday," in which the instructional coordinators in the school district determine the topic for professional learning; the third and fourth Wednesdays are determined by the school improvement team and/or the principal. For the 2013-2014 school year, there were 27 Wednesdays available, not including the first Wednesday of every month, for collaborative planning and professional learning; there were a total of 40.5 hours available throughout the school year.

Teachers at East Lake also engage in professional learning opportunities on designated district professional development days when school is closed for students, in the morning prior to the start of the school day through extended team planning meetings and voluntary "coffee talks," in district-led content trainings specific to individual grade levels, and in school-based trainings ("Implementation Shifts") that focus on shifting instructional practice based on how students will be assessed on the

Partnership for Assessment of Readiness for College and Careers (PARCC)

performance assessment tasks and end-of-the-year assessments. The professional

development offered on Wednesday afternoons was mandatory for all certificated staff

and the "Implementation Shifts" series was mandatory for all classroom teachers and

special educators; the "Coffee Talks" offered on Friday mornings were optional.

Figure 1 describes the professional development plan for East Lake during the 2013-

2014 school year.

	August	September	October	November	December	January	February	March	April	May
Professional Development Days – 42 hours throughout the school year										
County Planned Prof Days	M - August 19 Instructional Expectations		M - October 21 Content planning			Th - January 16 Content planning			Th - April 17 Content Planning	
School Planned Prof Days	T - August 20 W - August 21 Reflecting on last year PLCs, PBIS, procedural					F - January 17 Math Learning Walks		M - March 31 Math Learning Walks		
WEDNESDAY PD – 40.5 hours throughout the school year (Includes 1 Wednesday in June)										
2nd Wed (Coordinator)		Sept. 11 Coordinator: 1st MP macro-concept Math focus	Oct. 9 Coordinator: 2nd MP macro-concept ELA focus	Nov. 13 Coordinator: 2nd MP macro-concept STEM focus	Dec. 11 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	Jan. 8 Coordinator: 3rd MP macro-concept Social Studies focus	Feb. 12 Coordinator: 3rd MP macro-concept Math focus	March 12 Coordinator: 4th MP macro-concept ELA focus	April 9 Coordinator: 4th MP macro-concept STEM focus	May 14
3rd Wed (Team)	August 21	Sept. 18 Macro-concept follow-up	Oct. 16 Macro-concept follow-up	Nov. 20 Macro-concept follow-up	Dec. 18 Reflect on 12-13 initiatives PLCs	Jan. 15 Macro-concept follow-up	Feb. 19 Macro-concept follow-up	March 19 Macro-concept follow-up	April 16 Macro-concept follow-up	May 21
4th Wed (Principal)	August 28 Teacher Eval or CFIP	Sept. 25 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Oct. 23 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	Nov. 27 No School	Dec. 25 No School	Jan. 22 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Feb. 26 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	March 26 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	April 23 OPEN	May 28 Articulation
Implementation Shifts – 6 hours total throughout the school year Day 1, Week 1: 1 hour of professional development Day 2, Week 2: 1 hour of working on putting the information into practice (prior to session 3, teachers put the information into practice) Day 3, Week 3: 1 hour of reflection										
Cycle 1	10/3 PARCC RELA	10/10 PARCC RELA		11/11 PARCC RELA						
Cycle 2							2/6 PARCC Math	2/13 PARCC Math	2/27 PARCC Math	
Coffee Talks – 13.5 hours total throughout the school year Friday mornings, beginning at 8 AM in the media center										
Topics will be determined throughout the school year	2nd Friday→	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion
	4th Friday→	Intervention	Divergent Questioning	Kagan	Depth & Complexity Icons	Kagan	Speech & Language	Kagan	STEM	Kagan

Figure 1. East Lake Elementary School Professional Development Plan

Student achievement. In the mid-Atlantic state in which the district is located,

students in grades three through eight take the Mid-Atlantic School Assessment

(MASA) and Annual Yearly Progress (AYP) is measured based on that assessment.

Beginning in the 2012-2013 school year, individualized targets were set by the State

Department of Education (SDE) for school-wide performance. The individualized

targets were based on each school's performance on the 2011 MASA. The SDE

expected schools to reduce the number of students scoring at the "basic" proficiency

level by half in six years (2017) in each separate subgroup and in each subject. The

table below outlines the baseline that was established in 2011 and the Annual

Measurable Objectives (AMOs) for 2012. East Lake met the AMO in each subgroup

for 2011 and 2012; the italicized numbers represent the subgroups that met the AMO

by the confidence band.

Table 1

MASA Disaggregated Data

Subject	Subgroup	2011 Baseline	2012 AMO	2012 Actual
Reading	All Students	83.6	84.9	87.7
Reading	Hispanic/Latino	71.4	73.8	*61.5*
Reading	African American	79.4	81.1	89.3
Reading	White	87.1	88.1	90.6
Reading	Two or more races	85.7	86.9	87.5
Reading	Special Education	71.4	73.8	84.2
Reading	English Learners	66.7	69.4	*62.5*
Reading	FARMS	79.6	81.3	84.7
Math	All Students	81.6	83.1	84.9
Math	Hispanic	71.4	73.8	76.9
Math	African American	73.5	75.7	78.6
Math	White	87.1	88.1	88.4
Math	Two or more races	78.6	80.4	*75*
Math	Special Education	64.3	67.3	68.4
Math	English Learners	66.7	69.4	77.8
Math	FARMS	77.6	79.4	82.8

Note. The Annual Measurable Objective (AMO) is the target set by the SDE to demonstrate that each subgroup is making progress toward the goal of reducing the number of students scoring at the "basic" proficiency level by half in six years.

Implementation of the CCSS

The CCSS are vastly different from the SDE standards on which the school district based its curriculum for many years. Specifically, the state curriculum was circular in nature and focused on exposure to concepts and skills, rather than mastery. The same concepts and skills were introduced throughout many grade levels, which promoted surface level learning. The CCSS, however, are focused on depth of understanding and mastery; the standards build on one another from year to year, and students are expected to use that knowledge to expand and deepen their understanding as the years go on.

The CCSS call for shifts on what is taught in specific grade levels and how content is taught. As noted in Table 2 below, there are three major shifts for English/language arts and three major shifts for mathematics instruction.

Table 2

Common Core Shifts for English/Language Arts and Mathematics

ELA Shift 1	Building knowledge through content-rich nonfiction
ELA Shift 2	Reading, writing, and speaking grounded in evidence from text, both literary and informational
ELA Shift 3	Practicing with complex text and its academic language on a regular basis
Math Shift 1	Focusing strongly where the Standards focus
Math Shift 2	Thinking across grades and linking to major topics within grades for coherence
Math Shift 3	Including rigor in major topics that require conceptual understanding, procedural skill and fluency, and application

Source: www.achievethecore.org

In Math Shift 1, "focus" requires teachers to narrow the scope and deepen students' understanding of the target concept. The Common Core State Standards for Mathematics (CCSSM) provide priority concepts for each grade level to build fluency and conceptual understanding. In Math Shift 2, "coherence" relies on knowledge built in previous grade levels to introduce new concepts and extend previous learning; "coherence" requires teachers to study the math progressions for the previous grade level, the current grade level, and the next grade level. In Math Shift 3, "rigor" requires students to construct meaning, to have speed and accuracy when performing calculations, and to apply mathematics in a variety of contexts. As a result of the math "shifts," teachers have had to develop their own content area knowledge to learn the mathematical concepts to the level of depth called for by the CCSSM.

Instructional implications have been far reaching as a result of the implementation of the CCSS. When mapping out long-range plans for the school year and for each marking period, the progression of the standards must be considered so that the teacher has a firm grasp on the learning expectations for the current grade level, previous grade level, and next grade level. The skills layered within each concept must be considered so that there is a logical progression for how the CCSS are taught within a grade level. The study of the progressions and corresponding target skills also helps to build awareness so that students' misconceptions of specific concepts can be identified. Daily lesson plans should include multiple pathways for students to construct meaning of the target concept, and differentiated instructional activities should promote depth of understanding so that students demonstrate mastery

of the concepts; the multiple pathways and differentiated activities will also contribute to the students' success in the next grade level as well as their performance on rigorous assessments. The way in which students will be assessed on their understanding of the target concepts has also had instructional implications. According to Rothman (2012), rather than being expected to restate information on assessments, students will be expected to demonstrate their knowledge through performance tasks. Performance tasks will require students to apply their knowledge and understanding of specific concepts to solve extended problems, for example a research simulation or complex multi-step mathematics problem. Therefore, instructional activities need to reflect the level of rigor that will be required of students to demonstrate their understanding of the CCSS on future assessments.

As part of the transition to the CCSS, the SDE required the district to send teams from each school to the Educator Effectiveness Academy (EEA) in the summer of 2011. The school teams were composed of the principal, an English/language arts (ELA) teacher leader, a mathematics teacher leader, and a STEM (science, technology, engineering, and mathematics) teacher leader. During the first EEA in 2011, the school teams learned about the new CCSS for ELA and mathematics and the state's vision for STEM practices; each school team then created a transition plan to develop their faculty's awareness of the CCSS and STEM practices. During the summer of 2012 and 2013, the school teams attended the EEA to build knowledge about the instructional expectations for the CCSS and then continued to update transition plans for the upcoming school year. The transition plans identified the professional

development that would be offered throughout the school year to build content-area understanding, develop lesson plans, and reflect on the implementation of the CCSS. It was the SDE's expectation that all districts fully implement the CCSS during the 2013-2014 school year.

In my district, however, the transition to the CCSS was accelerated. During the 2011-2012 school year, East Lake's EEA representatives delivered professional development on ELA, mathematics, and STEM to build content-area knowledge. Teachers continued to use the state curriculum, but incorporated key tenets of the CCSS. During the 2012-2013 school year, it was an expectation from our central office that the elementary schools fully adopt the CCSS and no longer teach to the state curriculum; it was no longer acceptable to use the textbooks and accompanying teacher editions in a page-by-page fashion that for several years was the status quo. This caused a tremendous amount of stress for those teachers who had typically relied on the district's scope and sequence and were inexperienced in mapping out long-range plans and progressions of concepts and skills.

Changes in student test scores. The MASA scores declined in 2013 following the implementation of the CCSS (see Table 3). East Lake did not make AYP. ELA scores dropped substantially for Hispanic, African American, special education, English language learner (ELL), and free and reduced meals (FARM) students. Mathematics scores also dropped substantially for Hispanic, African American, special education, ELL, and FARM students.

Table 3

MASA Disaggregated Data 2011-2013

Subject	Subgroup	2011	2012	2013
Reading	All Students	83.6	87.7	70.3
Reading	Hispanic/Latino	71.4	*61.5*	38.9
Reading	African American	79.4	89.3	66.7
Reading	White	87.1	90.6	79.2
Reading	Two or more races	85.7	87.5	78.6
Reading	Special Education	71.4	84.2	46.2
Reading	English Learners	66.7	*62.5*	37.5
Reading	FARMS	79.6	84.7	66.1
Math	All Students	81.6	84.9	61.5
Math	Hispanic	71.4	76.9	38.9
Math	African American	73.5	78.6	46.2
Math	White	87.1	88.4	72.2
Math	Two or more races	78.6	*75*	71.4
Math	Special Education	64.3	68.4	38.5
Math	English Learners	66.7	77.8	37.5
Math	FARMS	77.6	82.8	59.8

The 2013 MASA data indicate that gaps are widening between subgroups. In both ELA and mathematics, the achievement gap is most significant between White students and those identified as English learners, Hispanic, and special education. From 2012 to 2013, the scores of all subgroups declined, but the achievement gap between the aforementioned subgroups increased by over ten percentage points; in ELA alone, the gap between White and special education students increased by over 26 percentage points. It is not known why some subgroups declined more than others. Possible explanations include different learning styles among students, different challenges from one year to the next, and/or different opportunities to learn. One likely explanation for the overall decline in scores from 2012 to 2013 is that the new curriculum is not aligned to the state curriculum on which the MASA is based.

A second measure of student learning is the district-created mathematics benchmark assessment. It measures students' growth on the CCSSM for each individual grade level and was administered to students in kindergarten through grade five in the fall, winter, and spring of the 2012-2013 school year. Students were expected to make at least 20% growth from the fall to spring administration. Table 4 below describes the growth that students in each grade level made over the course of the school year. These data indicate that students in the early grades made more growth from the beginning to the end of the school year than intermediate grades. One possible explanation for the difference in scores between students in the early grades and intermediate grades is that with the transition to the CCSS in 2011, foundational skills have been introduced and practiced in the early grades. Students in

the intermediate grades may not have had consistent learning opportunities that focused on depth of understanding on the foundational skills. Therefore, it is likely that deficits exist and students may not have all of the necessary prerequisite skills to make progress on the target concepts in the intermediate grades.

Table 4

Student Growth on Mathematics Benchmark Assessment Data

Grade Level	Total number of students	Number of students who made 20% growth	Percent of grade level that made 20% growth	Average growth (in percent) for the grade level
Kindergarten	54	45	83	39
Grade 1	55	48	87	35
Grade 2	55	30	54	21
Grade 3	43	20	47	20
Grade 4	56	24	43	17
Grade 5	36	13	36	14

Both the 2013 MASA disaggregated data and the mathematics benchmark assessment data show that there is a great need to increase student learning for *all* students in *all* grade levels.

Classroom observational data. As part of the teacher evaluation system, certificated employees are observed formally throughout the evaluation period. Tenured teachers are observed formally at least two times throughout the evaluation period, and non-tenured teachers are observed at least four times because they have

two evaluation periods throughout the school year. Prior to the 2013-2014 school year, the type of certificate held by the teacher and the tenure status determined the evaluation period; this period ranged from six months to two years. Therefore, the number of formal observations conducted in any given school year fluctuated based on the certificate level and tenure status of teachers.

The teacher observation form that was used up until the fall of 2013 for formal observations had five specific performance areas: instructional planning, implementation of strategies and techniques, student-teacher interaction, classroom organization and management, and measuring student performance. Each area also included specific indicators on which teachers would receive a rating of "effective," "needs improvement," or "unsatisfactory." I analyzed teacher observations from the 2011-2012 school year and the 2012-2013 school year, focusing on the ratings and observer comments for the indicators in the following performance areas: instructional planning, implementation of strategies and techniques, and student-teacher interaction. I chose to examine those performance areas because they are directly tied to planning and instructional practices. A rating of less than effective ("needs improvement" or "unsatisfactory") on any of the indicators in the aforementioned performance areas and/or a recommendation in the comments area suggested that a specific need existed to increase the alignment between planning, instructional practice, and the changing expectations. The Attachment, *Description of Performance Area Indicators*, in Appendix A describes the indicators for the performance areas on which I focused.

Over the course of the 2011-2012 school year, 73 formal observations were conducted of certificated staff members (classroom teachers, special educators, specialists, related service providers, counselors, school psychologists, etc.); 21 of the observations (28.8%) specifically indicated a need for a shift in instructional practice based on the criteria described above. During the 2012-2013 school year, 116 formal observations were conducted of certificated staff members and 19 (16.4%) specifically indicated that there was a need for a shift in instructional practice.

Table 5

Formal Observational Data

School Year	Total Number of Formal Observations Conducted	Percent that Indicate Need for Shift in Instructional Practice
2011-2012	73	28.8
2012-2013	116	16.4

The number of observations increased from 2011-2012 to 2012-2013 as a result of newly hired staff members who were non-tenured and were required to have more observations throughout the school year. The data in Table 5 indicate that the percentage decreased from one year to the next and thus demonstrate that teachers are making progress in shifting their instructional practice. The actual number of formal observations that indicated a need for a shift in instructional practice may be higher

than the data reports because the 2012-2013 school year was considered to be a "no fault" year in the implementation of the CCSS. The district did not want teachers' ratings to be less than effective as long as the teacher was making some level of effort to implement the CCSS and could show evidence, even minimally, of implementation. Therefore, written formal observational data did not always capture the true need for a change in practice; often times, the conversations following the observations between the teacher and administrator focused on how instructional activities could be better suited to align to the expectations of the CCSS.

Informal observations were conducted as a non-evaluative measure to validate instructional practices focused on rigor and management, and also to provide teachers with constructive feedback on those areas. Since informal observations were brief, they focused on what could be observed in a short period of time. For the purpose of the informal observations, *rigor* pertained to how students interacted with the content; *management* pertained to the learning environment, inclusive of expectations for learning, student engagement, and procedural efficiency. During the 2011-2012 school year, 46 informal observations of classroom teachers were conducted and notes were recorded. Each informal observation note included at least one actionable feedback suggestion related to rigor and at least one actionable feedback suggestion related to management. The informal observational notes were coded to determine the frequency of specific rigor and management feedback. The most prevalent suggestions in the area of rigor related to questioning, assessment, and student responses; areas that were less prevalent included academic vocabulary, scaffolds, and

visuals.   The most prevalent suggestions in the area of management related to accountability for learning, student engagement, and directions; other areas that were less prevalent included materials distribution and wait time. Table 6 describes the frequency of the most prevalent suggestions for the areas of rigor and management.

Table 6

Feedback Focused on Rigor and Management

Focus of Rigor Feedback	Percent	Focus of Management Feedback	Percent
Use of Higher Order Questioning to Maintain Cognitive Demands	30	Accountability for All Students Learning the Content	34
Use of Formative Assessments to Show Attainment of Lesson Outcome(s)	13	Student Engagement during Whole and Small Group Instruction	30
Complete Student Responses (inclusive of complete sentences, elaboration, justification, and/or explanation)	11	Providing Clear Directions	9

N=46

During informal observations, it was often observed that teachers asked questions with only one single correct response. Such low-level questions did not require students to think critically, but rather regurgitate information. The CCSS call for students to have a deep understanding of the content; therefore, teachers must plan for and ask high level questions. The informal observational feedback on management

suggested that teachers need to hold students accountable for learning more consistently. One practice that was observed in multiple classrooms was that a student response of "I don't know" was accepted by the teacher without any explicit follow-up or expectation that the student would learn the content. While this is only one discrete example, it suggests that teachers are not always holding students accountable for learning. Since the CCSS build from year to year, consistent expectations must be set for learning the content so that students have sufficient knowledge on which to draw each subsequent school year. The informal observational feedback on both rigor and management supports the need to better align instruction with the expectations of the CCSS.

The student achievement data and classroom observational data substantiate the need to explore additional approaches to develop content knowledge and conceptual understanding. *All* students, not only those in the primary grades, need to demonstrate mastery of the standards over the course of the school year. All observations of instruction, both formal and informal, need to show evidence of the major shifts required by the CCSS.

My Roles and Responsibilities

As the school principal, my primary responsibilities are to be the instructional leader and the building manager. As the instructional leader, I am responsible for hiring new staff members, conducting frequent observations of all staff members, and evaluating certificated and support staff on an annual basis. I work with staff members to identify topics for professional development, and I facilitate/co-facilitate

professional learning activities for staff. As the school principal, I am also charged with involving stakeholders in the decision-making process. As the building manager, I oversee the coordination of all aspects of the school facility, including custodial operations, building maintenance, and usage of the building by outside agencies after school hours. I also ensure that each space has the needed supplies for its intended purpose, such as appropriate classroom furniture and technology, and that everything is in working condition. I manage local and grant-funded budgets, and approve purchases of both non-instructional and instructional materials from those budgets. I am also responsible for maintaining positive relationships with parents and community partners.

With the implementation of the CCSS, I have a tremendous responsibility to ensure that instructional practice aligns with changing expectations to increase student learning. When I first began at East Lake, a leadership team was in place that consisted of the family involvement advisor, the school counselor, the head custodian, and one intervention/resource teacher; the leadership team was not instructionally focused and concentrated its efforts on the management of the school facility. In order to carry out the work of shifting instructional practices to align to the CCSS, I changed the members of the leadership team to include staff who were focused on instruction. The "new" Leadership Team consisted of the assistant principal, three intervention/resource teachers, and select classroom teachers.   An open invitation was sent to all classroom teachers to participate in this endeavor; those who were interested became members. This Leadership Team has stayed in place for the last three years.

The only changes to the team have been as a result of new staff members that have joined East Lake. Collectively, the Leadership Team members are experts in both content and pedagogy; each team member has taken on a study of the instructional shifts that are needed to help teachers align instruction to changing expectations. Additionally, the Leadership Team determines how resources will be aligned to support the shift of instructional practices; this includes the development of the master schedule, the school-based professional development schedule, and the types of support (human and fiscal) that will be available to teachers.

In order to involve diverse stakeholders in the decision-making process, I developed Design Teams to provide a forum for input. One of the Design Teams that was created was the Professional Development Design Team. The Professional Development Design Team has facilitated the process by which professional development topics are chosen and activities are planned. The Leadership Team members have served as core members of the Professional Development Design Team.

District's Expectations

In Fairview County Public Schools, principals are charged with leading the change in instructional practices. To this effect, principals are expected to manage the teacher contract and stay within the parameters of the Negotiated Agreement. I am expected to follow the procedures outlined in the Negotiated Agreement for formal and informal observations, and meet the evaluation deadlines for non-tenured and tenured teachers. It is the district's expectation that I stay current on trends in

education, research, and best instructional practices. The district provides funding for each administrator to join one professional organization each school year to support this expectation. I am also expected to engage in learning experiences that develop my knowledge and skills based on my individual professional learning needs and the needs of my school. The district supports school leaders in pursuing advanced degrees through release time and partial reimbursement for coursework.

In the district, it is an expectation that all students are engaged in high-quality learning experiences aligned to the Common Core State Standards and to the district-created curriculum resources; as the school principal, it is my responsibility to make sure this happens. The district expects me to develop school improvement goals based on the individual needs of the school. I am given a great deal of autonomy to implement strategies and activities in support of the school improvement goals with minimal oversight from the district office. I have had the assistance of the instructional coordinators to implement school- and district-specific improvement goals; the partnership with the Instructional Coordinator for Mathematics has helped to make sure that the school improvement goals are in alignment with the district's goals.

Improvement Goal

Analyses of student achievement data and observational data revealed several questions that cannot be answered definitively at this time. For example, what *professional learning activities* will develop teachers' knowledge and understanding of the CCSS? What *planning* practices will help teachers to focus lessons on the new

standards and foster a deep understanding of the target concepts? What *instructional* practices will increase student growth in all grade levels? What *instructional* practices will ensure that all students master the grade level content? How can teachers hold students at varying levels accountable for learning the grade level content? As a school leader, how will I increase my knowledge and understanding of the CCSS? What do I need to learn about developing professional learning activities for teachers? How can I support teachers in changing existing planning and instructional practices? Moving forward, more consideration and exploration need to be given to questions such as these. Thus, the improvement goal that I have sought to achieve is that our school's instructional planning and practice for mathematics will align more closely with changing expectations to increase student learning. Teachers' engagement in and application of professional learning activities, formal and informal observations, and student achievement data will all be used as evidence of making progress toward the improvement goal.

Chapter 3

IMPROVEMENT STRATEGIES

Expectations for teaching and learning have changed significantly as a result of the transition to the CCSS. In order to better align planning and instructional practice to these new expectations, specific improvement strategies were developed and implemented at East Lake Elementary School.   I researched teacher quality, professional learning, and mathematics to increase my own professional knowledge so that I could lead the improvement efforts successfully and support teachers in meaningful ways. The teacher-focused improvement strategies engaged teachers in a variety of professional learning experiences to increase their content-area knowledge and strengthen their planning and instructional practices related to teaching mathematics. This chapter describes the activities that I engaged in as the instructional leader to develop my own expertise. It then describes the activities that the teachers were involved in to align their practice to the CCSSM.

Leadership Preparations

Throughout the process of preparing for, designing, and implementing the improvement strategies, I developed my own expertise in the areas of teacher quality and professional learning, as well as providing formative feedback to teachers, understanding the learning expectations of the CCSSM, and utilizing the constructivist approach to teach mathematics. I developed my knowledge and skills by researching,

reading scholarly articles, discussing the aforementioned topics with other professionals, and finding videos online that presented mathematics concepts in a way that teachers were expected to teach them.

At the time in which the improvement strategies were developed and implemented, the CCSS were new. As a result, longitudinal research studies on the CCSSM did not exist to inform the improvement strategies. However, a great body of research exists on teacher quality and professional learning that did inform the improvement strategies that were developed to increase both teachers' and students' content-area knowledge and conceptual understanding called for by the CCSSM.

Multiple research studies have found that teacher quality is the largest school-based predictor of student achievement. According to McCaffrey et al (2003), "teachers have discernable, differential effects on student achievement, and that these effects appear to persist into the future" (p. xiii). Teachers' actions in the classroom matter and they impact student learning (Rowan, Correnti, and Miller, 2002; Rivkin, Hanushek, and Kain, 2000; Wright, Horn, and Sanders, 1997). Teachers' knowledge and understanding of content and pedagogy are at the heart of student learning; if one area is deficient, student learning will be impacted negatively.

Yoon et al. (2007) found that "substantial" professional development can have a positive impact on student achievement; of the nine studies reviewed, those teachers that had an average of 49 hours of professional development increased student achievement by approximately 21 percentile points. The researchers assert that professional development impacts student learning through three steps. Professional

development increases teachers' knowledge and skills, which leads to improved instructional delivery, which leads to improved student achievement. It is important to note, however, that students only benefit from the classroom teacher's professional development when those newly learned skills are applied in the classroom. Therefore, it is imperative that teachers engage in high quality learning experiences to strengthen their professional practice as it relates to content and pedagogy.

The above research on teacher quality and professional learning shaped my work with the Leadership Team and the Professional Development Design Team. It proved to be a compelling factor for *why* we needed to change the way that professional development had been conducted historically at East Lake.

As part of my leadership preparations, I also examined the district's teacher observation and evaluation tool, and researched what part, if any, the observation and evaluation process plays with teachers' professional improvement. A primary goal of the evaluation process is professional improvement, yet research shows that all too often, teacher evaluation processes in schools are not particularly helpful to teachers because only minimal, if any, constructive feedback is provided (Tuytens & Devos, 2011). Many evaluation processes do not require administrators to provide explicit feedback; according to the authors of *The Widget Effect*, roughly three out of four teachers did not receive specific feedback following their last evaluation (Weisberg, D., Sexton, S., Mulhern, J., Keeling, D., 2009). When constructive and positive feedback is provided during evaluation conferences, it is frequently vague and unrelated to improving professional practice (Donaldson, 2010). The absence of

constructive feedback and the presence of irrelevant praise in evaluation processes lead to stagnant instruction.

Following this research, I concluded that feedback is essential for not only teacher learning, but also for student learning. Teachers need to receive constructive feedback on their practice in order to correct errors, modify their techniques, and participate in professional learning activities to enhance their instructional delivery (Ovando, 2005). Feedback has the potential to be an integral piece of the evaluation process; as noted by Strong (2006), "feedback from administrators and supervisors can be used in meeting both the accountability and professional growth purposes of an evaluation system" (p. 18). Appendix B presents findings from my evaluation of feedback provided during the evaluation process in FCPS. For the teacher-focused improvement strategies at East Lake, I wanted to make sure that feedback was a part of those strategies in some way.

The observation process used in the district at the time I began my doctoral work lacked a requirement to provide specific feedback, measurable actions for improvement, and follow-up and follow-through by an administrator. This characteristic of the observation process informed the teacher-focused improvement strategies, specifically the development of the walk-through tool. In Appendix C, I justify in a Policy Brief why formative feedback needs to be provided to teachers. In the Policy Brief, specific rationales, tasks, and resources are presented on how to implement an observation-feedback cycle that incorporates elements of instructional walk-throughs, instructional rounds, and the district's informal observation process.

The plan presented in the Policy Brief includes recommendations for building

consensus, structuring time, providing training, and including teachers; the ideas listed

in the plan guided the way in which the two professional learning sessions were

structured to develop and revise the walk-through tool. The Policy Brief also

contributed to the way in which teachers receive feedback as part of the walk-through

process.

In addition to studying teacher quality, professional learning, and the

evaluation process, I also studied multiple principal evaluation systems and created a

set of principal evaluation rubrics as part of my internship experience. The

development of the principal evaluation rubrics contributed greatly to my leadership

preparations because I studied how leadership behaviors were defined at various

performance levels. The principal evaluation rubrics also provided an avenue for me

to reflect on my own professional practice and make changes to my leadership

practices to be a better principal and to lead the improvement efforts at East Lake.

During my third year as a principal, I revisited the rubrics several times, informally

rated my own practice, and thought about areas in which I was doing well and areas in

which I needed to do better. The rubric that focused on Component 2: Culture of

Learning made me think differently about my work. It informed the way in which I

structured professional learning experiences for staff members and myself, how I

could provide leadership opportunities for others, and how I provided feedback to

teachers following formal and informal observations. Appendix D provides a

description of the principal evaluation rubric development process and my reflection on my own leadership practice.

Prior to designing and implementing improvement strategies to help teachers change their mathematics planning and instructional practices, I, too, had to engage in professional learning activities to increase my own knowledge and understanding of the CCSSM. In order to do this, I studied the Standards of Mathematical Practice (SMP) and considered how the SMP would look in various grade levels. I read the first chapter of *Teaching Student-Centered Mathematics* by Van de Walle and Lovin multiple times; each time I read that chapter, I learned something new. I engaged in professional conversations with the district's Instructional Coordinator for Mathematics and clarified my understanding of what was expected in our classrooms, what learning should look like, and what my role was as an administrator to move teachers forward. At district principals' meetings, my colleagues and I participated in mock mathematics lessons and used manipulatives in the same manner that students were expected to use them. I watched videos online of how to present mathematics concepts using a student-centered approach, and how students could represent their thinking with visuals.

The conversations with the Leadership Team also contributed greatly to my own professional learning for mathematics concepts and instruction. Leadership Team members shared examples of how various concepts should be presented at different grade levels. This helped to build our understanding of how the concepts were aligned

vertically. It was important to me that as a school leader, I developed my own knowledge and understanding to help others improve.

Improvement Strategies

The improvement strategies were designed to increase teachers' knowledge and skills related to planning for and delivering instruction aligned to the CCSSM. East Lake's Leadership Team identified the topics for professional development based on student achievement data, observational data, and anecdotal data from teachers. Table 7 lists the teacher-focused improvement strategies and the timeframe for carrying out each improvement strategy.

Table 7

Improvement Strategies and Timeframe

Improvement Strategy	Timeframe
Agenda and Materials from Mathematics Book Study: An Introduction to *Teaching Student-Centered Mathematics*	January 2013
Development and Analysis of Mathematics Formative Assessments	January – February 2014
Development and Use of A Walk-through Instrument Focused on Mathematics Instructional Practices	January – April 2014
Professional Development Planning: A Comprehensive Approach	May – August 2014

Book study. The teachers and I participated in a book study in which we read the first chapter of the text, *Teaching Student-Centered Mathematics*, by Van de Walle and Lovin. At the beginning of the 2012-2013 school year, teachers received this text as their primary resource for mathematics instruction and were told to use it as a resource. However, many teachers had not even opened the book by the month of December. The Leadership Team realized that in order for teachers to utilize *Teaching Student-Centered Mathematics*, they needed structured time to read and discuss the contents of an excerpt from the first chapter. The intent was to introduce them to teaching mathematics in a way that led to a deep conceptual understanding of mathematical concepts rather than relying solely on traditional teaching methods. The chapter covered how children learn and understand mathematics, specifically, constructivism, as well as the importance of teaching mathematics with problems. Teachers answered guiding questions and discussed the content of the chapter with colleagues. More information about this professional learning activity can be found in Appendix E.

Development and analysis of mathematics formative assessments. For the second teacher-focused improvement strategy, teachers engaged in a three-part professional learning series in which they created, scored, and analyzed formative assessments aligned to the mathematics PARCC assessments. The work of Yoon et al. (2007) informed the design of the three-part learning series sot that there were opportunities for teachers to increase knowledge and apply the newly learned knowledge in the classroom. This series was anchored in the three main shifts in

mathematics instruction that are expected as part of the CCSSM. The purpose of this professional learning series was to: increase teachers' knowledge of the shifts in mathematics instruction and the expectations of the PARCC assessment; provide support in the development of assessment criteria and formative assessments to measure students' progress on target standards; and, analyze student performance on the target standards.

In the first professional learning experience, teachers learned about the shifts in mathematics instruction and analyzed sample mathematics PARCC test items. In the second, teachers reviewed the three main shifts, and created a mathematics formative assessment that emulated the sample PARCC items in format and conceptual understanding. Between the second and third professional learning experience, the teachers administered the assessment and scored it. In the third professional learning experience, teachers analyzed the formative assessment data. This professional development series had a few challenges. Teachers left Session Two with only some assessment criteria developed and a sketch of the assessment that would be given to students. Teachers worked independently between Session Two and Session Three to finish developing the assessment, administering the assessment, and scoring the assessment. During Session Three, teachers gave an overview of the final assessment that was given; three grade levels followed the PARCC format that was introduced in Session One, while three grade levels used an entirely different format. Five of the six grade levels developed word problems, three grade levels created problems that required students to interpret data, and two grade levels developed problems that had

more than one correct answer. The way in which grade levels reported out their class data was different, depending on the type of assessment and/or whether or not assessment criteria had been fully developed as part of the formative assessment development. Appendix F describes each session of the series in more detail as well as how the aforementioned challenges would be resolved in the future.

Development and use of a walk-through instrument. In the third teacher-focused improvement strategy, teachers worked collaboratively during two professional learning sessions to create a walk-through instrument focused on student behaviors during mathematics. The impetus behind the walk-through instrument was two-fold: to develop a structure for teachers to visit other classrooms during mathematics instruction; and, to present alternative ways to approach planning for and delivering mathematics instruction. As noted previously, the Policy Brief included in Appendix C informed the development of the walk-through tool; suggestions for building consensus, structuring time, and including teachers guided the way in which the two professional learning sessions were structured.

In the first session to develop the walk-through instrument, teachers identified possible student learning behaviors during mathematics instruction, came to consensus on walk-through norms, and developed the first walk-through instrument. Prior to the second session, each teacher utilized the walk-through instrument while observing mathematics instruction in another classroom.

In the second session, teachers reviewed the walk-through data collected from the first round of observations, identified student actions during mathematics

instruction, and revised the instrument based on their experience using it. When teachers defined evidence of the student learning behaviors, they concluded that one part of the instrument needed to be revised. The teachers determined that there should only be one student behavior focused on the use of math tools; they concluded that the statement, "Students use a variety of math tools, can easily flow between different tools, and/or match the math tool with its purpose," was too cumbersome and that the statement, "Students represent the problem with visuals or math tools," was sufficient. Teachers then utilized the walk-through instrument one more time while observing in a different classroom. Appendix G provides a more detailed account of both professional learning sessions and it also includes both walk-through instruments.

Planning professional development for the 2014-2015 school year. For the final improvement strategy, the Professional Development Design Team convened to plan professional learning experiences for teachers in the area of mathematics for the 2014-2015 school year. All staff members were invited to be a part of the Professional Development Design Team; this provided everyone with the option to provide input on the process and the topics. The Professional Development Design Team met three times between May and August 2014. Three Instructional Resource Teachers (IRTs) attended all three meetings; four teachers attended the first meeting; one teacher attended the second meeting; and ten teachers attended the third meeting.

Previous professional development offerings and schedules were examined. The practices of the past were used to inform changes to the way in which professional development topics were chosen and scheduled. Specific steps guided the work of the

Professional Development Design Team, inclusive of data analysis, identification of clear outcomes and measures of success, identification of appropriate service delivery models, and the selection of topics and corresponding sequence.

As described in Appendix H, the Professional Development Design Team determined that for the 2014-2015 school year, the focus of the majority of professional learning experiences would be on mathematics so as to provide some level of continuity with the professional development topics. The professional development plan for the 2014-2015 school year is structured to build new knowledge, to provide time for planning, and to provide time for reflection. A more detailed description of the planning process and professional learning activities can be found in Appendix H.

In summary, the improvement strategies described above were informed by relevant research, and district and school practices. I deepened my own knowledge and understanding in order to help teachers increase their knowledge and improve their skills. Together, we engaged in professional learning activities to strengthen planning and instructional practices related to mathematics instruction.

Chapter 4

IMPROVEMENT STRATEGIES RESULTS

This entire improvement initiative intended to influence the way in which the educators at East Lake, including myself, approached mathematics instruction so that it aligned to the CCSSM. The following evidence will be discussed to describe the results of the improvement initiative: professional development evaluation data; two rounds of mathematics walk-through data; focus group evaluation data; and a case study that documents one teacher's shift in practice.

Professional Development Evaluation Data

    Book study. The initial professional development session that focused on the first chapter of *Teaching Student-Center Mathematics* increased teachers' content-area knowledge. During that professional learning experience, teachers engaged with colleagues from multiple grade levels and discussed the similarities of student-centered math instruction that was not specific to one grade level. Following the first part of the professional development session, teachers responded to a question that asked them to describe why constructivism and teaching with problems are important in the mathematics classroom. Teachers wrote their responses on an organizer that was submitted at the end of the professional development session. Their responses are listed in Table 8.

Table 8

Teachers' Responses to Why Constructivism and Teaching with Problems Are Important

Grade Level	Response
Kindergarten	This is the way we are headed. It is a shift in the way we are thinking. Early childhood has always been rooted in this, but we get squashed by time crunches and grades. Excited to incorporate this more.
Grade 1	Everything ties together to find "how and why" and affects how we teach which affects the students learning.
Grade 2	All about the students' understanding. We need to look at what basic foundational skills of our grade to teach through the constructivist lens. Not all lessons can be taught this way because of the time constraints and assessment limitations. It is quality vs. quantity.
Grade 3	This is the change that is coming our way and we need to understand and embrace the philosophy so that we can understand the methodology and thinking behind the constructivist philosophy.
Grade 4	Student success is directly related to well-crafted problems that encourage students to develop their own connections and build understanding.
Grade 5	We need to create a world of problem-solvers by using constructivism which fosters problem solving skills in students.

At the end of the professional development session, teachers evaluated the learning experience and provided feedback to the Leadership Team. They were asked, "What did you like about the format? What worked for you? What would you change?" Table 9 describes the teachers' responses.

Table 9

Teachers' Evaluation of the Professional Learning Experience

Grade Level	Response
Kindergarten	This was great and very cooperative. We all feel we got more out of this type of PD than any other kind.
Grade 1	We liked talking to different grade levels. The ice-breaker was fun. It was the perfect amount of time…not overwhelming. The questions helped us understand the text more. It was great having specialists involved – great point of view. This was so much better than sitting all day and it was "kid friendly" lingo!
Grade 2	We liked the small group interactions. Time flew by. We got a lot out of it. We really liked the murder mystery. Very good!
Grade 3	The format worked well for all of us. The team building activity got us thinking. We thought the small group was more comfortable, made it easier to share. Completing the assignment in advance made it easier to contribute as well. Mixed groups provided insight into how and what other grade levels are teaching.
Grade 4	We all liked (loved) the small groups with different grade levels – it allowed for multiple perspectives.
Grade 5	All of us liked the format. We would like to be in small groups with other intermediate grades. We liked hearing the different perspectives of other grade levels.

While the evaluation data in Table 8 and Table 9 describe teachers'
perceptions and feelings about the professional learning experience, limitations exist
because the data was self-reported. With statements such as, "This is the change that
is coming our way and we need to understand and embrace the philosophy so that we

can understand the methodology and thinking behind the constructivist philosophy," and "Student success is directly related to well-crafted problems that encourage students to develop their own connections and build understanding," it is evident that the study of the first chapter from *Teaching Student-Centered Mathematics* developed teachers' awareness of constructivism. However, their responses do not indicate the extent to which their knowledge increased.

Development and analysis of mathematics formative assessments. The development and analysis of the mathematics formative assessments was designed to increase teachers' knowledge, provide support in the development of assessments, and analyze student performance on the teacher-created assessment. After engaging in the three-part series, teachers completed an online survey to evaluate the entire professional learning experience. The final evaluation survey data showed that indeed, they increased their knowledge and intended to incorporate what they learned into future planning and instructional delivery practices. Of the 23 respondents, over 40% reported that their understanding increased about student expectations on the math PARCC assessments. More than 70% indicated that they would incorporate studying the standard and its progressions, identifying clear assessment criteria, and developing assessments that measure progress on the entire standard (not just one part) into planning practices. The data from the evaluation survey have limitations for determining a true shift in planning and instructional practice because it's solely based on self-reports from the teachers. While intent does not guarantee that teachers will

incorporate what they learned into daily practice, it is the first step needed in order to change historical practices.

An analysis of the student performance data determined how well the teacher-created assessment measured student progress on the focus standard; the assessments either *fully* measured progress, *partially* measured progress, or *not at all* measured progress. In order to receive the rating of *fully* measured progress, the assessment needed to address all components of the target standard(s). If the assessment only measured a few components of the standard but not all components, then it only *partially* measured the standard. If none of the components of the standard were measured, then the assessment received the rating *not at all*. Of the six formative assessments created, three fully measured student progress on the focus standard, while two partially measured student progress on the focus standard; one assessment did not measure student progress on the focus standard at all. There is still more work to do in developing formative assessments since not all assessments *fully* measured students' progress on the focus standard.

Mathematics Walk-Through Data

The two main objectives of the development and use of the mathematics walk-through tool were to: 1) develop a structure for teachers to visit other classrooms during mathematics instruction; and, 2) influence the way in which teachers' delivered mathematics instruction so that it aligned to the CCSS. In the first round of math walk-throughs, a total of 25 walk-throughs were completed, but in the second round, only 15 were completed as a result of absences and spring assessments.

A comparative review of the first and second round math walk-through data shows that there were differences in the level of evidence of student behaviors that were observed. In the first round of math walk-throughs, the student behavior, "Students represent the problem with visuals or math tools" was fully evident in 84% of classroom visits whereas during the second round, this same student behavior was only fully evident during 60% of the classroom visits (see Table 10).

Table 10

Rounds1 and 2 Mathematics Walk-through Data

	Not evident at the moment				Somewhat evident				Fully evident			
	Round 1		Round 2		Round 1		Round 2		Round 1		Round 2	
Student Behavior	n	%	n	%	n	%	n	%	n	%	n	%
Students talk to other students about how they might solve [or how they solved] the problem.	0	0	0	0	8	32	3	20	17	68	12	80
Students represent the problem with visuals or math tools.	1	4	2	13	3	12	4	27	21	84	9	60
Students reflect on their thinking.	3	12	2	13	5	20	2	13	17	68	11	73
Students communicate and justify their solutions.	4	16	1	7	7	28	5	33	14	56	9	60
Students apply math concepts to real-world problems and situations.	9	36	3	20	5	20	4	27	11	44	8	53
Students use a variety of math tools, can easily flow between different tools, and/or match the math tool with its purpose.	5	20	2	13	7	28	3	20	13	52	12	80

Note. First round n=25, second round n=15.

From the first to second round of mathematics walk-throughs, there was an increase in the level of fully evident in four of the five student behaviors. With only two rounds of walk-throughs, this increase cannot reliably measure a true shift in instructional practice. However, "Students apply math concepts to real-world problems and situations," was consistently the student behavior with the highest percentage of "not evident at the moment" ratings during the first and second round of mathematics walk-throughs. During the second round of walk-throughs, the majority of teachers indicated on the open-ended question that they wanted to incorporate more collaborative structures during instruction and use more manipulatives; this was consistent with the responses to the same question from the first round of math learning walks. Data from the open-ended questions can be found in Appendix G.

The first objective was accomplished in its entirety. A successful structure was developed for teachers to visit other classrooms; this structure incorporated the direct observation of specific mathematics learning behaviors, individual reflection, and meaningful dialogue between colleagues. During the focus group that followed both rounds of walk-throughs, one teacher shared her experience with engaging in the walk-throughs as the one who observed mathematics instruction and the one who was observed while delivering mathematics instruction:

I like the math learning walks…I felt like I could learn…It was less pressure for me when it was just the teacher coming in. That's what I like about the math learning walk. It was interesting for me to go in and see how another

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teacher teaches. I feel like that helps me grow and gives me ideas and helps me

reflect on how I do it. I like them!

More evidence is needed to determine if the walk-throughs have influenced the way in

which mathematics instruction is delivered; therefore, the second objective of the

mathematics walk-throughs is one that will take years to accomplish fully.

Focus Group Evaluation Data

A focus group was conducted in order to evaluate our progress thus far, to

determine what we needed to do further to fully implement the CCSSM, and to

identify potential topics and structures for mathematics professional development for

the upcoming school year. Diversity of opinion was important for this focus group, so

one teacher from each grade level in kindergarten through fifth grade was asked to

participate; selection was based on years of experience and willingness to share openly

with a group. During the focus group discussion, all six participants stated the need

for structured planning time with an intervention/resource teacher to deconstruct the

mathematics standards and plan lessons. Participants were also very specific that the

45-minute planning period during the school day was not enough to thoroughly plan

mathematics lessons. Four of the six participants also stated that targeted professional

development was a much-needed support; they indicated a preference for

individualized professional learning experiences that deepen their understanding of the

target concepts that are taught at their respective grade levels. The focus group

evaluation data indicate that teachers are at the very beginning stages of implementing

the CCSSM. The majority of the identified supports relate to building content-area

knowledge and planning; support for shifting instructional practices was not listed as a priority. As a school, there is much progress to be made related specifically to instructional practices to increase student learning.

As a result of the focus group, six recommendations and strategies were developed to directly address shifting instructional practice in the areas of planning for and teaching mathematics. Four of the six called for additional professional development or the provision of math curriculum resources. These recommendations reinforce the notion that teachers are at the early stages of implementing the CCSSM. Appendix I provides a more detailed account of teachers' perceptions as well as a description of the recommendations and strategies.

Case Study Evaluation Data

The case study that is described in Appendix J documents the shift in one teacher's planning and instructional practices. The case study is situated at East Lake over the course of two school years, 2012-2013 and 2013-2014, and is written from my perspective as the school principal. Sources of data for the case study include two formal observations, pre- and post-conference conversations, informal impromptu conversations, and a comprehensive interview that was conducted at the end of the 2013-2014 school year.

The teacher on whom the case study is focused, Jennifer Jacobson, was considered to be a high performer in most areas. She had a firm grasp on classroom management and created a supportive community within her classroom. She had high expectations for her students and very high expectations for herself. Jen was well

organized, reflective, thoughtful, and intentional about her lessons. She was an excellent teacher of reading and independently studied the major shifts in instruction for reading/English language arts (RELA) as called for by the CCSS. However, at the beginning of Jen's journey, she did not display the same level of proficiency early on for teaching mathematics that she did for teaching reading. During the 2012-2013 and 2013-2014 school years, Jennifer Jacobson demonstrated significant professional growth in the area of mathematics as a result of support, professional development, and motivation.

Support. During the interview, Jen indicated that she was hesitant to stray away from the Houghton Mifflin math series because things became unpredictable, unstructured, and in her opinion, out of her control. When reflecting on the initial mathematics lesson that I observed, Jen said, "Last year, I was nervous to start something new…I was scared to let them do it [the learning]. It was like an 'I do, we do, you do' [structure], and that change to exploration and collaboration scared me a bit to let them do it."   With Jen, just one simple question got her moving to change her practice. In the post-conference following the first observation, I asked her, "So, Jen, have you cracked open that Van de Walle book yet?" Even though this brought on a significant emotional response from Jen, it did the trick. She shared during the interview that this was a turning point for her and that she was scared; she needed the push and encouragement to just look at the book. Jen's case proves that many teachers are fearful of changing their planning and instructional practices, and they need varied levels of support to make those changes.

Professional development. Jen engaged in numerous professional learning experiences to increase her content-area knowledge, and change her planning practices and instructional delivery methods as described in Table 11. The professional learning activities below demonstrate that it is not just one experience that changes practice.

Table 11

Professional Learning Activities and Contributions to Professional Growth

Professional Learning Activity	Contribution to Professional Growth		
	Content Knowledge	Planning Practices	Instructional Delivery
Explicit Instruction on the Common Core State Standards	✓		
Book Study	✓		
Peer Coaching	✓	✓	✓
Collaborative Planning	✓	✓	✓
Curriculum Writing	✓	✓	✓
Development of Formative Assessments		✓	✓
Analysis of Formative and Summative Assessments		✓	✓
"Make & Take" Sessions (to create an instructional activity to be used in a future lesson)			✓
Classroom Walk-throughs			✓
Ongoing Reflection on Professional Practices	✓	✓	✓

Jen attributed the math curriculum writing experience to having the greatest impact on shifting her planning and instructional practices because she had time to deconstruct the math standards and engage in collegial conversations about what each standard means. Ongoing job-embedded professional learning experiences that focus on studying specific standards, planning aligned assessments and instructional activities, analyzing student work, and reflecting on what needs to be changed for future instruction helps teachers to grow professionally. Such learning experiences are applicable to teachers' daily responsibilities and have the potential to have an immediate impact on professional practices. The case study demonstrates that teachers need time to engage in high-quality, authentic professional learning experiences with their colleagues.

Motivation. Motivation plays a key role in the extent to which teachers are willing to shift their planning and instructional practices. In Jen's case, she was extremely motivated because she wanted to learn more and she took ownership for her learning. Her awareness helped her to see immediate results with her students.

The case study demonstrates that there is not just one avenue to increase teacher proficiency, but rather that varied professional learning activities contribute to strengthening content-area knowledge, planning practices, and instructional delivery. Jennifer Jacobson's growth over the course of the two school years exemplify that at least one teacher at East Lake has made significant progress on the overall improvement goal.

The results of the improvement strategies indicate that staff are at varying points along the continuum of shifting planning and instructional practices to align more closely with the expectations of the CCSSM. It is with a great deal of hard work and effort, as demonstrated by Jennifer Jacobson, that true change takes place. As a whole, the improvement strategies developed teachers' content-area knowledge, and presented alternative ways to approach planning for and delivering mathematics instruction.

Chapter 5

REFLECTION ON IMPROVEMENT EFFORTS

The evidence presented in Chapter 4 indicates that the improvement strategies increased teachers' content-area knowledge in mathematics and influenced mathematics planning practices and instructional delivery; the evidence also illustrates that limitations exist with the progress on the improvement goal. Teachers engaged in specific professional learning activities that aligned to the CCSSM; those professional learning experiences articulated exactly how planning and instructional practices needed to change in order to increase student learning. There were a few limitations with the improvement strategies. For example, the extent to which teachers' knowledge increased was not measured; and while evaluation surveys indicated intent to change practice, those changes have not been fully implemented by all teachers. The overall improvement goal of shifting planning and instructional practices to increase student learning continues to be in process; observational data and student performance data will continue to be collected and analyzed to show progress toward the goal.

The improvement efforts were focused, intentional, and well planned. The approach was successful in making progress towards the improvement goal because there were multiple pathways for teachers to build content-area knowledge, engage in varied planning activities, and reflect on instructional practices. There was a clear

purpose for each improvement strategy and teachers had clear expectations of how their planning and instructional practices needed to shift in order to align to the CCSSM. The improvement strategy that worked particularly well was the creation and use of the mathematics walk-through tool because it fostered teacher ownership of the walk-through process and instrument. The improvement strategy was anchored by the Standards of Mathematical Practice (SMP) and by the article, *Why the Common Core Changes Math Instruction* (Faulkner, 2013), that described how mathematics instruction changes as a result of the CCSS. The teachers had input into how the walk-through tool was developed, they created the norms for the actual classroom visits, and they developed the logistics for how the mathematics walk-throughs would be conducted. Teachers used the tool, debriefed with one another, and reflected on the process. Their experience using the mathematics walk-through tool informed revisions and instructional practice. This particular improvement strategy included teachers from the very beginning in the development process, the use of the tool, and the revision process; as a result, it was successful in making progress toward shifting instructional practice.

If I were to facilitate the development of a mathematics walk-through structure and tool again, there are only a few things I would change. First, if there were an unspecified amount of time to engage teachers in the development of the tool, I would have them study each SMP and identify all of the possible learning behaviors that correlate to it. Then, I would have the teachers narrow down all of the behaviors and create the actual student learning behaviors on the tool themselves. This would help to

build their capacity of what is expected of students. However, since time was limited,

I researched the learning behaviors associated with the SMP and narrowed them down

to a feasible number for the teachers. I increased my own content-area knowledge, but

did not provide the same learning opportunity to the teachers. Second, I would have

teachers work in vertical teams each marking period to identify the common concepts

that are taught and then define how each mathematics learning behavior would look in

the particular grade level. This would help teachers to build their understanding of the

target concepts not only in their individual grade level, but also based on the

progression of skills across grade levels.

The improvement strategy that focused on developing and analyzing formative

assessments needs to be redesigned to include an explicit session on using specific

instructional actions to teach the identified CCSSM. This improvement strategy met

its intended goal, but the process needs to be improved because instructional actions

were addressed only implicitly. An added session between Session Two and Session

Three would focus solely on planning the instructional activities and rehearsing the

instructional actions that the teacher will take in the classroom prior to assessing

students on the standards. This is a much-needed change to the format of the series so

that we make progress on shifting instructional practices and see that actions in the

classroom drive the level to which students achieve.

The rationales, tasks, and resources listed in the Policy Brief informed the

process used to create the mathematics walk-through tool, however the specific

recommendation to implement an observation-feedback cycle outlined in the Policy

Brief was not implemented. This improvement strategy called for the administrator to informally observe a teacher's instruction, provide feedback shortly thereafter, and engage in a discussion with the teacher about what the students did well and what areas could be refined. Together, the teacher and administrator would determine measurable actions, and then the teacher would be expected to practice those actions in the classroom. Then the cycle begins again. The observation-feedback cycle was in conflict with the district evaluation process and was in violation of the Negotiated Agreement between the district and the teachers' association.

Even though the recommendation to implement an observation-feedback cycle outlined in the Policy Brief was not implemented, it could be incorporated as part of the formal observation process; this would align with the evaluation parameters set forth by Fairview County Public Schools. The frequency of the cycle would be decreased, but I could provide concrete, measurable feedback to help teachers shift their planning and instructional practices.

While implementing the improvement strategies, I found that the number of years that I was in my role influenced the success of the improvement strategies. Most of the improvement strategies were implemented during the third year of my principalship at East Lake Elementary School. By this point, I had established trusting relationships with the staff and I knew each of their individual learning styles. I knew which teachers would be early adopters, which would be anxious about trying something new, and which would resist any level of change. This intimate knowledge of the staff contributed to teachers shifting their planning and instructional practices.

Additionally, I was comfortable in my role as a principal at East Lake while I was implementing the improvement strategies; I fully understood the demands of not only the teachers' roles, but mine as well, in addition to all of the moving parts of the school building. The relationships that I had built with the staff over time contributed greatly to the success of the improvement strategies.

For those who are attempting to address a similar improvement goal, I would suggest that leaders develop relationships with their teachers, involve the teachers in every aspect of the improvement strategy from the beginning, and focus on instructional actions in every conversation and professional learning activity. Positive, working relationships between school leaders and teachers only enhance the level to which planning and instructional practices will shift.

Moving forward, I believe that the improvement strategies could have had more of an impact on instructional practices if I had developed a stronger partnership with the Instructional Coordinator for Mathematics and the instructional coaches from the district's central office. I would often talk through different ideas with the Instructional Coordinator for Mathematics, but there was no involvement whatsoever at the school level with the teachers. The improvement efforts would have been much stronger if I had included the mathematics team from the district; they have a wealth of information that can help to inform professional learning activities, and they can support the improvement efforts by visiting classrooms and providing feedback. Additionally, the mathematics team could suggest resources to increase our content-area knowledge and to strengthen instruction in the classroom.

I learned during the professional development planning process that I did not include teachers in the data analysis process thoroughly. In an effort to save time, I analyzed the data independently, shared the results with the Professional Development Design Team, and then together we made decisions based on that data. In the future, I need to train others on how to analyze and use data. By including others in the data analysis process, it is the teachers who are reporting the results, ownership is increased, and the practice becomes sustainable.

In order to implement improvement strategies successfully, time is one factor that needs to be structured and balanced. Time needs to be allotted for planning professional learning activities fully. Time needs to be structured for teachers to learn new content, apply it, and reflect on it. Time also needs to be balanced between learning and application; ample time needs to be given for professional practices to change and for those changes to be sustainable. In my experience implementing the improvement strategies, even though time was allotted, structured, and balanced for the most part, I felt like we always needed more time. Upon reflecting on the improvement strategies, I realized a pattern of my own behavior. I was doing the "heavy lift" portion of the planning process to save time; for example, *I* analyzed student achievement data and *I* narrowed down the Standards of Mathematical Practice for the math walk-throughs. I increased my own knowledge, but took away that learning experience from others in an effort to save time. I need to prioritize activities such as these so that others have the same learning experiences.

I would also recommend that teachers be a part of the development and facilitation of the improvement strategies. It's not helpful to them when they're brought on mid-way through or when an "initiative" is dropped on them without any opportunity for their input. I learned that I cannot implement improvement strategies on my own or with a select group of individuals. I need to make sure that teachers are invited to participate in all aspects of the process in order to fully shift planning and instructional practices.

Lastly, I would recommend that instructional actions be an explicit focus of every activity. Teachers have different levels of understanding and habits of mind regarding instructional pedagogy. It is necessary to have a shared understanding of what is expected instructionally so that instructional practice does truly align to the changing expectations called for by the CCSS.

An area that needs improvement is the district-created summative assessments. The district's mathematics benchmarks and unit assessments have changed each school year since the CCSS were implemented. Items have not consistently or fully measured the target standard. With assessments that change from year to year, it's difficult to measure an increase in student learning over time. As a school, we need consistent assessments to measure student progress.

The improvement strategies focused on the mathematics walk-throughs and the formative assessments will continue at East Lake. For the 2014-2015 school year, these efforts will be refined based on our experience from the previous school year.

As a school leader, there are specific leadership actions that I must incorporate into my own leadership practice to help teachers shift their planning and instructional practices. These leadership practices and actions are described below.

Leadership Practice 1: Build teachers' confidence with planning for and teaching mathematics.

Leadership Actions:
- Increase time in the classrooms for informal observations; schedule informal observations at least one week in advance.

- Provide formative feedback to teachers by using the Observation-Feedback Cycle.

- Express appreciation and gratitude for actions that meet and/or exceed expectations for planning and teaching mathematics.

- Recognize those teachers who are making progress by highlighting their actions during grade level team meetings.

- Seek out and share positive parent/student feedback regarding the math instruction taking place in the classroom.

Leadership Practice 2: Encourage individual and collective ownership for changing instructional practice.

Leadership Actions:

- Work with teachers at the beginning of the school year to set measurable individual and team goals in the areas of planning for and teaching mathematics; collaboratively develop measures of success for the goals; schedule and follow through with supportive "check-in" meetings.

- Increase teacher leadership opportunities by soliciting input in the decision-making process, encouraging teachers to share effective practices with colleagues, and co-facilitating professional development sessions.

- Support innovation in the classroom by creating structures for reflection on what worked well, what didn't, why, and what changes need to be made in the next lesson.

While implementing the improvement strategies and reflecting on them, I learned a tremendous amount about the CCSSM and what teachers need in order to align instruction to the standards. In order to make changes to planning and instructional practices, both the teachers and I have to fully engage and commit to collaboration, professional learning, and reflection. Our collective actions are what will increase student learning of mathematics concepts.

Chapter 6

REFLECTION ON LEADERSHIP DEVELOPMENT

Throughout my enrollment in the Ed.D. program, I have grown as a *scholar*, *problem-solver*, and *partner*. The Ed.D. program has helped me to become a better school leader, and has positively impacted the way in which I engage in my professional practice each and every day.

Development as a Scholar

The coursework in the Ed.D. program had the most profound impact on my development as a scholar. In the course, "Concepts and Methods for Decision-Oriented Research," I learned to become a critical consumer of research and information. I learned to access research to find solutions for existing challenges, to support instructional decisions for students at the school level, and to develop my understanding of various topics, theories, and pedagogical approaches. The focus on evidence-based practices changed the way in which I use research to inform the decision-making process. Prior to beginning the Ed.D. program, I would often rely mainly on articles from professional organizations to develop knowledge and to inform my decisions; as I participated in the doctoral program, I expanded my use of multiple peer-reviewed journals, books, and electronic resources.

My skills for utilizing data in the planning and decision-making process also improved. I learned how to analyze data from multiple perspectives, look for patterns,

and draw conclusions. For example, I learned the value of conducting comparative analyses between data sources to identify similarities and differences between data sets. When working on identifying topics for professional development, I conducted a comparative analysis between observational data, student performance data, and teacher qualitative data. This level of analysis strengthened the decisions that were made, and the topics that were selected were grounded in varied data sources. When developing the principal evaluation rubrics as part of my internship experience (see Appendix D), I conducted a comparative analysis between the DPAS II for Administrators and seven different principal evaluation rubrics; the results from this comparative analysis informed the content of the rubrics.

Prior to participating in the doctoral program, I had used survey data and anecdotal data in the planning and decision-making process. However, as a *scholar*, I expanded my knowledge on how to code qualitative data to summarize and categorize information gained from open-ended survey and interview questions in the class, "Principles of Educational Evaluation." In one class activity, my classmates and I had to practice using an interview protocol and then code the results. This was more difficult than I anticipated; maintaining eye contact, taking notes, and making sure the recorder was working properly proved to be a bit of a challenge. This activity helped me to conduct two interviews successfully, one in a small focus group and one with an individual teacher. In addition to learning how to conduct meaningful interviews in this class, I also learned how to utilize the data from those interviews to inform my work. For my Education Leadership Portfolio, I developed six surveys; four of the

surveys were designed to evaluate the effectiveness of a program or professional learning experience and two of the surveys were designed to gain input from stakeholders. I developed two interview protocols and conducted structured interviews for the focus group and case study.   The data from the focus group and the case study informed the topics for professional learning activities and how resources would be allocated at East Lake Elementary School.

Development as a Problem Solver

Since beginning the doctoral program, I have grown professionally as a *Problem Solver* in using data to define a problem, using data to assess improvement efforts, and considering multiple perspectives in defining and solving a problem. In "Part I – Internship in Education," we learned about the PELP Coherence Framework as one approach to problem-solving in order to design and implement improvement strategies. Case studies served as the context for applying the PELP Coherence Framework. The class discussions and activities gave me experience with using this framework that has now informed how I approach the problem-solving process at the school level. The discussions with my cohort members challenged me to consider perspectives other than my own as part of the problem-solving process. Those discussions brought to light the need to have a clearly defined argument before trying to sway classmates one way or another.

To define the problem that was the basis for my Education Leadership Portfolio, I analyzed trend data from the Mid-Atlantic School Assessment (MASA) over several years. In my first analysis, I concluded that the decrease in student

performance from 2012 to 2013 was evidence of why instruction needed to change. Upon reflecting on the data further, I concluded that the decline in performance was as a result of the implementation of a new curriculum that was not aligned to the Mid-Atlantic State Curriculum on which the MASA was based. However, the decline in scores was not consistent across all student groups. This suggested that the expectations may not be consistent for all students, or students are learning at different rates. This further substantiated the need for planning and instructional practice to align to the changing expectations of the Common Core State Standards.

Throughout the doctoral program, I used specific data sources to assess the improvement efforts. Historically, I put much value on the end of the year state assessment as well as end of the year assessments created by the district. While assessing the improvement efforts, I came to realize that more data sources were needed to fully analyze the improvement efforts. I have incorporated the use of growth data from benchmark assessments, math unit assessments, and teacher-created formative assessments to measure student attainment of the math Common Core State Standards. I have also incorporated surveys and structured interviews to measure the shift in planning and instructional practice.

The use of qualitative data from surveys and structured interviews in defining and solving the problem has incorporated multiple perspectives into the problem-solving process. Relying solely on student achievement data limited the depth of the definition of the problem; the use of qualitative data significantly changed my

understanding of the problem and ultimately the approach that was taken to address the problem.

Development as a Partner

I feel that the Ed.D. program has contributed greatly to the way in which I engage with stakeholders, especially teachers. In the class, "Leadership Theory and Research," we examined various leadership questionnaires. An activity that contributed to my professional growth was taking the leadership questionnaires, having a few of my staff members complete them, and then comparing the results. The questionnaires revealed areas of strength and areas of improvement. An area of growth for me was to improve my relational skills and the way in which I interact with others. This is truly an area that requires constant practice and reflection for me. I am not an extrovert or relationship-builder by nature, and I have to be very intentional about this leadership practice.

In order to build relationships with staff members and involve them as partners in the decision-making process, I implemented Design Teams at East Lake Elementary School.   Towards the end of my first year as an elementary school principal at East Lake, there were several decisions that needed to be made in order to prepare for the upcoming school year. I did not know the staff well enough to determine on my own who might be interested in serving on various committees to refine the instructional initiatives, plan the budget, improve the school-wide positive behavior system, etc. In order to use a transparent process to make decisions, I developed Design Teams for each area that needed to be refined or changed. The Design Teams were an integral

part of my leadership development in my first year as a school principal, and they set the foundation for the way in which decisions have been made at East Lake since. From a leadership perspective, the Design Team meetings have given me yet another way to engage with staff and build relationships with them. I have learned about staff members' families, talents, and interests. I have found "untapped" resources that came alive during Design Team meetings. Teachers, who I did not originally view as "leaders," stepped up and became active members of the school community. Design Teams opened my eyes to the talents and strengths of those with whom I worked every day. Most importantly, Design Teams provided an inclusive, transparent process to make decisions.

In my first two years as a principal at East Lake, Design Teams meetings were held in the spring to plan for the upcoming school year and anecdotal data was used as the primary source of information to make decisions. The use of anecdotal data helped teachers to feel that their input was important and valued. Anecdotal data was only one source, however, and it limited our perspective by which to make decisions. In my third year as a principal, I began to hold Design Team meetings *throughout* the school year so that we could reflect on our actions along the way and make changes in response to what was needed based on multiple sources of current data. In addition to anecdotal data, teacher surveys and student performance data were all used to inform decisions. I designed and conducted surveys, and analyzed the survey data to focus the work of the Design Teams. The survey data quantified the sentiments of the staff to better inform the decisions that were made. Current student performance data that

measured student progress during one marking period were much more informative than end of the year data to make necessary changes to how human and fiscal resources were allocated and how professional development topics were identified and scheduled.

Through the use of Design Teams, I have expanded my professional networks within East Lake Elementary School. I have learned in the last three years that I cannot plan and deliver all of the professional development on my own or even with the assistance of the assistant principal. The creation of the Professional Development Design team two years ago has created collective responsibility and ownership for the professional learning activities throughout the school year. Since the Professional Development Design Team is open to all teachers, it sends the message to teachers that their voice is an important part of the planning process and their talents and strengths can be utilized in the planning and/or facilitation of professional learning experiences. The Professional Development Design Team has always been a transparent team; notes are shared after every meeting and input is solicited before final decisions are made. This way, even if teachers do not participate in the planning meetings, they have access to the information and have the option of providing input before a final decision is reached.

In conclusion, it is as a *scholar*, *problem solver*, and *partner* that I have grown as an instructional leader; my participation in the Ed.D. program has helped me to be successful in supporting teachers to shift planning and instructional practices to align to the expectations called for by the Common Core State Standards.

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Appendix A

EDUCATION LEADERSHIP PROPOSAL

East Lake Elementary School is located within Fairview County Public Schools in a mid-Atlantic state. I am in my third consecutive year as the principal of East Lake Elementary School. Beginning in the fall of 2011, the school district began the transition to the Common Core State Standards. From that point forward, expectations for teaching and learning changed significantly. Based on student achievement data and observational data, the problem on which I am focusing is that planning and instructional practice for mathematics needs to be more closely aligned with changing expectations to increase student learning. In order to address this problem, a series of steps will be articulated that include analysis of student performance data and observational data, identification of areas for professional growth, and facilitation of professional development through differentiated service delivery models.

Organizational Context

Fairview County Public Schools (FCPS) is a rural school district located within an hour's drive of two metropolitan cities, and serves approximately 15,000 students. FCPS is the 14th largest district in its mid-Atlantic state. FCPS is a full inclusion district; this means that all students, regardless of learning difference or English proficiency level, attend the neighborhood school.

East Lake Elementary School (ELES) is a Title I school that serves students in preschool (age three) through grade five. There are approximately 490 students, 70%

of whom receive free and reduced meals. ELES is considered to have the highest poverty levels in FCPS; additionally, more than 50 students are considered to be homeless. An added challenge is the mobility rate that has increased over the last several years; each year, roughly 50% of students enter and/or withdraw. East Lake Elementary School has an ethnically diverse student population that differs significantly from the overall district population, which is predominantly white. At ELES, 55% of students are white, 22% African American, 12% multi-race, 9% Hispanic, and 2% other (American Indian and Asian/Pacific Islander). Approximately 16% of students receive special education services (PowerSchool, 2013).

In order to reflect the varied needs of the student population, the vision and mission statements were revised in the spring of 2013 with the help of staff members and parents. The updated vision and mission statements that drive actions of the school community are as follows.

ELES Vision

East Lake Elementary School is a learning community dedicated to the continued development and growth of ALL students to provide them with their *Passport to the Future!*

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East Lake Vision

East Lake Elementary School is a learning community dedicated to the continued development and growth of ALL students to provide them with their *Passport to the Future!*

</div>

> *East Lake Mission*
>
> In order to provide ALL students their *Passport to the Future*,
>
> we will EMPOWER them by:
>
> - **E**mphasizing and building on their strengths;
>
> - **M**otivating them to reach their individual learning goals;
>
> - **P**romoting positive self-perception and reflection;
>
> - **O**ptimizing open and collaborative communication;
>
> - **W**elcoming and respecting diversity;
>
> - **E**quipping them with knowledge and skills; and,
>
> - **R**ecognizing their accomplishments to reach their
>
>   greatest potential!

At ELES, there are 66 staff members, including administration, teachers, related service providers, and support staff. Of the 66 staff members, there are 42 certificated staff members including classroom teachers, special educators, specialists, and Title I-funded intervention resource teachers. In FCPS, certificated teachers received tenure after three years of satisfactory service. Of all certificated teachers at ELES, 17 have not yet received tenure.

The focus on planning and instructional practice to increase student learning in mathematics is not a new challenge for East Lake Elementary School; however, the way in which that challenge has been addressed has varied as a result of federal and state initiatives, district initiatives, and school-based initiatives. For the last ten years, the accountability systems imposed by No Child Left Behind measured the school's

progress toward making Annual Yearly Progress (AYP) and school improvement efforts focused on meeting AYP.

In the mid-Atlantic state in which FCPS is located, students in grades three through eight take the Mid-Atlantic School Assessment (MASA) and AYP is measured based on that assessment. Beginning in the 2012-2013 school year, individualized targets were set by the Mid-Atlantic State Department of Education (MASDE) for school-wide performance. The individualized targets were based on each school's performance on the 2011 MASA. Per MASDE, the goal is to reduce the number of students scoring at the BASIC proficiency level by half in six years (2017) in each separate subgroup and in each subject. The table below outlines the baseline that was established in 2011 and the Annual Measurable Objectives (AMOs) for 2012-2017. East Lake met the AMO in each subgroup for 2011 and 2012; the underlined numbers represent the subgroups that met the AMO by the confidence band.

Table A.1

MASA Disaggregated Data

Subject	Subgroup	2011 Baseline	2012 AMO	2012 Actual	2013 AMO	2013 Actual	2014 AMO	2015 AMO	2016 AMO	2017 AMO
Reading	All Students	83.6	84.9	87.7	86.3	70.3	87.7	89.0	90.4	91.8
Reading	Hispanic/Latino	71.4	73.8	*61.5*	76.2	38.9	78.6	81.0	83.3	85.7
Reading	African American	79.4	81.1	89.3	82.8	66.7	84.6	86.3	88.0	89.7
Reading	White	87.1	88.1	90.6	89.2	79.2	90.3	91.4	92.5	93.5
Reading	Two or more races	85.7	86.9	87.5	88.1	78.6	89.3	90.5	91.7	92.9
Reading	Special Education	71.4	73.8	84.2	76.2	46.2	78.6	81.0	83.3	85.7
Reading	English Learners	66.7	69.4	*62.5*	72.2	37.5	75.0	77.8	80.6	83.3
Reading	FARMS	79.6	81.3	84.7	83.0	66.1	84.7	86.4	88.1	89.8
Math	All Students	81.6	83.1	84.9	84.6	61.5	86.2	87.7	89.3	90.8
Math	Hispanic	71.4	73.8	76.9	76.2	38.9	78.6	81.0	83.3	85.7
Math	African American	73.5	75.7	78.6	77.9	46.2	80.1	82.4	84.6	86.8
Math	White	87.1	88.1	88.4	89.2	72.2	90.3	91.4	92.5	93.5
Math	Two or more races	78.6	80.4	*75*	82.1	71.4	83.9	85.7	87.5	89.3
Math	Special Education	64.3	67.3	68.4	70.2	38.5	73.2	76.2	79.2	82.1
Math	English Learners	66.7	69.4	77.8	72.2	37.5	75.0	77.8	80.6	83.3
Math	FARMS	77.6	79.4	82.8	81.3	59.8	83.2	85.0	86.9	88.8

Beginning in the summer of 2011, the state department of education required districts to send teams from each school to the Educator Effectiveness Academy (EEA). The school teams were composed of the principal, an English/Language Arts teacher leader, a Mathematics teacher leader, and a STEM (science, technology, engineering, and mathematics) teacher leader. During the first EEA in 2011, the school teams learned about the new Common Core State Standards (CCSS) for ELA and math and the state's vision for STEM practices; each school team then created a transition plan to develop the school staff's awareness of the CCSS and STEM practices. During the summer of 2012 and 2013, the school teams attended the EEA to build knowledge about the instructional expectations for the CCSS and then continued to create transition plans for the upcoming school year. The transition plans identified the professional development that would be offered throughout the school year to build content-area understanding, develop lesson plans, and reflect on the implementation of the CCSS. It was the state department's expectation that all districts fully implement the CCSS during the 2013-2014 school year.

In my district, however, the transition to the Common Core was accelerated. During the 2011-2012 school year, the EEA representatives delivered professional development on ELA, math, and STEM to build content-area knowledge. Teachers continued to use the Mid-Atlantic State Curriculum, but incorporated key tenets of the CCSS. During the 2012-2013 school year, it was an expectation from the central office that the elementary schools fully adopt the CCSS and no longer teach to the Mid-Atlantic State Curriculum; instructional resources were limited, and it was no longer acceptable to use the textbooks and accompanying teacher editions in a page-by-page fashion that for several years was the status quo. This caused a tremendous

amount of stress for those teachers who had not ever had to map out long-range plans and progressions of concepts and skills because historically, this had been done for them by the school district.

The MASA scores declined in 2013 following the implementation of CCSS. ELA scores dropped substantially for Hispanic, African American, special education, English language learner (ELL), and free and reduced meals (FARM) students. Math scores also dropped substantially for Hispanic, African American, special education, ELL, and FARM students. ELES did not make AYP. One possible explanation for this decline is that the new curriculum is not aligned to the Mid-Atlantic State Curriculum on which the MASA is based.

Problem Statement

Problem Statement: Instructional planning and practice for mathematics needs to align more closely with changing expectations to increase student learning.

As a result of the shift to the Common Core State Standards, the expectations for teaching and learning have changed significantly. During the time of NCLB, the state department of education provided grade level standards on which the school district based the curriculum. The state curriculum was circular in nature and focused on exposure to concepts and skills, rather than mastery. The same concepts and skills were introduced throughout many grade levels, which promoted surface level learning. The CCSS, however, are focused on depth of understanding and mastery; the standards build on one another from year to year, and students are expected to use that knowledge to expand and deepen their understanding as the years go on. The expectations for learning at each grade level have also become more rigorous; for

example, complex texts and complex mathematical concepts are now introduced in earlier grade levels.

In order for students to be successful with the CCSS, teachers have had to change the way that they plan for instruction as well as the way that they deliver instruction. According to Rothman (2012), the way in which students will be assessed is one leading driver of the shift in instruction; rather than being expected to restate information on assessments, students will be expected to demonstrate their knowledge through performance tasks. Performance tasks will require students to apply their knowledge and understanding of specific concepts to solve extended problems, for example a research simulation or complex multi-step math problem.

As noted in Table A.2, there are three major shifts for English/language arts and three major shifts for mathematics instruction.

Table A.2

Common Core Shifts for English/Language Arts and Mathematics

ELA Shift 1	Building knowledge through content-rich nonfiction
ELA Shift 2	Reading, writing, and speaking grounded in evidence from text, both literary and informational
ELA Shift 3	Practicing with complex text and its academic language on a regular basis
Math Shift 1	Focusing strongly where the Standards focus
Math Shift 2	Thinking across grades and linking to major topics within grades for coherence
Math Shift 3	Including rigor in major topics that require conceptual understanding, procedural skill and fluency, and application

Source: www.achievethecore.org

For long-range planning, teachers not only need to have a firm understanding of the pre-requisite skills required of their students to meet the expectation of the target standard, but also how the pre-requisite skills and target standard will further the students' success in future academic settings. Daily planning requires differentiated instruction in order to meet students at their present level of performance and develop their understanding to move them towards mastery of the target standard. Lastly, the way in which teachers deliver instruction has had to change so that the classroom is more student-centered, rather than teacher-directed. Rather than relying solely on the gradual release of responsibility model of instruction, teachers have had to shift to using an approach that focuses on problem-based learning.

Student achievement data. The standardized assessment data from the 2013 MASA (see Table A.1) indicate that gaps are widening between subgroups. The poor performance data on the 2013 MASA could be explained by a lack of alignment between what was taught versus what was assessed. However, the decline in scores was not consistent across all student groups. This suggests that the expectations may not be consistent for all students, or students are learning at different rates.

A second measure of student learning is the district-created math benchmark assessment. It measures students' growth on the math CCSS for each individual grade level and was administered to students in kindergarten through grade five in the fall, winter, and spring of the 2012-2013 school year. Students were expected to make at least 20% growth from the fall to spring administration. Table A.3 below describes the growth that students in each grade level made over the course of the school year. These data indicate that students in the early grades made more growth from the beginning to the end of the school year than later grades.

Table A.3

Student Growth on Math Benchmark Assessment Data

Grade Level	Total number of students	Number of students who made 20% growth	Percent of grade level that made 20% growth	Average growth (in percent) for the grade level
Kindergarten	54	45	81	39
Grade 1	55	48	87	35
Grade 2	55	30	54	21
Grade 3	43	20	47	20
Grade 4	56	24	43	17
Grade 5	36	13	36	14

Both the 2013 MASA disaggregated data and the math benchmark assessment data show that there is a great need to increase student learning for *all* students in *all* grade levels.

Observational data. As part of the teacher evaluation system, certificated employees are observed formally throughout the evaluation period. Tenured teachers are observed formally at least two times throughout the evaluation period, and non-tenured teachers are observed at least four times because they have two evaluation periods throughout the school year. Prior to the 2013-2014 school year, the type of certificate held by the teacher and the tenure status determined the evaluation period; this period ranged from six months to two years. Therefore, the number of formal observations conducted in any given school year fluctuated based on the certificate level and tenure status of teachers.

The teacher observation form that was used up until the fall of 2013 for formal observations had five specific performance areas: instructional planning, implementation of strategies and techniques, student-teacher interaction, classroom organization and management, and measuring student performance. Each area also

included specific indicators on which teachers would receive a rating of "effective," "needs improvement," or "unsatisfactory." I analyzed teacher observations from the 2011-2012 school year and the 2012-2013 school year, focusing on the ratings and observer comments for the indicators in the following performance areas: instructional planning, implementation of strategies and techniques, and student-teacher interaction. The Attachment, *Description of Performance Area Indicators*, describes the indicators for the performance areas on which I focused.

Over the course of the 2011-2012 school year, 73 formal observations were conducted of certificated staff members (classroom teachers, special educators, specialists, related service providers, counselors, school psychologists, etc.); 21 of the observations (28.8%) specifically indicated a need for a shift in instructional practice. During the 2012-2013 school year, 116 formal observations were conducted of certificated staff members and 19 (16.4%) specifically indicated that there was a need for a shift in instructional practice.

Table A.4

Formal Observational Data

School Year	Total Number of Formal Observations Conducted	Percent that Indicate Need for Shift in Instructional Practice
2011-2012	73	28.8
2012-2013	116	16.4

The number of observations increased from 2011-2012 to 2012-2013 as a result of newly hired staff members who were non-tenured and were required to have more observations throughout the school year. The data in Table A.4 indicate that the percentage decreased from one year to the next and thus demonstrate that teachers are

making progress in shifting their instructional practice. Nevertheless, 16% is still too high in order to fully implement the Common Core State Standards. It is important to note that the 2012-2013 school year was considered to be a "no fault" year in the implementation of the Common Core State Standards. Therefore, written formal observational data did not always capture the true need as long as the teacher was making some level of effort. Often times, the conversations following the observations between the teacher and administrator focused on the need for change.

Informal observations were conducted as a non-evaluative measure to validate instructional practices focused on management and rigor, and also provide teachers with constructive feedback on those areas. During the 2011-2012 school year, 46 informal observations of classroom teachers were conducted and notes were recorded. Each informal observation note included at least one actionable feedback suggestion related to rigor and at least one actionable feedback suggestion related to management. The informal observational notes were coded to determine the frequency of specific rigor and management feedback. The most prevalent suggestions in the area of rigor related to questioning, assessment, and student responses; areas that were less prevalent included academic vocabulary, scaffolds, and visuals.   The most prevalent suggestions in the area of management related to accountability for learning, student engagement, and directions; other areas that were less prevalent included materials distribution and wait time. Table A.5 describes the frequency of the most prevalent suggestions for the areas of rigor and management.

Table A.5

Feedback Focused on Rigor and Management

Focus of Rigor Feedback	Percent	Focus of Management Feedback	Percent
Use of Higher Order Questioning to Maintain Cognitive Demands	30	Accountability for All Students Learning the Content	34
Use of Formative Assessments to Show Attainment of Lesson Outcome(s)	13	Student Engagement during Whole and Small Group Instruction	30
Complete Student Responses (inclusive of complete sentences, elaboration, justification, and/or explanation)	11	Providing Clear Directions	9

N = 46

As described in Table A.5, most feedback in the area of rigor pertained to

questioning and most feedback in the area of management pertained to accountability

for learning. For example, it was often observed that teachers asked questions with

only one single correct response. Such low-level questions did not require students to

think critically, but rather regurgitate information.   In order for students to have a

deep understanding of content, teachers must plan for and ask high level questions; the

informal observational feedback on rigor supports the need for a shift in planning and

instructional practice.   Additionally, students need to be held accountable for

learning the grade level standards so that they have sufficient knowledge on which to

build each subsequent school year; the informal observational feedback on

management indicates an area of growth would be to increase the frequency of holding

students accountable for learning. For example, teachers were observed having inconsistent learning expectations for students; if a student responded with "I don't know," this response was often accepted and the student was not held accountable for learning the content.

Analyses of student achievement data and observational data revealed several questions that cannot be answered definitively at this time. For example, what practices will help teachers to focus lessons on the new standards? What practices will increase student growth in all grade levels? What practices will ensure that all students master the grade level content? How can teachers hold students at varying levels accountable for learning the grade level content? Moving forward, more consideration and exploration need to be given to questions such as these.

Improvement Goal

Expectations for teaching and learning have changed significantly as a result of the transition to the Common Core State Standards. In order to better align instructional practice to changing expectations and ultimately increase student learning at East Lake Elementary School, teachers and administrators will collaboratively design and implement a cyclical process that focuses on:

- Analyzing formative and summative student data to determine individual, class, and grade level growth toward expected standards of performance;
- Conducting formal and informal observations; and
- Planning and delivering ongoing professional development in the areas of math content and pedagogy.

Figure A.1 presents a visual model of the cyclical process that will be implemented. The cyclical process includes multiple data sources to demonstrate evidence of planning and instructional practice that is better aligned to changing expectations for which multiple stakeholders will find value. According to Guskey (2012), "Since stakeholders vary in their trust of different sources of evidence, it is unlikely that any single indicator of success will prove adequate or sufficient to all" (p. 42). Evidence of changing professional practice will be in the format of: formal observational data collected by administrators; informal observational data collected from teacher and administrator walk-throughs; formative and summative student performance data; and, qualitative data from teachers.

Plan and Deliver Professional Development

Analyze Student Performance Data

Conduct Formal & Informal Observations
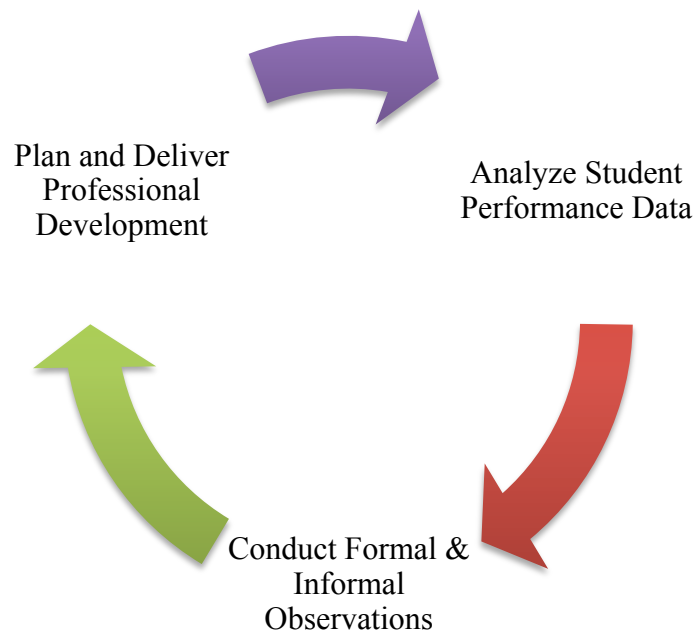
Figure A.1. Collaborative Cyclical Process to Increase Student Learning

Since the Common Core State Standards are relatively new, there are limited high quality empirical research studies to support how instructional practice and professional learning need to change based on the expectations of those standards. However, a great body of research exists on teacher quality and professional learning on which I will rely in order to collaboratively develop strategies to better align instructional practice with changing expectations for teaching and learning as a result of the shift to the Common Core State Standards.

Multiple research studies and articles have purported that the quality of the teacher is the largest school-based predictor of student achievement. According to McCaffrey et al (2003), "teachers have discernable, differential effects on student achievement, and that these effects appear to persist into the future" (p. xiii). Teachers' actions in the classroom matter and they impact student learning (Rowan, Correnti, and Miller, 2002; Rivkin, Hanushek, and Kain, 2000; Wright, Horn, and Sanders, 1997). Teachers' knowledge and understanding of content and pedagogy are at the heart of student learning; if one area is deficient, student learning will be impacted negatively. Therefore, it is imperative that teachers engage in high quality learning experiences to strengthen their professional practice as it relates to content and pedagogy.

Yoon et al. (2007) found that "substantial" professional development can have a positive impact on student achievement; of the nine studies reviewed, those teachers that had an average of 49 hours of professional development could increase student achievement by approximately 21 percentile points. The researchers assert that

professional development impacts student learning through three steps. Professional

development increases teachers' knowledge and skills, which leads to improved

instructional delivery, which leads to improved student achievement. It is important to

note, however, that students only benefit from the classroom teacher's professional

development when those newly learned skills are applied in the classroom.

At East Lake Elementary School, professional development is at the heart of

the school improvement plan. Every Wednesday, students are dismissed early to

allow an hour and a half for teachers to engage in collaborative planning and

professional learning opportunities. Per the teacher contract, the first Wednesday is

considered to be "Teacher Wednesday," in which they can engage in activities of their

choosing; the second Wednesday is "Coordinator Wednesday," in which the

instructional coordinators in the school district determine the topic for professional

learning; the third and fourth Wednesdays are determined by the school improvement

team and/or the principal. For the 2013-2014 school year, there are 27 Wednesdays

available, not including the first Wednesday of every month, for collaborative

planning and professional learning; that is a total of 40.5 hours available throughout

the school year.

Teachers at ELES also engage in professional learning opportunities on

designated county professional development days when school is closed for students,

in the morning prior to the start of the school day through extended team planning

meetings and voluntary "coffee talks," in county-led content trainings specific to

individual grade levels, and in school-based trainings ("Implementation Shifts") that

focus on shifting instructional practice based on how students will be assessed on the PARCC performance assessment tasks and end of the year assessments. The professional development offered on Wednesday afternoons is mandatory for all certificated staff and the "Implementation Shifts" series is mandatory for all classroom teachers and special educators; the "Coffee Talks" offered on Friday mornings are optional. Figure A.2 describes the professional development plan for East Lake Elementary School.

	August	September	October	November	December	January	February	March	April	May
Professional Development Days – 42 hours throughout the school year										
County Planned Prof Days	M - August 19 Instructional Expectations		M - October 21 Content planning			Th - January 16 Content planning			Th - April 17 Content Planning	
School Planned Prof Days	T - August 20 W - August 21 Reflecting on last year PLCs, PBIS, procedural					F - January 17 Math Learning Walks		M - March 31 Math Learning Walks		
WEDNESDAY PD – 40.5 hours throughout the school year (Includes 1 Wednesday in June)										
2nd Wed (Coordinator)		Sept. 11 Coordinator: 1st MP macro-concept Math focus	Oct. 9 Coordinator: 2nd MP macro-concept ELA focus	Nov. 13 Coordinator: 2nd MP macro-concept STEM focus	Dec. 11 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	Jan. 8 Coordinator: 3rd MP macro-concept focus	Feb. 12 Coordinator: 3rd MP macro-concept Social Studies focus	March 12 Coordinator: 4th MP macro-concept Math focus	April 9 Coordinator: 4th MP macro-concept ELA focus STEM focus	May 14
3rd Wed (Team)	August 21	Sept. 18 Macro-concept follow-up	Oct. 16 Macro-concept follow-up	Nov. 20 Macro-concept follow-up	Dec. 18 Reflect on 12-13 initiatives PLCs	Jan. 15 Macro-concept follow-up	Feb. 19 Macro-concept follow-up	March 19 Macro-concept follow-up	April 16 Macro-concept follow-up	May 21
4th Wed (Principal)	August 28 Teacher Eval or CFIP	Sept. 25 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Oct. 23 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	Nov. 27 No School	Dec. 25 No School	Jan. 22 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Feb. 26 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	March 26 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	April 23 OPEN	May 28 Articulation
Implementation Shifts – 6 hours total throughout the school year										
Day 1, Week 1: 1 hour of professional development										
Day 2, Week 2: 1 hour of working on putting the information into practice (prior to session 3, teachers put the information into practice)										
Day 3, Week 3: 1 hour of reflection										
Cycle 1	10/3 PARCC RELA	10/10 PARCC RELA		11/11 PARCC RELA						
Cycle 2							2/6 PARCC Math	2/13 PARCC Math	2/27 PARCC Math	
Coffee Talks – 13.5 hours total throughout the school year										
Friday mornings, beginning at 8 AM in the media center										
Topics will be determined throughout the school year — 2nd Friday→		Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion
4th Friday→		Intervention	Divergent Questioning	Kagan	Depth & Complexity Icons	Kagan	Speech & Language	Kagan	STEM	Kagan

Figure A.2. East Lake Elementary School Professional Development Plan

As outlined in Figure A.2, there is a recognizable structure to the professional development offerings. On the second Wednesday of every month, with the exception of December, the focus is on math, English/language arts, or STEM; the focus of these sessions is on short- and/or long-range planning for the specific content area. The

third Wednesday of every month provides additional time to continue planning. The fourth Wednesday of every month is focused on the key pedagogy tenets that stretch across content areas: questioning, evaluation, and collaboration. The second Friday of every month is devoted to introducing teaching techniques from Doug Lemov's books, *Teach Like A Champion: 49 Techniques the Put Students on the Path to College* and *Teach Like A Champion Field Guide: A Practical Resource to Make the 49 Techniques Your Own*. The fourth Friday is devoted to a range of topics that have been introduced in the past, but are offered to staff who would like a refresher or who were not at East Lake when those topics were presented during previous years.

Throughout the school year, approximately six hours of professional development are devoted to each of the following topics: math, English/language arts, STEM, questioning, evaluation, and collaboration. Six hours total are devoted to familiarizing teachers with the PARCC assessment limits during the "Implementation Shifts;" the first round of implementation shifts focuses on ELA while the second round focuses on math. The mandatory professional development offerings focus on eight different topics, for a total of approximately 42 hours. On the surface, it appears that the *Teach Like A Champion* coffee talks total six hours of professional development, however, each one focuses on a different technique; therefore, it is actually nine different topics for 45 minutes each. The professional development offered on the fourth Friday of every month hits six different topics; only one topic, Kagan Cooperative Learning, provides ongoing professional learning opportunities. If a teacher were to attend all of the voluntary professional development offerings in addition to the mandatory professional development offerings, he/she would engage in professional development on 23 different topics throughout the school year.

The impact of professional development at East Lake Elementary School is measured through student achievement data and observational data. However, with the multitude of topics, it is nearly impossible to measure the impact of professional development on student learning. Professional development has been shown to impact student learning when teachers engage in approximately 49 hours of streamlined professional development (Yoon et al, 2007). The current professional development model has teachers engaging in potentially 23 topics over the course of the school year for six hours at most *on one topic*. This is not a model supported by research or best practice.

As the school principal, I have the freedom to reshape professional development offered on school-based professional development days, on the fourth Wednesday of every month, and in the mornings prior to the start of the school day as long as it aligns with the school system's professional development goals. The most successful strategy that I have found for involving teachers in the process of planning, delivering, and engaging in professional development has been the use of Professional Development Design Teams. The Professional Development Design Team meets at the end of the school year to reflect on the past year, over the summer to plan the professional development offerings, and then throughout the school year to make changes as needed. All staff members are invited to be a part of the Professional Development Design Team; this provides everyone with the option to provide input on the process and the topics. The steps below will be a focus of the Professional Development Design Team; these steps strategically move teachers to align instructional practice more closely with changing expectations to increase student learning.

1. Analyze student performance data

2. Analyze observational data

3. Conduct a comparative analysis between the two data sources to identify one to three areas in which instructional practice needs to be more closely aligned with changing expectations

4. Identify appropriate professional development service delivery models to increase student learning

5. Plan yearly professional development based on the identified topics and service delivery models with a target of 40 – 50 clock hours

6. Measure progress based on student performance data (growth) and observational data

Organizational Role

In 2011, I became the principal at East Lake Elementary School after having been an assistant principal at another school in the district for only one year. When I began as principal in 2011, I structured my days to implement an observation-feedback cycle in which I rotated among classrooms to conduct informal observations, provide feedback to the teacher in writing and in person, and then return to the classroom to see how the feedback was implemented. This was good in theory, however, I was missing a key ingredient that makes this cycle successful: trust. I did not yet have the trust of my staff; they were unsure of my intentions and were highly defensive and uncomfortable with the thought of me in their classrooms. The 2011-2012 school year was also the first year of a new curriculum in FCPS; teachers no longer had the crutch of their teacher editions to plan instruction, but rather were given very loose curriculum guidelines on which to plan instruction based on the new

Common Core State Standards. Teachers, including the most veteran ones, wrestled with the new standards and the depth of content that they were now expected to know. Between year one and year two, I refocused my strategy based on my experience in year one, and focused on trust building, content planning, and instructional strategies. The school district deemed the 2012-2013 school year a "no fault" year to help teachers transition to the new curriculum; this helped tremendously to build trust and begin the work of teaching content at a deeper level than what had been expected in the past. During year two, many teachers all of a sudden *wanted* feedback on their instructional practice; this opened the door to validate what teachers were doing well and what practices needed to be aligned with changing expectations to increase student learning. A new evaluation system that is based on teacher practice and student achievement was implemented fully at the start of the 2013-2014 school year. This evaluation system includes rubrics based on Charlotte Danielson's framework; these rubrics help to guide feedback, actions, and professional development based on student learning.

As the principal of the school, I have a tremendous responsibility to ensure that instructional practice aligns with changing expectations to increase student learning. In order to carry out this work, I have developed a leadership team that consists of the assistant principal, three intervention/resource teachers, and select classroom teachers. Collectively, the leadership team members are experts in both content and pedagogy; each team member has taken on a study of the instructional shifts that are needed to help teachers align instruction to changing expectations. The leadership team members are also core members of the professional development design team. Additionally, the leadership team determines how resources will be aligned to support

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the shift of instructional practices; this includes the development of the master schedule, the school-based professional development schedule, and the types of support (human and fiscal) that will be available to teachers.

The Education Leadership Portfolio will contribute greatly to my own individual professional growth. I firmly believe that one is not truly living unless they are learning. In my role as a school principal, I must model lifelong learning for both students and staff. I began my doctorate program at the same time that I began as an elementary school principal. The doctoral program has helped me to strengthen my own professional practice, and the ELP will help me to articulate goals and actions for year three through five to increase student learning at East Lake Elementary School.

Description of Planned Artifacts

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
1	Program Evaluation	Empirical Analysis	Local School District	Presents findings from a program evaluation of one component of the teacher observation process that is used as part of teacher evaluation. Focuses on teachers' perceptions of positive and constructive feedback. Connects to cyclical process: formal and informal observations			Complete
2	Policy Brief	Arguments and Accounts		Justification for why formative feedback needs to be provided to teachers to help them shift instructional practice; suggests process for principals to give formative feedback. Connects to cyclical process: formal and informal observations			Complete
3	Reflective Practice Journal Principal Evaluation Rubrics and ongoing reflection on helping teachers to shift instructional practice	Products and Tools	Self	The principal evaluation rubrics have performance descriptors of effective leadership behaviors. The rubrics are included as an artifact because they encompass the types of actions that I must take to fully implement the strategies that I have suggested to address the problem. I will utilize the rubrics as a tool to reflect on my progress as a school leader. Description of Rubrics: Performance rubrics were developed for Components I – IV of the Delaware Department of Education's DPAS II for Administrators. Multiple principal evaluation rubrics were reviewed prior to developing the DPAS II rubrics. Additionally, the rubrics were developed with direct input from New Leaders for New Schools. Connects to overall improvement goal – leadership behaviors needed to better align instructional practice to changing expectations	Rubrics are complete. SELF-APPRAISALS: Initial self-appraisal of behaviors completed 1-5-14. Conduct another self-appraisal by March 30. Conduct final self-appraisal through May 15. Weekly reflections will commence the week of January 6 and continue through May 15. It is a goal to complete weekly reflections for three of the four weeks each month.		In process

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
				Each week, I will reflect on my actions. The following questions will be answered: What did you do over the past week to help teachers learn how to plan for and deliver instruction around mathematics? What worked well, what do you need to improve? What will you do during the coming week? The culminating reflection will be an essay on lessons learned. From leadership behaviors that help move teachers forward.			
4	Professional Development Models	Arguments and Accounts	Local School District, Principals	Provides description of professional development models that best support aligned instructional practice with changing expectations to increase student learning; includes previous professional development plans and plan for SY14-15. The focus will be on planning and delivering math instruction.	1. Research professional development models 2. Review professional development plan from SY11-12, 12-13, and 13-14 3. Outline pros and cons of the structures for teachers to make changes to practice 4. Engage the professional development design team in the creation of the professional development plan for SY14-15. PD Design Team will analyze data from walk-throughs and formal observation data. Finalize professional development plan for SY14-15 based on research and teacher input from the design team	Conduct design team meetings in April. Complete plan by May 31	Not started
5	Case Study of Teacher's	Arguments and	Principals	Provides teacher's perspective on how she aligned instruction to changing expectations to	1. Prepare guiding questions for interview	Send questions	Not started

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
	Shift in Instructional Practice (math instruction)	Accounts		increase student learning. Compares math lesson from fall 2012 to how the same concept was taught in fall 2013. Exhibits teacher growth and shift in instructional practice.	and send to ELP committee for review prior to interview. 2. Interview teacher. 3. Review lessons and alignment of outcomes, activities, and evaluations to the target standard 4. Review student performance data for each lesson and for each marking period (Fall 2012, Fall 2013) Prepare report	to ELP committee by March 15 Complete interview and report by April 15	
6	Data Analysis of Formative Assessments for Math	Empirical Analysis		Teachers create formative assessments based on target math standards. Formative assessment format will reflect the PARCC sample assessment items. Student results on formative assessments will be reviewed in collaboration with teachers. Teachers will analyze what students did well and what led them to those successes; future instructional actions will be determined based on those results.	1. Teachers will engage in "Implementation Shifts" which is a three-part professional development series based on the three main shifts in math instruction as a result of the math CCSS. During the first PD, teachers will learn about the shifts. Second, they will create the formative assessment based on the shifts and an upcoming target standard. Third, they will reflect on the process. 2. During the third round, we will review and analyze student results based on a	This will be ongoing throughout the 2nd & 3rd marking periods. Date for completion: April 30.	Not started

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
					reflective prompt, and identify implications for instruction going forward. 3. Teachers will complete a survey about the process. 4. Prepare summary of findings that include the data analysis and reflection on the process I will be an active participant with all grade levels, but will be leading the PD with the kindergarten and first grade teachers.		
7	Agenda & Materials from Professional Development on Implementing a Specific Area of the Common Core	Products and Tools	Principals	Describes a professional development session based on the text, *Teaching Student Centered Mathematics*. The professional development session was one of the initial PD offerings to shift the way in which mathematics is taught.	1. Gather materials Write reflection as to how this professional development was the first step to begin the shift in math planning and instructional practice.	Complete by Feb. 1	In process
8	Walk-through Instrument focused on Math Instructional Practices	Products and Tools, Empirical Analysis	Principals, Teachers	A walk-through instrument will be developed collaboratively with teachers for use by teachers and administrators to determine whether teachers are shifting instructional practices to better align to the changing expectations called for from the Common Core State Standards.	1. Engage teachers in a professional development offering to create the walk-through tool. Teachers will review multiple student behaviors that exemplify a shift in math instruction	PD with teachers: January 17 Finalize tool by Jan. 30	In process.

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
					(student behaviors are from the CCSS Math Practices). In groups, teachers will reduce the number of student behaviors from 17 to 10, and then further reduce the number to 6. Specific activities will be included to build consensus. 2. Teachers will complete two short surveys that focus on the process (time, frequency, norms, etc.) 3. Teachers will come to consensus on how the data will be recorded (yes/no or scale of evidence). 4. Create walk-through tool based on the student behaviors that teachers identify. 5. Annotate walk-through tool based on CCSS Math Practices, research, and best practice. Create schedules for teachers to visit other classrooms and utilize walk-through tool. Create schedule for administrators to utilize the walk-through tool. 6. Make revisions as	Begin using tool by February 10 Complete comparative analysis by April 30	

Number	Artifact	Type	Audience	Description	Action Steps	Timeline	Status
					needed. 7. Conduct walk-throughs to determine level of "shift" in instructional practice. 8. Reflect on tool after it has been used at least one time by all teachers; make revisions as needed based on their feedback. Analyze results and conduct comparative analysis between this tool and the walk-throughs completed during the 2011-2012 school year.		
9	Focus Group with Teachers Topic: What do teachers need to fully implement the Common Core State Standards?	Arguments and Accounts	Local School Districts, Principals	Provides teachers' perspectives on what they need in terms of professional development and resources to fully implement the Common Core Standards. Also describes evidence of implementation from the teachers' perspective.	1. Identify teachers to participate in the focus group. 2. Create focus group questions and send to the ELP committee for review and comments. 3. Schedule focus group. 4. Conduct focus group. Summarize findings.	Send focus group questions by April 1 Conduct focus group at the end of April/beginning of May	Not started

Attachment: Description of Performance Area Indicators

A rating of less than effective (needs improvement or unsatisfactory) on any of
the indicators in those specific areas outlined below and/or a recommendation noted in
the comments area suggested that a specific need exists to increase our alignment
between planning, instructional practice, and the changing expectations. The
description of the indicators from each performance area further clarifies the need to
increase our alignment between planning, instructional practice, and the changing
expectations. For example, the indicators in the Student-Teacher Interaction
performance area include actions such as using questions to elicit student responses,
promoting interactive activities, keeping students on task, communicating high
expectations, varying grouping to meet student needs, and teaching at varying
cognitive levels. The description of the performance indicators include teacher
behaviors that are necessary to align planning and instructional practice with the
changing expectations set forth by the major shifts in ELA and math described in
Table A.2.

Description of Performance Area Indicators		
Performance Area	**Indicators**	**Description**
Instructional Planning	Demonstrates observable evidence of appropriate planning	Develops plans that specify what is to be achieved by students Plans for activities and utilizes materials that are appropriate to meet students' abilities and needs
	Follows county curriculum guides, programs, and policies in appropriate areas	Organizes the lesson sequentially to fit appropriately in relation to other skills, or topics of unit or course Uses county approved materials and texts
	Shows evidence of long-range planning	Provides continuity of long-range goals Shows evidence of appropriate pacing to allow completion of county curriculum

Implementation of Strategies and Techniques	Focuses lesson on curriculum outcomes/indicators/objectives	Makes aim or purpose clear to students
		Teaches to established curriculum outcomes/indicators/objectives
		Adapts lesson if unexpected situation occurs
	Varies learning experiences consistent with purpose	Presents content at appropriate level
		Uses a variety of vocabulary, materials and examples that address various learning styles, abilities, and experiences of the students
		Uses instructional methods and materials appropriate to student needs
		Uses materials, media, and technology to enhance the quality of the lesson
		Uses a variety of appropriate activities
	Uses class time appropriately	Systematizes routine procedures and tasks
		Keeps class/subject taught within allocated time period
		Organizes materials, media, and technology efficiently
		Paces instruction appropriately
		Demonstrates evidence of smooth transition from one activity to another
	Questions appropriately	Asks questions that are clear, thought provoking and meaningful
		Responds appropriately to students' questions/answers
		Gives appropriate response time to students
		Provides opportunity for response from all students
		Uses questions at all cognitive levels – from knowledge to evaluation (Bloom's Taxonomy)
	Uses an appropriate instructional process	Uses recall/review/motivational/introductory activity
		Provides sufficient structure for lesson based on maturity and learning styles of students
		Presents new skills and concepts clearly
		Encourages discussion of content being presented
		Provides structures that promote risk-taking and interactive learning
		Provides opportunities for practice and feedback with new skills and concepts
		Encourages students to take responsibility for their own learning
		Provides opportunities for diversity of opinion, response, interpretation
		Uses effective, clear summary/evaluation
		Incorporates Dimensions of Learning in instruction
		Uses formative and summative assessments based upon

		curriculum outcomes/indicators/objectives
	Communicates appropriately	Gives clear and concise oral and written directions
		Employs appropriate usage and mechanics
		Provides legible written material
		Speaks and writes clearly and at appropriate level for student understanding
	Demonstrates knowledge of subject taught	Demonstrates command of subject matter
		Uses information that is accurate and current
		Provides information from a bias free, multi-cultural perspective
		Makes practical application of subject matter
		Uses a variety of subject matter resources
Student-Teacher Interaction	Involves students in lesson	Uses questions to elicit student responses
		Provides activities that promote interaction among learners
		Elicits participation from all students
		Uses motivational techniques to stimulate students
		Keeps students on task
	Maintains teacher-student rapport	Exhibits enthusiasm
		Maintains a positive affective environment
		Communicates high expectations for all students
		Establishes a climate of mutual respect
		Demonstrates fairness and consistency
		Nurtures the student's self-concept
		Relates to students in a positive manner
		Responds to students in acceptable language
	Provides for individual differences	Varies grouping to meet student needs
		Teaches at varying cognitive levels
		Provides instruction that is responsive to different learning styles
		Shows sensitivity to and respect for different cultural, social, economic and experiential backgrounds

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Appendix B

**EVALUATION OF POSITIVE AND CONSTRUCTIVE FEEDBACK
PROVIDED DURING THE OBSERVATION PROCESS**

Executive Summary

This report presents findings from a program evaluation of positive and

constructive feedback provided to teachers from administrators following formal and

informal observations of instruction, which is part of the teacher evaluation system.

This evaluation determined whether or not the feedback is provided in a way in which

it is accepted and implemented, and also measured how often teachers receive positive

and constructive feedback from their administrator following a formal and/or informal

observation.

An online survey was sent to teachers in ten different schools; 133 teachers

completed the survey. The majority of the respondents had tenure in the school

system and had been through the teacher evaluation process at least three times.

Overall, the findings from the survey showed a very positive response to the teachers'

perceptions of continuous improvement, feedback, their administrator, and the

perceived impact that feedback had on their teaching. One hundred percent of the

respondents agreed that their administrator expects them to grow as a professional;

98% of respondents agreed that it is important to engage in professional development

to learn new teaching strategies, and 97% agreed that their administrator trusts them to make instructional decisions that are in the best interest of students.

Based on the responses related to feedback acceptance and implementation, it was evident that administrators do provide feedback in a way in which teachers accept it and implement it. Over 90% of the respondents indicated that the feedback they receive is useful, and over 80% of the respondents agreed that they are held accountable to implement the feedback.

Respondents indicated the same level of agreement for receiving positive and constructive feedback; however, they also reported that they receive positive feedback more frequently than constructive feedback after every observation. Only 52% of the respondents reported that they receive constructive feedback after every observation, whereas 68% reported that they receive positive feedback after every observation.

Introduction

Teacher evaluation policy requires that teachers at the elementary, middle, and high school levels need to be observed formally; the observation may be announced or unannounced. With an announced observation, the administrator (principal, assistant principal, or instructional coordinator) and teacher pre-conference prior to the observation to discuss the upcoming lesson; the administrator observes the teacher for at least 30 minutes and rates his/her performance as "effective," "needs improvement," or "unsatisfactory" based on a set of indicators; and, the administrator and teacher post-conference in which the teacher reads the observation, the administrator states what the teacher did well and also discusses any recommendations, and then the

teacher signs the observation. The only difference between the announced and unannounced observation is that the administrator and teacher do not pre-conference prior to the unannounced observation. If performance ratings are less than "effective," the administrator will conduct another formal observation to ensure that the written recommendations are addressed.

The informal observation consists of the administrator observing instruction for a minimum of 10 minutes and generally not more than 30 minutes. The administrator writes the informal observation and provides the written copy to the teacher on the same day of the observation. In the event that the written informal observation contains negative or constructive feedback, the administrator and teacher are required to post-conference, and the administrator is required to conduct a formal observation.

The outcome of the observation process is a significant component that is used to determine a teacher's overall evaluation. "Effective" ratings in all performance areas result in a satisfactory evaluation, and employment is not jeopardized. However, observations that result in ratings of "needs improvement" and/or "unsatisfactory" in one or more areas could result in one or more of the following: teacher receives ratings on the evaluation of "needs improvement" or "unsatisfactory;" teacher is put on a Performance Improvement Plan; teacher is moved to a second-class certificate; teacher is terminated. This program evaluation is based on one component of the observation process: administrator provides feedback and discusses teacher's ratings. See Attachment 1 for the Logic Model of the program.

The purpose of the evaluation is to determine whether or not the feedback is provided in a way in which it is accepted and implemented, and to measure how often teachers receive positive and constructive feedback from their administrator following a formal and/or informal observation. Feedback is one component of both the formal and informal observation process; however, the observation process does not specify if the feedback is to be positive and/or constructive. In order for teachers to make changes to their instructional practice, they must receive both positive and constructive feedback. When teachers receive only positive feedback, it gives the impression that no growth is needed; when only constructive feedback is received, it gives the impression that there isn't much that the teachers are doing well. The findings of this evaluation will inform future professional development for administrators on the importance of providing feedback during both the formal and informal observation process, as well as how to provide measurable constructive feedback.

Evaluation Design & Methodology

Feedback is a key component of the formal and informal observation process and is directly linked to the overall outcome of the observation process: to rate teachers' performance for the purpose of teacher evaluation.

This evaluation of feedback answered one process question and one outcome question. The process question sought to determine if the feedback is provided in a way that the teachers will accept it (positive and/or constructive feedback) and then also be held accountable to implement it (constructive feedback). The outcome

question sought to determine how often teachers receive measurable, constructive feedback during the observation process. Positive feedback validates teachers' practices and can help make teachers feel comfortable to try new things in the classroom. Constructive feedback is what helps teachers to grow in their profession. The ultimate goal is that all teachers receive satisfactory performance evaluations; therefore, they need to receive both positive and constructive feedback as part of the formal and informal observation process. One process question and one outcome question are addressed in this evaluation.

Process Question: Is the feedback provided in a way in which it will be accepted and implemented?

Outcome Question: How often do teachers receive measurable, constructive feedback after an observation?

Sample

In order to answer the process and outcome questions, an online survey was sent electronically to teachers in ten different schools. The criteria for participation in the survey was that the principal of the school had to be in at least his/her second year at that school and the principal had to give permission to the evaluator to conduct the survey. As a result, the sample was one of convenience, in that the evaluator had access to the ten schools and had a professional relationship with each principal. Teachers' participation was completely voluntary and anonymous. Of the 158 teachers who began the survey, a total of 133 teachers completed the survey. Table B.1 describes the survey responses related to teaching experience and current school assignment. More than 50% of the respondents had six to fifteen years of teaching

experience, and over 45% of the respondents had been at their current school for at least six years. This is significant because the majority of respondents had tenure and had been through the evaluation process at least three times.

Table B.1

Survey Responses Related to Teaching Experience and Current School Assignment

	0 – 5 years		6 – 15 years		16+ years	
	number	percent	number	percent	number	percent
How many years have you been teaching?	24	15	83	53	51	33
How many years have you been at your current school?	69	44	72	46	17	11

Note. n = 158

Instrument & Variables

An attitudinal survey was sent electronically to teachers at participating schools. The survey was designed to capture teachers' perceptions of continuous improvement, their administrator, feedback, and how the feedback impacts teaching, as well as the frequency by which they received positive and constructive feedback. Variables included: positive feedback and constructive feedback; the frequency of positive feedback and the frequency of constructive feedback; teachers' perceptions of continuous improvement; teachers' perception of the impact feedback had on teaching practice; teachers' perceptions of their administrator; and, teachers' perceptions of the feedback provided by administrators.

Data Collection Procedures

In order to collect data on how often teachers receive constructive and positive feedback, and to collect data on their perceptions of feedback, continuous improvement, and their administrator, the following steps were taken.

Initially, it was necessary to brainstorm the barriers to and successes of how teachers receive feedback after an observation. This information was used to guide the development of the attitudinal survey. Once the survey was developed, a request was made to conduct research in the school district. The survey was field tested with approximately ten practitioners, inclusive of administrators and teachers, and then revisions were made based on the feedback from the school district and the practitioners. When the survey was finalized, it was formatted into an online survey system, Qualtrics. A formal request was made to each of the ten principals to gain consent to conduct the survey in their schools; a PDF version of the survey was sent with the request so that they had an opportunity to preview the survey before giving consent. Once consent was gained, the online survey was copied and renamed with the school name so that each school had its own survey. An email was developed that outlined the purpose of the survey, the parameters for participation and data use, and the directions for completing the survey; it was sent to each teacher group at each school and included the individualized survey link. In order to increase participation, a follow-up email was sent to each school's teacher group; it reminded them to participate and included the survey link and directions.

Data Analysis Procedures

In order to analyze the survey results collectively, each school's data was exported from Qualtrics to a comma separated value (.csv) file. A copy of the original survey was made to house the collective data, and then each school's individual data was imported into this survey. Frequency tables that showed how the respondents scored each item were analyzed to determine which items had the most positive responses and the most negative responses. In order to answer the process question of the evaluation, the level of agreement was analyzed for twelve items. In order to answer the outcome question of the evaluation, the level of agreement was analyzed for four items. Table B.2 notes the items that were analyzed to answer the process and outcome questions. Cross tabulations were used to establish that a relationship existed between the administrator communicating effectively and how the feedback is provided (in writing and in a conversation).

Table B.2

Survey Items Analyzed to Answer Process and Outcome Questions

Process Question Items
My administrator expects me to grow as a professional.
My administrator has the content-area knowledge to provide feedback on my teaching.
My administrator has a strong foundation of instructional pedagogy to provide meaningful feedback on my teaching.
My administrator trusts me to make instructional decisions that are in the best interest of students.
My administrator communicates effectively.
My administrator provides meaningful feedback about my teaching.
The feedback I receive is useful.
I value my administrator's opinion.
How often do you receive measurable, positive feedback after an observation?
The feedback I receive motivates me to try new things.
The feedback I receive motivates me to work harder.
I am held accountable to implement the feedback I receive.
Outcome Question Items
My administrator provides measurable, constructive feedback about my teaching.
My administrator provides feedback in writing.
My administrator provides feedback in person, during a conversation.
How often do you receive measurable, constructive feedback after an observation?

Evaluation Findings

Overall, the findings from the attitudinal survey show a very positive response to teachers' perceptions of continuous improvement, feedback, their administrator, and the perceived impact that feedback has on their teaching. The data in Table B.3 show the questions that had the highest level of agreement. It is noteworthy that 100% of

respondents either strongly agreed or agreed that their administrator expects them to grow as a professional, and 98% of respondents strongly agreed or agreed that it is important to engage in professional development in order to learn new teaching strategies. The high level of agreement with both of these questions demonstrates that school-based administrators want their teachers to engage in professional learning opportunities, and that teachers value professional development to learn new strategies. More than 60% of respondents strongly agreed that their administrators trust them to make instructional decisions that are in the best interest of their students. A high level of trust between administrators and teachers indicates that administrators value effort and support innovation; as a result, teachers will be more likely to try new things in the classroom.

Table B.3

Survey Items with the Highest Level of Agreement

Item	n	Strongly Agree		Agree		Total Agreement	
		number	percent	number	percent	number	percent
My administrator expects me to grow as a professional.	149	88	59	61	41	149	100
It is important to engage in professional development in order to learn new things.	149	76	51	70	47	146	98
My administrator trusts me to make instructional decisions that are in the best interest of students.	145	89	61	52	36	141	97

The findings for the process question indicate that the feedback is provided in a way in which it will be accepted and implemented. Respondents had a positive impression of the administrator who provides the feedback; 94% agreed that their administrator had a strong foundation of instructional pedagogy to provide meaningful feedback and 86% of respondents indicated that their administrator had the content-area knowledge to provide feedback. The majority of respondents values their administrator's opinion and finds the feedback from their administrator to be useful, but only 83% of the respondents agreed that they are held accountable to implement the feedback they receive. It is also noted that 84% of respondents concurred that the feedback motivates them to try new things and 81% indicated that the feedback motivates them to work harder. One interesting finding is that 32% of respondents disagreed with the survey item, "The feedback I receive helps me to better understand my content area." Table B.4 supports these findings and describes the level of agreement for the survey items related to feedback acceptance and implementation.

Table B.4

Survey Responses Related to Feedback Acceptance and Implementation

Item	n	Strongly Agree		Agree		Total Agreement	
		number	percent	number	percent	number	percent
I value my administrator's opinion	136	71	52	60	44	131	**96**
My administrator has a strong foundation of instructional pedagogy to provide feedback on my teaching.	145	46	32	90	62	136	**94**
The feedback I receive is useful.	136	50	37	74	54	124	**91**
My administrator has the content-area knowledge to provide feedback on my teaching.	145	34	23	91	63	125	**86**
The feedback I receive motivates me to try new things.	133	39	29	73	55	112	**84**
I am held accountable to implement the feedback I receive.	133	31	23	80	60	11	**83**
The feedback I receive motivates me to work harder.	133	37	28	70	53	90	**81**
The feedback I receive helps me to better understand my content area.	133	19	14	68	51	87	**65**

In order for feedback to be accepted and implemented, communication is key; 89% of respondents believed that their administrator does indeed communicate effectively. A large number of respondents indicated that they receive feedback during a conversation and in writing. Cross tabulations to support these findings can be found in the attachment.

The findings for the outcome question show that 52% of the respondents receive constructive feedback after every observation; 24% of respondents indicated that they receive constructive feedback after most observations. It is noteworthy that the data show the same level of agreement for receiving positive and constructive feedback; 89% of teachers reported that their administrator provides measurable, positive feedback and 89% of teachers reported that their administrator provides measurable, constructive feedback. However, as Table B.5 demonstrates, the frequency of positive and constructive feedback is markedly different.

Table B.5

Frequency of Positive and Constructive Feedback After Observations

Type of Feedback	After *Every* Observation		After *Most* Observations		After *Some* Observations		*Rarely* After Observations		*Never* After Observations	
	number	percent	number	percent	number	percent	number	percent	number	percent
Positive	92	68	26	19	11	8	4	3	3	2
Constructive	71	52	32	24	26	19	6	4	1	1

Note. n=136

Conclusion

This evaluation sought to answer one process question and one outcome question related to feedback provided during the observation process. The process question related to the acceptance and implementation of feedback. The outcome question related to how often teachers receive constructive feedback during the post-observation conference.

Acceptance and implementation of feedback. Feedback is provided in a way in which it is accepted and implemented. There was a high level of agreement with the survey items that related to teachers' perceptions of their administrator and the feedback they receive from their administrators. Overall, teachers have a positive perception of their administrator and the school culture, which may explain why feedback motivates teachers to try new things and work harder. The survey results confirm that teachers are held accountable to implement the feedback received during the post-observation conference.

Frequency of constructive feedback. Teachers receive positive feedback more frequently than constructive feedback after every observation. The results of the survey show that administrators expect teachers to grow professionally and that teachers have a positive perception of continuous improvement. Yet, administrators do not provide constructive feedback after every observation with the same level of frequency as positive feedback.

Feedback related to content area. Teachers reported that it is necessary to engage in professional development in order to understand their content better and that their administrators had the content-area knowledge to provide feedback on their

teaching. However, only 65% of the survey respondents reported that the feedback they receive helps them to better understand their content area.

Recommendations

- Continue to provide positive feedback during the post-observation process.
- Provide training on how to give constructive feedback during the post-observation conference.
- Include at least one content-related piece of feedback in every post-observation conference.

Continue to provide positive feedback during the post-observation process.

As noted in Table B.4, it is evident from the survey responses that teachers accept and implement the feedback that is provided during post-observation conferences. Nearly 70% of teachers reported that they receive positive feedback after every observation. Positive feedback helps to validate teaching practices and helps teachers to develop a positive perception of their administrator, both of which are needed in order for teachers to accept and implement constructive feedback.

Provide training on how to give constructive feedback during the post-observation conference.

Teachers reported receiving positive feedback more frequently than constructive feedback during the post-observation conference. One possible explanation for this finding is that administrators do not have a clear understanding of the importance of constructive feedback and/or how to give constructive feedback during a post-observation conference. Ongoing training on how to give measurable, specific constructive feedback will help teachers to grow professionally. It is recommended that training on how to give constructive feedback be provided during

monthly administrator meetings and that administrators have an opportunity to practice giving constructive feedback in mock post-observation conferences with other administrators.

Include at least one content-related piece of feedback in every post-observation conference.

Only 65% of teachers reported that feedback helps them to better understand their content area; in comparison to the other survey items, this particular item had the lowest level of agreement. In order to help teachers further develop their understanding of content-specific instruction, they need to receive content-related feedback. It is recommended that administrators provide at least one piece of content-related feedback during each post-observation conference to help teachers understand: 1.) why a particular instructional practice was beneficial for students' understanding; and, 2.) what the teacher can do to enhance content instruction.

Attachment 1: Logic Model

Logic Model: Formal and Informal Observation Process

Inputs
- Teacher
- Administrator
- Students
- Lesson Plans
- Pre-conference
- Classroom Observation of Lesson
- Post-conference
- Performance Indicators
- Teacher Evaluation Handbook
- Observation Forms

Formal Announced Observation
- Administrator schedules pre-conference with teacher
- Administrator and teacher complete pre-conference
- Teacher makes changes if necessary

Informal Observation
- Administrator observes teacher for 10-29 minutes
- Administrator writes informal observation
- Administrator provides written copy to teacher on the same day of the observation
- Observation summary contains negative feedback
- Observation summary contains all positive feedback
- Administrator and teacher conference about negative comments

Formal Unannounced Observation
- Administrator observes teacher for at least 30 minutes
- Administrator collects evidence of teaching practice
- Administrator rates performance as "effective," "needs improvement," or "unsatisfactory"
- Administrator and teacher post-conference
- Teacher reads the observation
- Administrator provides feedback and discusses teacher's ratings
- Performance ratings include "needs improvement" and/or "unsatisfactory"
- Performance ratings are all effective

Outcomes

Observe teachers' performance for the purpose of evaluation

Positive Outcome:
- Teacher receives satisfactory evaluation
- Teacher maintains employment

Negative Outcome:
- Teacher receives ratings on evaluation of "needs improvement" or "unsatisfactory"
- Teacher is put on a Performance Improvement Plan
- Teacher is moved to a second class certificate
- Teacher is terminated

Attachment 2: Evaluation Planning Chart

	EVALUATION QUESTION	RATIONALE	SAMPLE	INSTRUMENTS
Process	Is the feedback provided in a way in which it will be accepted and implemented?	Teachers need to receive feedback from their administrator in a way that it is accepted and then implemented. The teachers' perception of their administrator has the potential to determine whether or not the feedback will be accepted and implemented.	Voluntary Convenience Teachers in 10 schools Principal at each school must have been in place for at least one year Principal at each school must consent to the evaluator sending the survey to teachers	Attitudinal Survey *Variables:* Positive and constructive feedback Frequency of positive and constructive feedback Teachers' perceptions of continuous improvement Teachers' perceptions of the impact feedback had on teaching practice Teachers' perception of their administrator Teachers' perception of the feedback provided by administrators
Outcome	How often do you receive measurable, constructive feedback after an observation?	In order to improve their teaching practice, teachers need to receive measurable, constructive feedback from their administrator. Measurable, constructive feedback helps teachers to grow as professionals.		

Data Collection Procedures	Timeline
1. Brainstorm barriers to and successes of how teachers receive feedback after an observation	September – December 2011
2. Develop attitudinal survey	September 1 – 10, 2012
3. Request to conduct research in the school district	October 1, 2012
4. Gain approval; make changes if necessary	October 10, 2012
5. Field test survey with at least 10 practitioners (administrators and teachers)	October 16, 2012
6. Revise questions as needed based on school district feedback and field test	October 16 – 20, 2012
7. Format survey into online survey system, specifically, Qualtrics	October 27 – 31, 2012
8. Reach out to principals of targeted schools and gain consent to administer survey	October 28, 2012
9. Copy survey and rename with the school name of participating schools so that each individual school has its own survey	October 31, 2012
10. Develop email to teachers outlining the purpose of the survey, voluntary participation, and how data will be used	October 28 – 31, 2012
11. Send email, inclusive of survey link and directions, to each school's teacher group individually	November 1, 2012
12. Send follow-up email approximately six days after initial email, inclusive of survey link and directions, to each school's teacher group reminding them to participate in the survey	November 7, 2012
13. Analyze survey results	November 16 – 23, 2012
14. Prepare evaluation report	November 23 – December 5, 2012

Attachment 3: Survey Instrument

DEMOGRAPHIC INFORMATION
1. How many years have you been teaching? (0-1, 2-3, 4-5, 6-10, 11-15, 16-20, 21+)
2. How many years have you been at your current school? (0-1, 2-3, 4-5, 6-10, 11-15, 16-20, 21+)

Rate all items on a 4-point Likert Scale

1	2	3	4
Strongly Agree	Agree	Disagree	Strongly Disagree

PERCEPTION OF CONTINUOUS IMPROVEMENT
1. My teaching style should change in order to meet the needs of my students.
2. I research best practices to improve my planning.
3. I research best practices to improve my instruction.
4. It is important to engage in professional development in order to understand my content better.
5. It is important to engage in professional development in order to learn new teaching strategies.
6. It is important to reflect on my teaching practice after each lesson.
7. My administrator expects me to me grow as a professional.
8. I set professional goals each school year.
9. I review my professional goals on a quarterly basis.

ADMINISTRATOR
1. My administrator has the content-area knowledge to provide feedback on my teaching.
2. My administrator has a strong foundation of instructional pedagogy to provide meaningful feedback on my teaching.
3. My administrator encourages me to seek out professional learning opportunities.
4. My administrator trusts me to make instructional decisions that are in the best interest of students.
5. My administrator establishes a school culture of trust and caring.
6. My administrator establishes a school culture in which I am comfortable taking risks.
7. I am comfortable approaching my administrator with questions about my instruction.
8. My administrator models professional practice.
9. My administrator views instructional leadership as a priority.
10. My administrator is a strong instructional leader.
11. My administrator visits my classroom to observe instruction.
12. My administrator communicates effectively.

FEEDBACK
1. My administrator and I engage in conversation about my teaching.
2. My administrator provides measurable, positive feedback about my teaching.
3. My administrator provides measurable, constructive feedback about my teaching.
4. The feedback I receive is useful.
5. The feedback I receive helps to clarify the expectations of my administrator.
6. I value my administrator's opinion.
7. My administrator provides feedback in writing.
8. My administrator provides feedback in person, during a conversation.

9. How often do you receive measurable, *positive* feedback after an observation?				
1	2	3	4	5
I never receive measurable, positive feedback after observations	I rarely receive measurable, positive feedback after observations	I receive measurable, positive feedback after some observations	I receive measurable, positive feedback after most observations	I receive measurable, positive feedback after every observation
10. How often do you receive measurable, *constructive* feedback after an observation?				
1	2	3	4	5
I never receive measurable, constructive feedback after observations	I rarely receive measurable, constructive feedback after observations	I receive measurable, constructive feedback after some observations	I receive measurable, constructive feedback after most observations	I receive measurable, constructive feedback after every observation

IMPACT ON TEACHING
1. The feedback I receive is sufficient to improve my teaching practice.
2. The feedback I receive motivates me to try new things.
3. The feedback I receive motivates me to work harder.
4. The feedback I receive relates to my instructional practice.
5. The feedback I receive helps me to better understand my content area.
6. The feedback I receive helps me to improve my instructional delivery.
7. I believe the feedback I receive has had a positive impact on my students' academic achievement.
8. I am held accountable to implement the feedback I receive.

Attachment 4: Cross Tabulation for Communication

Cross Tabulation for Communication

		My administrator and I engage in conversation about my teaching.					My administrator provides feedback in writing.					My administrator provides feedback in person, during a conversation.				
		Strongly Agree	**Agree**	**Disagree**	**Strongly Disagree**	Total	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	Total	**Strongly Agree**	**Agree**	**Disagree**	**Strongly Disagree**	Total
My administrator communicates effectively.	**Strongly Agree**	24	26	0	0	50	37	12	1	0	50	38	12	0	0	50
	Agree	9	56	5	1	71	20	48	3	0	71	18	53	0	0	71
	Disagree	0	10	3	0	13	1	11	1	0	13	0	11	2	0	13
	Strongly Disagree	0	0	1	1	2	0	2	0	0	2	0	0	2	0	2
	Total	33	92	9	2	136	58	73	5	0	136	56	76	4	0	136

Attachment 5: Email to Teachers

From: Catherine D. Green
Sent: Friday, November 02, 2012 8:11 AM
To: ------- Elementary Teachers
Cc: Principal of School
Subject: Survey on Feedback

Dear Teachers,

I would like to invite you to take part in a research study that examines the relationship between feedback and teachers' perceptions of continuous improvement as it relates to teaching practice. I am in the process of working on my doctorate at the University of Delaware and am conducting a survey as part of my research.

Your participation is completely voluntary and anonymous.

In order to participate in the research study, please complete a brief, online survey by clicking on the following link:
https://delaware.qualtrics.com/SE/?SID=SV_6gk7nCNMYNF0SnH

Results will be analyzed collectively and by individual school, and may be shared with administrators.

Thank you for your participation in this study.

Sincerely,

Catherine Green
Principal

Appendix C

POLICY BRIEF: PROVIDNG FORMATIVE FEEDBACK TO TEACHERS

Executive Summary

Teacher evaluation systems are undergoing major changes across the country. In the report, *The Widget Effect: Our National Failure to Acknowledge and Act on Differences in Teacher Effectiveness*, approximately 99% of all teachers are rated effective or exemplary, and less than one percent of all teachers are rated as unsatisfactory (Weisberg, D., Sexton, S., Mulhern, J., Keeling, D., 2009). This stands true for both high and low performing schools. In order to address this discrepancy as it relates to student achievement, many of the new evaluation systems will include student performance as a component of teacher evaluation. Student performance data holds teachers accountable for ensuring that all students meet or exceed the grade level standard and that the students demonstrate growth from one school year to the next.

A primary goal of the evaluation process is professional improvement, yet research shows that all too often, teacher evaluation processes in schools are not particularly helpful to teachers because only minimal, if any, constructive feedback is provided (Tuytens & Devos, 2011). Many evaluation processes do not require administrators to provide explicit feedback; according to the authors of *The Widget Effect*, roughly three out of four teachers did not receive specific feedback following their last evaluation (Weisberg, D., Sexton, S., Mulhern, J., Keeling, D., 2009). When constructive and positive feedback is provided during evaluation conferences, it is frequently vague and unrelated to improving professional practice (Donaldson, 2010).

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The absence of constructive feedback and the presence of irrelevant praise in evaluation processes lead to stagnant instruction.

Therefore, feedback is essential for not only teacher learning, but also for student learning. Teachers need to receive constructive feedback on their practice in order to correct errors, modify their techniques, and participate in professional learning activities to enhance their instructional delivery (Ovando, 2005). Feedback has the potential to be an integral piece of the evaluation process; as noted by Strong (2006), "feedback from administrators and supervisors can be used in meeting both the accountability and professional growth purposes of an evaluation system" (p. 18).

Fairview County Public Schools (FCPS) uses a standardized observation and evaluation tool; the evaluation components include formal observations, a summary of professional activities, and optional information such as informal observation notes, narrative records, and professional improvement plans. Evaluation policy requires teachers at the elementary, middle, and high school levels to be observed formally at least two times per year; the observation may be announced or unannounced. Although it is standardized to a degree, it actually leaves much room for subjectivity in how teachers are rated, how feedback is provided, and whether or not there is follow-up after a formal observation. The observation and evaluation tool is subjective because rubrics are not used to specify what teaching practices are "effective" (i.e., meet or exceed the county standard), "needs improvement," or "unsatisfactory." Therefore, what one observer deems "needs improvement," another may deem as "unsatisfactory," or worse yet, "effective." A subjective tool leads to inconsistencies in how observers rate teachers within schools and among schools. As a result, teachers within the same school system may be evaluated in very different

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ways depending on the school in which they teach (see Figure C.1 for more information.)
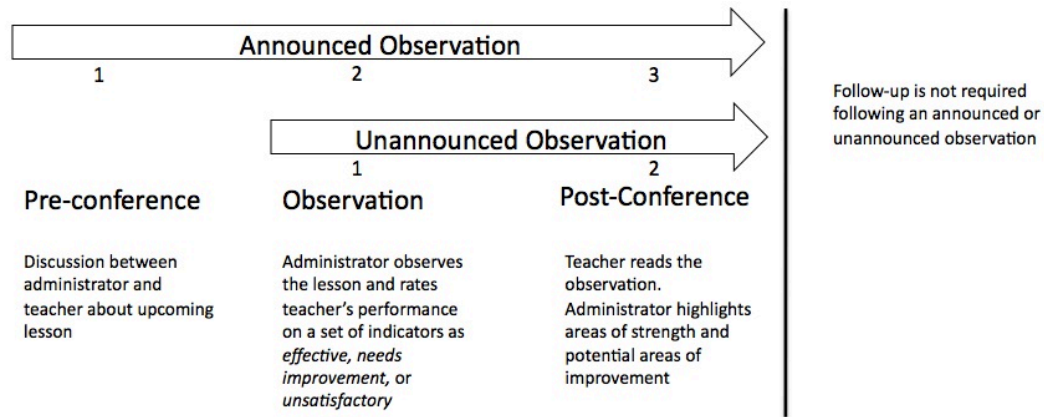

Figure C.1. FCPS Formal Observation Process

This policy brief outlines a justification as to why formative feedback needs to be provided to teachers in order to help them be successful on current and new evaluation systems, and what options are currently available to provide feedback to teachers; lastly, this brief recommends a new option to increase the amount of feedback provided to teachers and incorporate an accountability system for delivering and implementing feedback.

Problem Statement

Teachers rarely receive ongoing specific, measurable feedback on their teaching practice outside of the formal teacher evaluation system. The minimum requirement is that administrators observe each teacher's instructional practice two times per year; this is hardly enough time in the classroom to help teachers grow professionally and refine their teaching craft. Additionally, administrators are not required to follow-up with teachers following a formal or informal observation, so therefore, neither the administrator nor the teacher is accountable for the feedback.

As FCPS moves to implement a new evaluation system that includes concrete standards and a student growth component, teachers will need ongoing support in order to meet the new standards and to address the varied needs of all the learners in their classroom. The instructional leaders, i.e. the principal and assistant principal(s), need to provide formative non-evaluative feedback prior to formal observations to help teachers demonstrate effective and/or exemplary teaching practices.

The current negotiated agreement between FCPS and the FCPS Teacher's Association does not encourage formative feedback outside of the evaluation system. Therefore, teachers expect: a formal observation that lasts a minimum of 30 minutes and includes a written summary of what was observed; a pop-in visit that does not include any type of feedback; or, an informal observation that only includes glowing commendations. Per the evaluation system, if an informal observation includes recommendations, a post-conference and formal observation must ensue. Therefore, there are not any options to provide non-evaluative feedback to teachers without the perception of an evaluation.

The current observation process in FCPS lacks a requirement to provide specific feedback, measurable actions for improvement, and follow-up and follow-through by the administrator. It is not cyclical and there is not a focus on continuous improvement. This type of observation process has the potential to: 1.) create gaps in the principal's perception of the type of instruction that is delivered to students on a daily basis; and, 2.) result in instruction that does not align to the school's and/or district's improvement goals. Contributing factors that limit the current observation process in FCPS include:

- Limited, standardized training for administrators on what constitutes effective and ineffective teaching practices;

- Insufficient content-area and/or pedagogical knowledge in order to provide feedback;

- Lack of training on how to provide formative feedback; and,

- Insufficient number of classroom observations each year for each teacher.

Critique of Policy/Program Options

There are many guides and tools to facilitate the observation of student learning in the classroom from someone other than the classroom teacher, inclusive of "instructional walk-throughs," "instructional rounds," and "informal observations." While each intend to capture an element of student learning and/or teaching practice, they all lack the component of providing direct, formative feedback to the teacher that was observed.

Instructional walk-throughs follow a protocol in which a team of observers visit classrooms for five to 15 minutes and look for specific practices and actions. Evidence of practices and actions is collected, and then the team debriefs after visiting several classrooms. Instructional walk-throughs provide school-wide data; feedback is given globally, but not to specific teachers. The benefit of instructional walk-throughs is that they are conducted objectively and provide data on practices throughout the entire school or grade level. The downside of instructional walk-throughs is that only global feedback is provided. There is not a conversation between the observers and the teacher, communication is only one way, and no measurable, specific actions are provided in order to refine each individual teacher's practice.

Instructional rounds are based on the practice conducted by medical professionals visiting patients. A "network" consisting of school-based instructional leaders is developed and they focus on a problem of practice for the entire school year. After several classroom visitations, the network collaborates to share what was observed, analyze practices, and identify teaching practices and student behaviors across the school. The network establishes the "next level of work" that includes both short- and long-term action items for the school (Fowler-Finn, 2009). Just as with instructional walk-throughs, feedback is not provided to individual teachers.

In FCPS, the informal observation is considered to be "other information" for the evaluation. The informal observation consists of a classroom observation of at least 10 minutes or an observation of a professional activity outside of the classroom. Positive comments are written on the informal observation form and no post-conference is necessary. However, if there are areas of concern, a conference is necessary followed by a subsequent formal observation. The completed informal observation forms are part of the teacher's evaluation and placed in the personnel file.

While the above options serve the purpose for which they are intended, they are not viable options to incorporate formative feedback given directly to the teacher. Rather, an observation-feedback cycle would be a more feasible, practical solution to helping teachers grow as professionals. Additionally, the observation-feedback cycle is low-cost and sustainable.

Policy Recommendation

In conjunction with the established evaluation system, administrators need to engage in a cyclical observation-feedback process and increase their frequency of classroom observations. The observation-feedback cycle consists of the administrator

informally observing a teacher's instruction for approximately 15minutes, providing feedback shortly thereafter, and then engaging in a discussion with the teacher about what the students did well and what areas could be refined. Together, the teacher and administrator determine measurable actions, and then the teacher practices those actions in the classroom. Then, the cycle begins again (see Figure C.2).
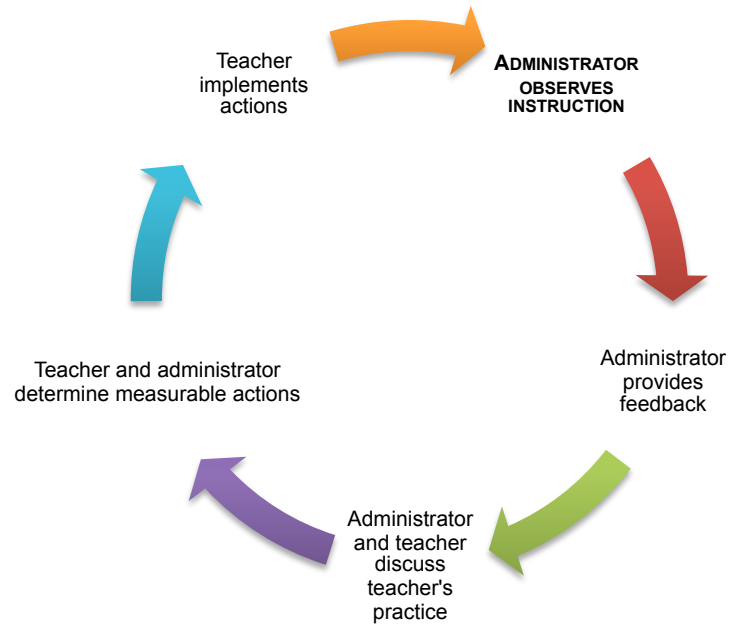

Figure C.2. Observation-Feedback Cycle

The observation-feedback cycle is non-evaluative and provides direct, formative feedback to the teacher. The feedback is timely, it's specific, and it's intended to help teachers grow. Additionally, the observation-feedback cycle prepares teachers to meet or exceed the expected standard on the evaluation system, yet it is not one of the standard evaluation components. Therefore, teachers are receiving ongoing support to help them improve their craft.

The observation-feedback cycle incorporates elements of instructional walk-throughs, instructional rounds, and the current FCPS informal observation process.

The major differences are that the feedback is not tied to evaluation, the feedback is given directly to the teacher, and both the teacher and the instructional leaders are accountable for the measurable actions. It's a win-win for students, teachers, and administrators. As a result of the observation-feedback cycle, instructional leaders increase their time in classrooms and teachers will demonstrate effective instructional practices.

The plan below, consisting of rationales, tasks, and resources, outlines how the school-based instructional leaders can begin the observation-feedback cycle in their buildings.

Determine what constitutes evidence of effective and ineffective teaching practices

Rationale: Administrators and teachers need to agree on effective teaching practices and work together to create clear, concrete, and measureable expectations (Veenman, S., Visser, Y., & Wijkamp, N., 1998). Additionally, teachers must have a clear path to follow in order to deliver rigorous instruction to students.

Tasks:

- Grade level teams identify indicators that are included on the FCPS Teacher Observation Form.
- Grade level teams and administrators list examples of evidence for each indicator, then quantify what constitutes effective and ineffective practices; *Enhancing Professional Practice: A Framework for Teaching* by Charlotte Danielson will be used as a guide.
- Grade level teams and administrators come to consensus on what constitutes evidence of teaching practices that are effective and ineffective.

Resources:

- FCPS Teacher Evaluation Handbook
- FCPS Teacher Observation Form
- *Enhancing Professional Practice: A Framework for Teaching* by Charlotte Danielson

Establish time management strategies for administrators

Rationale: The school building is a busy place! Administrators must identify priorities and structure their time so that each day's "crisis" does not dictate how time is spent. When instruction becomes the priority, administrators find themselves at the closest point to student learning.

Tasks:

- Set a goal for how many instructional observations are to be conducted each month.
- Schedule formal and informal observations at least one month in advance.
- Schedule a time to give feedback following each observation.

Resources:

- *The Big Rocks: Priority Management for Principals* by Kim Marshall
- School calendar and meeting schedule

Provide training for administrators on how to give formative feedback

Rationale: Administrators need to be trained on how to give measurable feedback that is both positive and constructive. By simply stating, "Good job," that does not validate a teacher's practice or give any type of guidance on how to refine his/her skills. Administrators must be able to provide evidence of what the teacher did well and articulate what practices the teacher should implement in order to help students

meet or exceed the grade level academic standard (Ovando, 2005; Range, B.G.,

Scherz, S., Holt, C.R., & Young, S., 2011).

Tasks:

- Identify ways to explicitly praise teachers for effective practices. Identify language and tone to use when providing constructive feedback.

- Review *Feedback that Fits* by Susan Brookhart, and adapt that information to give feedback to teachers.

- View videos of instruction and then role-play the follow-up conversation with another administrator. Practice giving positive feedback and constructive feedback.

- Reflect on teachers' reactions to feedback; identify what went well and what can be incorporated into the next follow-up conversation.

Resources:

- *Feedback that Fits* by Susan Brookhart (Education Leadership article)
- YouTube videos of instruction

Involve teachers in the observation-feedback cycle so that they implement the feedback provided to them by the administrators

Rationale: The observation-feedback cycle needs to be collaborative in order for teachers to implement the suggestions provided by the administrator. In order for teachers to implement the feedback from the administrator, the teachers must have a positive perception of the administrator (Tuytens & Devos, 2011; Wahlstrom & Louis, 2008). The school culture needs to be one that values risk-taking and trust, and is set up for teachers to be successful. A punitive atmosphere will not lead to instructional

change; rather, administrators must celebrate what teachers are doing well and support them to try something new.

Tasks:

- Provide ongoing professional development on "best practices" of instruction that should be evident in every lesson (book studies, trainings, etc.) (Ovando, 2001).

- Video teachers implementing the best practices and share with the staff; this will help all staff members to see that the "best practices" are beneficial for our students.

Resources:

- *Teach Like A Champion: 49 Techniques that Put Students on the Path to College* by Doug Lemov

- *Kagan Cooperative Learning* by Spencer Kagan

- YouTube videos to show the *Teach Like A Champion* techniques and Kagan structures

The effectiveness of the observation-feedback cycle will be assessed with multiple measures, based on the framework developed by the Measures of Effective Teaching (MET) project. For example, students will complete surveys about their learning experience; teachers will complete surveys about the feedback they receive and the changes in instructional practice they make based on that feedback; and lastly, student data will be analyzed throughout the school year to: 1.) determine the number of students meeting and/or exceeding grade level academic standards, and 2.) determine how much growth was made from the fall to the winter to the spring (MET Project, 2012).

Closing and Summary

In sum, teachers need to receive formative feedback and be accountable for measurable actions in the classroom in order to refine their instructional craft and ultimately positively impact student achievement. Current practices in FCPS do not require ongoing feedback to be provided to teachers throughout the school year; additionally, teachers and principals are not held accountable for measurable actions in the classroom. With such robust reforms underway for teacher evaluation, FCPS is obligated to provide teachers ongoing support in order to be successful. Therefore, with appropriate training, the implementation of the observation-feedback cycle will benefit teachers, administrators, and most importantly, students.

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Appendix D

LEADERSHIP RUBRICS AND REFLECTIONS

Introduction

Over the last three years, I have grown tremendously as a leader. I began the

doctoral program at the University of Delaware at the same time that I began as an

elementary school principal at East Lake Elementary School (ELES). A good portion

of my studies in the doctoral program related directly to my work at ELES and also

provided an avenue for me to continuously reflect on my leadership practice.

Following the completion of my coursework, I did an internship at the

Delaware Department of Education (DDOE) under the direction of the Chief Officer

of the Teacher and Leader Effectiveness Unit in which I created a set of principal

evaluation rubrics for the Delaware Performance Appraisal System (DPAS II). The

development of the principal evaluation rubrics contributed greatly to my leadership

growth because I was studying multiple principal evaluation systems that defined

leadership behaviors at various performance levels. My work on the rubrics was in the

summer between year two and year three of being an elementary school principal. At

this point, I had learned a tremendous amount from my doctoral coursework, but I also

finally understood all of the moving parts of being a school principal, specifically in

my own building. It is important to note that ELES is not located in the state of

Delaware, but rather in a neighboring state. The way in which I am evaluated is not

based on DPAS II for Administrators or Delaware Administrative Code 108a; however, there are many similarities between the evaluation system in my school district and DPAS II for Administrators. Therefore, the DPAS II principal evaluation rubric performance descriptors helped to guide my leadership practice in my third year as an elementary school principal. In this paper, I will describe the rubric development process and reflect on my leadership practice based on one rubric criterion from Component 2: Culture of Learning.

Principal Evaluation Rubric Development

The rubrics were developed in three phases; in Phase I, a comparative analysis was conducted and the first set of rubrics were drafted; in Phase II, feedback was solicited from stakeholders on the first drafts and changes were made; in Phase III, I collaborated with representatives from New Leaders for New Schools to make additional changes to the content and format of the rubrics.

In Phase I, a comparative analysis was conducted between DPAS II for Administrators and seven different principal evaluation rubrics. The principal evaluation rubrics were selected because they: contained at least three different ratings for the various performance areas; represented a variety of competencies and were authored by reputable organizations; and, were representative of those selected by many of the states that received federal funds through the Race to the Top grant to improve existing evaluation systems. The comparative analysis focused on the leadership competencies/performance areas, and the way in which each competency

was defined and evaluated. The following documents were reviewed and used to develop the rubrics for DPAS II for Principals:

- *Val-Ed Framework*

- *New Leaders Principal Evaluation Rubric*

- *Reeves' Leadership Performance Matrix*

- *Marzano's School Administrator Rubric*

- *Marshall's Principal Evaluation Rubrics*

- *McRel's Principal Evaluation System*

- *Multidimensional Principal Performance Rubric*.

The first set of rubrics that were developed included performance descriptors and ratings for four components: Component 1 – Vision and Goals; Component 2 – Culture of Learning; Component 3 – Management; Component 4 – Professional Responsibilities. Throughout the drafting process, the components and ratings did not change, however, the performance descriptors had many revisions as a result of feedback from diverse stakeholder groups.

During Phase I, I also extensively studied Delaware Administrative Code 108a to develop my own understanding of the regulation that governed DPAS II for Administrators. I cross-referenced DPAS II for Administrators with the regulation, asked clarifying questions to my internship mentor, and compared the seven principal evaluation rubrics to what was in the regulation. By the end of Phase I, I had a decent understanding of DPAS II for Administrators and Delaware Code 108a that helped me to facilitate the collaborative work that took place in Phase II and Phase III.

In Phase II, the Principal Evaluation Advisory Committee was established to provide feedback on the rubrics. The committee members included staff members and development coaches from the Delaware Academy of School Leadership (DASL) and the president of the Delaware Association of School Administrators (DASA). They provided feedback on the content of the rubrics and the process by which to use the rubrics. Feedback was provided electronically and utilized to guide the work of the next draft of rubrics. The Principal Evaluation Advisory Committee made suggestions to two choices of words, as well as to the format of the rubrics. They suggested that the rubrics be formatted so that the "Ineffective" rating begins on the left and each subsequent rating follows to the right, with "Highly Effective" on the far right of the document. They also provided suggestions for which items needed to be defined, as well as additional items to be included on the list of Observable and Documented Indicators of Quality Professional Practice. One outcome from the Principal Evaluation Advisory Committee meeting was to develop a brief survey that was sent to all principal evaluators in the state of Delaware. The survey focused on capturing data to show the variety of titles that principal evaluators hold throughout the state of Delaware and to gain the level of training on evaluating principals received by principal evaluators. The survey results did not inform the content of the principal evaluation rubrics, but the results did inform future trainings and revisions to the regulation that governs principal evaluation. A total of 17 respondents completed the survey of the 33 who started it. The survey can be found in Attachment 1.

In Phase III, the DDOE entered into a relationship with New Leaders (NL) for technical assistance on the DPAS II for Administrators. It was at this point in the rubric development process that I found myself in the middle of a political triangle between the DDOE, DASL, and NL. I did not have the historical knowledge of any previous relationships among the organizations, nor did I have a full understanding of the vested interest that each organization had in these rubrics. The interplay that existed between the three organizations was deep rooted and complicated. The DASL Director had co-chaired the committee that designed DPAS II for Administrators 13 years prior, and she also had been advocating for the addition of a rubric for the past five years. DASL was comprised of Delaware educators, and was closely aligned with the Delaware Association of School Administrators. NL, on the other hand, was an outside organization with extensive ties to principal evaluation systems across the country, but not in Delaware at the time. Additionally, the Delaware Secretary of Education had worked for NL previously. There was concern from DASL and other interested parties that the pre-existing NL principal evaluation rubrics were going to become Delaware's principal evaluation rubrics. It was during this time period that I was charged with balancing the demands of all three organizations to come up with a product on which each organization would agree. In Phase III, I worked closely with the team from NL to refine the content of the rubrics that I created, and continued to check in with the DDOE and DASL to ensure that all stakeholders were informed of the revisions.

When I received the first round of feedback from NL, I knew that the next three weeks were going to be a bit challenging. The initial feedback from NL was essentially a crosswalk document that bridged the rubrics I created with their own principal evaluation rubrics. NL wanted to rename all of the components on the rubrics and reorganize the content into different sections, based on the existing NL principal evaluation rubrics. However, they had not read or studied DPAS II for Administrators or Delaware Administrative Code 108a that governed the evaluation system. This was problematic because we needed to have a shared understanding of how the rubrics needed to be organized and what content needed to be included. In a conference call, I explained to NL how DPAS II for Administrators and Delaware Administrative Code 108a governed the components and descriptors that were used in the rubrics that I had created, and that we needed to work within the parameters of those two documents. While the DDOE had intentions of revising Delaware Administrative Code 108a to reflect updated leadership practices and expectations, this was not going to happen by the time these rubrics needed to be rolled out for review by district Chief School Officers.

The second round of feedback from NL included significant changes to the wording in three of the four components. The wording was reflective of how the NL principal evaluation rubrics were written; the content of the rubrics stayed intact for the most part because it was aligned to DPAS II for Administrators and Delaware Administrative Code 108a. There were minor changes to the wording in Component 3 – Management. Through conference calls and electronic correspondence, I worked

collaboratively with NL to maintain the integrity of the rubrics based on DPAS II for Administrators and Delaware Administrative Code 108a. Throughout the process of getting feedback on the rubrics and making changes, I was constantly worried as to whether or not the language of the rubrics was going to be agreeable to the diverse stakeholder groups. I didn't always agree with the suggested changes, but the conference calls helped NL and I to come to consensus on what we would each accept. This process was incredibly valuable to me because I had to defend my stance based on the language in DPAS II for Administrators and Delaware Administrative Code 108a. And, I was learning so much from the way in which NL restructured the language to be more clear and concise.

The third round of feedback from NL focused on the Sample Observable and Documented Indicators of Quality Professional Practice for each component. There was a high level of agreement on the items that I had suggested, and NL added more to the list based on how the rubrics had been revised.

Over the course of about three weeks in July 2013, there were three different versions of the rubrics before everyone agreed on the final product that was in existence at the end of my internship. However, this same product continued to be revised after I finished my internship based on feedback from the DPAS II for Administrators Review Committee and the Delaware Association of Elementary and Secondary Principals. This level of review and critique was representative of the political battle that was underway as the rubrics were in the process of being finalized. The revised rubrics were presented to the Delaware school district chiefs at a DDOE

meeting in August 2013. Early adopters of the rubrics signed on to pilot the rubrics during the 2013-2014 school year. The rubrics that are included in Attachment 2 were the final product as of the end of my internship; since that time, Delaware Administrative Code 108A has been changed and the rubrics have undergone additional revisions for statewide use during the 2014-2015 school year. Additional information about the rubric development can be found in my electronic internship portfolio at https://sites.google.com/a/udel.edu/educ-879---c-green-internship-portfolio/rubric---final.

Reflection on Leadership Practice

The rubric development process contributed greatly to strengthening my leadership practice because as I researched performance descriptors and defined them for each component, I reflected on the actions that I was taking as a school leader. I also revisited the rubrics several times throughout my third year as a principal; I informally rated my own practice, and thought about areas in which I was doing well and areas in which I needed to do better. Each criterion of each component is layered with professional responsibilities and encompasses multiple leadership practices. I have chosen to focus my reflection on the criterion, *Monitors the Culture of Learning* from Component 2: Culture of Learning. The effective rating for that criterion states,

> Provides opportunities for staff to develop capacity to monitor and evaluate the effectiveness of the curriculum, instruction, and assessment of students. Conducts frequent observations as part of the evaluation system; provides measurable feedback based on observation and student performance data;

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holds teaches accountable to implement feedback. Uses a transparent process to make decisions, which includes analyzing a variety of sources of information.

Each sub-section below corresponds directly to the three performance descriptors included in the criterion, *Monitors the Culture of Learning.*

Provides opportunities for staff to develop capacity to monitor and evaluate the effectiveness of the curriculum, instruction, and assessment of students. Over the last three years, many opportunities have been provided to staff members to develop capacity in multiple content areas. During the 2012-2013 and 2013-2014 school years, several professional learning opportunities were offered that focused on shifting planning and instructional practices to better align with the changing expectations of the math Common Core State Standards.

During the 2012-3013 school year, math professional development focused on developing an awareness of the standards of mathematical practice and the individual grade level Common Core State Standards. Teachers received the text, *Teaching Student-Centered Mathematics*, as their primary resource for math instruction and were told to use it as a resource. However, many teachers did not even open the book by the month of December. The leadership team determined that in order for teachers to utilize *Teaching Student-Centered Mathematics*, they needed structured time to read and discuss the contents of an excerpt from the first chapter. The intent was to introduce them to teaching mathematics in a way that led to a deep conceptual understanding of mathematical concepts rather than relying solely on traditional

teaching methods. The professional development session began with one hour set aside for teachers to read Chapter 1 of *Teaching Student-Centered Mathematics* independently and respond to the guiding questions that were provided two days in advance. Teachers engaged in a structured discussion during the second part of the professional development session to develop a shared understanding of the constructivist approach to teaching mathematics.

In January and February of 2014, teachers engaged in a three-part professional learning series called "Implementation Shifts" that was based on the three main shifts in math instruction as a result of the math Common Core State Standards. The purpose of this professional learning series was to: increase teachers' knowledge of the shifts in math instruction and the expectations of the Partnership for Assessment of Readiness for College and Careers (PARCC) assessment; provide support in the development of assessment criteria and formative assessments to measure students' progress on target standards; and, to analyze student performance on the target standards. In the first professional learning experience, teachers learned about the shifts in math instruction and analyzed sample math Partnership for Assessment of Readiness for College and Careers (PARCC) test items. In the second professional learning experience, teachers reviewed the three main shifts, and created a math formative assessment that emulated the sample PARCC items in format and conceptual understanding. Between the second and third professional learning experience, the teachers administered the assessment and scored it. In the third professional learning experience, teachers analyzed the formative assessment data.

During the second semester of the 2013-2014 school year, teachers worked collaboratively during two professional learning sessions to create a walk-through instrument focused on student behaviors during mathematics. The impetus behind the walk-through instrument was two-fold: to develop a structure for teachers to visit other classrooms during math instruction; and, to shift math planning and instructional practice to better align with the changing expectations called for from the math Common Core State Standards (CCSS).   In the first session, teachers identified possible student learning behaviors during math instruction, came to consensus on walk-through norms, and developed the first walk-through instrument. Prior to the second session, each teacher utilized the walk-through instrument while observing math instruction in another classroom. In the second session, teachers reviewed the walk-through data collected from the first round of observations, identified student actions during math instruction, and revised the instrument based on their experience using it. Teachers then utilized the walk-through instrument one more time while observing in a different classroom.

Each of the professional learning activities above helped to strengthen my leadership practice in several different ways. In the first couple of years as a school principal, I was often the one to facilitate professional learning activities. In hindsight, I realize that I wanted to facilitate sessions for my own selfish reasons: to develop my content area knowledge through the planning process; to convey a sense of importance for the material; and, to be viewed as knowledgeable in the area of instruction. Over the course of three years, my own confidence as a leader has increased and I feel less

inclined to be the "sage on the stage" during professional learning activities. I now prefer to be the "guide on the side" and have others take an active role in facilitating the professional learning activities for staff. I have learned that the content is better received when all teachers are invited to take part in the planning process, when teachers actively participate in the planning process, and when they actually facilitate part or all of the professional learning activity. Together with my staff, we have built a community that values the contributions of all staff members, not just those who are in some type of leadership role.

In the last three years, I have learned to be an active listener and to respond with questions rather than answers. The teachers with whom I work have a great deal of knowledge, expertise, and experience to share with others. By asking open-ended questions in lieu of providing answers, I have been able to capitalize on teachers' knowledge. This has increased the networks in the building and teachers now have identified multiple colleagues as resources.

In the area of developing capacity of staff, there are still areas in which I need to grow. Several professional learning activities have been focused on increasing teachers' math content area knowledge and developing assessments based on the math Common Core State Standards. As a learner myself, I see the connection between assessment and instruction explicitly; however, the creation of clear assessment criteria has not lead to consistent changes in instructional actions in the classroom. I need to provide opportunities for teachers to discuss changes in instructional actions with one another and provide time for structured planning to incorporate those

instructional actions into daily practice. I need to increase my time in the classrooms for both formal and informal observations, and see those instructional actions carried out with students, not just listed in planning documents. I need to be intentional about asking questions related specifically to instructional actions rather than assuming that others have made the connection between assessment and instruction independently. Those questions might include, "What instructional actions contributed to the students' success? What instructional actions prevented students from being successful?"

I also feel that I need to develop teachers' capacity to fully analyze student performance data and use that data efficiently to plan future instruction. In order to maximize time during professional learning activities, I have often been the one to analyze the student performance data for teachers. I have viewed this as a helpful activity so that they can then use the analysis to plan instruction. However, there is great value in one analyzing his/her own student performance data and identifying trends, gaps, and successes; this level of engagement with the data helps to build ownership for changes that need to be made to future instruction. I need to provide opportunities for staff to learn how to analyze student performance data efficiently and also provide time for them to engage in data analysis as part of the instructional planning process.

Conducts frequent observations as part of the evaluation system; provides measurable feedback based on observation and student performance data; holds teaches accountable to implement feedback. Throughout my third year as an elementary school principal, I conducted 88 formal observations of teachers. Of the 88 observations, 33 were in the area of mathematics; 23 of the 33 math observations were of non-tenured teachers. After every observation, I met with the teacher to discuss the observation ratings and to provide both positive and constructive feedback.

I had two post-observation conference experiences that occurred on the same day that informed the way in which I prepared ahead of time to give feedback to teachers. In the first post-observation conference, we discussed the areas of strength of the lesson and also where a specific break down had occurred based on the observation ratings. The teacher identified the breakdown before I brought it up, so her reflection guided the discussion; we rehearsed future instructional actions so that the teacher felt comfortable implementing the feedback that I had provided. For this post conference, I had clear notes on what the teacher did well and in what areas she needed to improve. I provided clear examples of what she needed to do differently; the feedback was concrete and measurable.

In the second post-observation conference, the teacher did not agree with the ratings of the observation and it was contentious nearly from the start. The teacher had struggled to identify clear assessment criteria in her plans and had little evidence of monitoring student learning during the lesson. In preparation for this conference, I had made notes on the plans to guide the way in which I gave feedback, but I didn't

specifically outline the areas of strength and the areas of improvement. In this case, the teacher didn't think there was a problem with the plans even though I clearly delineated where further development was needed.

Upon reflecting on these two post-observation conferences and trying to figure out why one went well and the other didn't, I determined that I need to engage in specific actions before sitting down with the teacher. First, I need to deconstruct the math standard on my own and then reflect on my observation notes based on the expectations of the standard. Second, I need to clearly identify the areas of strength and areas in need of improvement based on evidence from my observation notes. For areas that are in need of further development, I need to provide clear examples of what needs to change and have resources readily available for discussion. Lastly, I need to prepare discussion questions ahead of time to help the teacher build his/her understanding of the expectation. Preparation is a key factor of being able to provide measurable feedback, and to also hold teachers accountable to implement the feedback in a timely manner.

During my third year, I also had three teachers on a Professional Improvement Plan (PIP) in the area of mathematics. Two teachers were non-tenured, one of whom was in his first year of teaching fifth grade and one of whom was in her second year of teaching, but her first year of teaching kindergarten. One teacher was in her seventh year of teaching, but her first year of teaching second grade. The PIPs were developed collaboratively with the individual teachers, based on the areas of need identified in

their formal observations. Each teacher had goals for improvement in the areas of Planning and Preparation and Instructional Strategies.

All of the teachers had one activity in common, which was for them to submit their lesson plans to me for review. The teachers would submit three to five days worth of math lesson plans to me, and I would review the lessons for alignment between outcomes, activities, and assessments, as well as the level to which they were cognitively engaging students in the target standard. In order to provide concrete, measurable feedback, I had to study the target standards before I reviewed the plans. This increased my math content area knowledge in their respective grade levels and also increased my knowledge of math resources to plan lessons. I provided written feedback to the teachers on their plans and sent it to them electronically. The feedback noted how the outcomes, activities, and/or assessments were (or were not) aligned. I provided suggestions for varied activities, more specific assessments, an/or the use of specific resources. With these three teachers, I was better able to hold them accountable to implement the feedback because I was in their classrooms frequently. When I observed that they had implemented specific feedback, I was sure to highlight that either during a discussion or in writing. For two of the three teachers, they made significant improvements in a short period of time and completed their PIP activities. One of the three teachers elected not to implement any of the feedback consistently or engage in the PIP activities; further disciplinary action was taken.

The biggest challenge that I have faced with providing measurable feedback to teachers is the amount of time it takes to study the math standards, analyze

corresponding lesson plans, and identify potential resources. When I was in the process of managing the PIPs, it would take 6-10 hours throughout the week to thoroughly review each teacher's plans and provide specific feedback. I believe that measurable feedback has the potential to positively impact a teacher's professional practice, and I also believe that it is one of my greatest responsibilities to help teachers to grow professionally. As I have become more proficient in the math standards, the amount of time it takes to prepare feedback has decreased, however, it is still an arduous task to provide concrete, content-based specific feedback to teachers and do it well.

Uses a transparent process to make decisions, which includes analyzing a variety of sources of information. Towards the end of my first year as an elementary school principal at ELES, there were several decisions that needed to be made in order to prepare for the upcoming school year. I did not know the staff well enough to determine on my own who might be interested in serving on various committees to refine the instructional initiatives, plan the budget, improve the school-wide positive behavior system, etc. In order to use a transparent process to make decisions, I developed "Design Teams" for each area that needed to be refined or changed. The purpose of the Design Teams was to engage staff members in a shared decision-making process. There were no exclusive invitations to Design Teams. All staff members were encouraged to participate and their participation was completely optional.

I began by sharing the structure and purpose of Design Teams at a faculty meeting. I wanted staff to have a forum to give input and to help shape the direction of the school overall. In the first introduction of Design Teams, I made it clear that the Design Teams were the forum to be a part of the planning process. If staff members chose not to participate, they were choosing not to give input; therefore, they couldn't complain about the decisions that the Design Team made. Design Team meetings were scheduled during the duty day so that all staff members could participate. The purpose and meeting time of each Design Team was advertised a few weeks in advance of the meeting, and teachers signed up for as many Design Teams as they wanted to. After each Design Team meeting, the notes were posted on the school's internal website, and all teachers, even those who did not attend the meeting, could continue to provide input by commenting directly on the website.

In my first year, there were five Design Teams that met over the course of several weeks: Instructional Initiatives, PBIS (Positive Behavioral Intervention and Supports), Title I Budget, Professional Development, and School Culture. The Instructional Initiatives Design Team was well attended and heated. The teachers felt that there were too many instructional initiatives from the county and the school, and they were overwhelmed. In order to figure out which initiatives would be kept, which would be kept with changes, or which would be discarded, I had each teacher write every single instructional initiative on a paper plate. We covered a large section of the media center with all of the instructional initiatives that they felt were "on their plate," and then as a team, we categorized them into three columns: keep; keep with changes;

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and discard. Through discussion, the team came to consensus on the placement of each initiative. Slowly, the team determined which initiatives could be discarded and those were taken "off of their plate." During this activity, I could literally see the teachers' anxiety diminishing and we were ready to get down to business to figure out which instructional initiatives needed to be changed and which would be kept as is. The decisions from the Instructional Initiatives Design team informed the Title I Budget and Professional Development Design Teams.

The Design Teams were an integral part of my leadership development in my first year as a school principal, and they set the foundation for the way in which decisions have been made at ELES since. From a leadership perspective, the Design Team meetings have given me yet another way to engage with staff and build relationships with them. I have learned about staff members' families, talents, and interests. I have found "untapped" resources that came alive during Design Team meetings. For example, the hidden artistic talent of one second grade teacher was brought to light and she then created all of the PBIS posters that are now in the school. Teachers, who I did not originally view as "leaders," stepped up and became active members of the school community. Design Teams opened my eyes to the talents and strengths of those with whom I worked every day. Most importantly, Design Teams provided an inclusive, transparent process to make decisions.

In my first two years as a principal at ELES, Design Teams meetings were held in the spring to plan for the upcoming school year and anecdotal data was used as the primary source of information to make decisions. The use of anecdotal data helped

teachers to feel that their input was important and valued. Anecdotal data was only one source, however, and it limited our perspective by which to make decisions. In my third year as a principal, I began to hold Design Team meetings *throughout* the school year so that we could reflect on our actions along the way and make changes in response to what was needed based on multiple sources of current data. In addition to anecdotal data, teacher surveys and student performance data were all used to inform decisions. I designed and conducted surveys, and analyzed the survey data to focus the work of the Design Teams. The survey data quantified the sentiments of the staff to better inform the decisions that were made. Current student performance data that measured student progress during one marking period were much more informative than end of the year data to make necessary changes to how human and fiscal resources were allocated and how professional development topics were identified and scheduled.

At ELES, the Design Team structure works. In order for the Design Team structure to be a continued, sustainable practice at ELES whether I am there or not, staff members need to be given the opportunity to take on active leadership roles within the Design Teams. For example, Design Team members can develop the surveys, identify the student performance data that would be most useful, and analyze the data as a team. As noted previously, these are all things that I typically do in order to save time. I need to allot time for the Design Team to engage in these activities as part of the Design Team structure. I will also need to provide training on how to write survey items, use an online survey system, and manipulate the survey data

electronically. I will need to make sure that the Design Team members have access in the data warehouse system to analyze school-wide data, not only their class-level data, and I will need to guide the Design Team members in analyzing the student performance with a specific purpose in mind. Including staff members in leadership roles within the Design Team structure increases capacity, ownership, and commitment to the school overall.

Conclusion

In conclusion, the principal evaluation rubric development process and principal evaluation rubrics have helped me to develop and strengthen my leadership practices. During the rubric development process, I engaged with and learned from individuals from diverse organizations that I wouldn't have otherwise; I increased my professional networks beyond my current school district and state. I learned firsthand about the change process from a statewide perspective. Lastly, the principal evaluation rubrics have provided an avenue for me to reflect on my professional practice and make changes to my leadership practices to be a better principal.

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Attachment 1: Survey Questions – Who's Evaluating Principals?

1. What is your role in the school district?
    - ☐ Superintendent
    - ☐ Assistant Superintendent
    - ☐ Director
    - ☐ Supervisor

2. What positions have you held in your career? (Check all that apply)
    - ☐ Teacher
    - ☐ Guidance Counselor
    - ☐ Instructional Coach
    - ☐ Assistant Principal
    - ☐ Principal
    - ☐ Manager
    - ☐ Supervisor
    - ☐ Director
    - ☐ Assistant Superintendent
    - ☐ Superintendent
    - ☐ Other: _____ (please describe)

3. Have you received training on how to implement the Delaware Performance Appraisal System (DPAS II) for Administrators?
    - ☐ Yes
    - ☐ No

    If you answered yes, when?
    - ☐ Within the last year
    - ☐ 1 – 2 years ago
    - ☐ 3 or more years ago

4. Have you received training on how to evaluate <u>principals</u> in your district?
    - ☐ Yes
    - ☐ No

    If you answered yes, when?
    - ☐ Within the last year
    - ☐ 1 – 2 years ago
    - ☐ 3 or more years ago

5. Do you evaluate principals as prescribed by the DPAS II Guide for Administrators (Updated 2012)?
    - ☐ Yes
    - ☐ No

    If you answered "no," how have you modified the principal evaluation procedures? (Open comment box)

6. Do you consistently use the DPAS II Forms for Administrators as part of principal evaluation?
   ☐ Yes
   ☐ No
   If you answered "no," what type of forms do you use?
   (Open comment box)

7. How do you give specific, individualized feedback to the principals you evaluate?
   ☐ In person
   ☐ In writing
   ☐ In person and in writing

8. On average, how often do you give specific, individualized feedback to the principals you evaluate?
   ☐ Weekly
   ☐ Monthly
   ☐ Quarterly
   ☐ Three times a year
   ☐ Twice a year
   ☐ Once a year
   ☐ Once every other year

9. On average, how frequently do you visit the school of the principals you evaluate?
   ☐ Weekly
   ☐ Monthly
   ☐ Quarterly
   ☐ Three times a year
   ☐ Twice a year
   ☐ Once a year

10. What are you looking for when you visit the school building?
    (Open comment box)

11. What types of evidence do you require principals to submit as part of their evaluation?
    (Open comment box)

12. How do you think the DPAS II for Administrators should be changed?
    (Open comment box)

Attachment 2: DPAS II for Principals – RUBRICS

Overview of Rubric Development

      A comparative analysis was conducted between DPAS II for Administrators and seven different principal evaluation rubrics. The principal evaluation rubrics were selected because they contained at least three different ratings for the various performance areas; additionally, the rubrics represented a variety of competencies and were authored by reputable organizations. The comparative analysis focused on the leadership competencies/performance areas, and the way in which each competency was defined and evaluated. The following documents were reviewed and used to develop the rubrics for DPAS II for Principals:

- *Val-Ed Framework*
- *New Leaders Principal Evaluation Rubric*
- *Reeves' Leadership Performance Matrix*
- *Marzano's School Administrator Rubric*
- *Marshall's Principal Evaluation Rubrics*
- *McRel's Principal Evaluation System*
- *Multidimensional Principal Performance Rubric*.

Measuring* Highly Effective *and* Effective *Performance Ratings

      In order to measure the leadership behaviors needed for the *highly effective* and *effective* performance ratings, sample observable and documented indicators of quality professional practice are provided for each component. These indicators are not exhaustive but rather serve as a guide for the principal and the principal evaluator. The following documents were reviewed and used to develop the observable and documented indicators of quality professional practice:

- DPAS II Guide Revised for Administrators, Delaware Department of Education
- *Measuring Principal Performance – Leadership Rubric*, Minnesota Department of Education
- *New Leaders Principal Evaluation Rubric*

COMPONENT 1: VISION AND GOALS

4 Highly Effective	3 Effective	2 Needs Improvement	1 Ineffective
Using Data: Administrator, in collaboration with others such as the school or district improvement team or board, uses multiple sources of information and assists in analyzing data to establish rigorous and concrete school or district improvement goals in the context of student achievement and instructional programs.			
Builds the capacity of staff to collaboratively analyze both quantitative and qualitative data such as state, district, school, and classroom assessments to diagnose the current state of the school, inform decision-making processes and develop rigorous and concrete student achievement-oriented school improvement goals.	Engages the school improvement team in the analysis of quantitative and qualitative data such as state, district, school, and classroom assessments to diagnose the current state of the school, inform decision-making processes and develop rigorous and concrete student achievement-oriented school improvement goals.	Reviews summative data to develop student achievement-oriented school improvement goals that are rigorous for some groups of students.	Reviews annual student achievement results and develops student achievement-oriented school improvement goals that are vague and lack rigor.
Implementing Vision and Goals: Administrator provides leadership for major initiatives and change efforts relative to the school or district improvement goals. Administrator is committed to doing the work required for continuous school and district improvement.			
Engages all staff in developing and implementing a detailed strategic plan with weekly and monthly milestones and strategies to meet the student achievement-oriented school improvement goals; proactively leads and supports staff through the change process by creating opportunities for them to express both supportive and contrary opinions/perceptions; relentlessly maintains the focus of all actions and conversations on improving student achievement..	Develops and implements a strategic plan with weekly and monthly milestones and strategies to achieve student achievement-oriented school improvement goals; supports staff through change by encouraging questions and dialogue on a regular basis; maintains the focus of all actions and conversations on improving student achievement.	Drafts a strategic plan that identifies monthly milestones and some strategies for achieving school improvement goals; provides minimal time or support for staff to process or adapt to change; maintains personal belief in the potential for improving student achievement.	Rarely shares strategies to achieve school improvement goals; provides minimal support to staff through the change process; easily loses focus on improving student achievement.
Promoting Vision and Goals: Administrator promotes high expectations for teaching and learning. Administrator is committed to ensuring that all students have the knowledge and skills necessary to become successful in future educational activities.			
Engages diverse stakeholders in collaboratively developing a district-aligned vision for high student achievement and college readiness for all students and effective teaching practices for all staff; builds the capacity of staff to deliver high-quality learning experiences aligned to Common Core standards and student achievement-oriented school improvement goals.	Develops a district-aligned vision for high student achievement and college readiness for all students and effective teaching for all staff; works with the leadership team to implement effective learning experiences aligned to state standards and student achievement-oriented school improvement goals.	Creates a vision for high student achievement; identifies learning experiences that may align to state standards and/or school improvement goals.	Adopts a vision with minimal focus on student achievement for all students; implements learning experiences without considering alignment with state standards or school improvement goals.
Communicating the Vision and Goals: Administrator communicates effectively to appropriate stakeholders about progress towards meeting the school or district improvement plan goals. Administrator participates in a process to regularly monitor, evaluate and revise school or district improvement goals.			
Implements effective two-way communication structures with stakeholders to share progress towards meeting student achievement-oriented school improvement goals; builds the capacity of staff to analyze disaggregated formative and summative data to monitor, evaluate, and review progress, systematically adjusts strategies as needed to achieve the goals.	Conducts and supports two-way communication with stakeholders to share progress towards meeting student achievement-oriented school improvement goals; develops and implements systems to analyze disaggregated formative and summative data to monitor progress and implement revised strategies as supported by the data.	Shares limited and/or incomplete information about progress towards meeting school improvement goals with stakeholders; periodically reviews data but shows limited ability to adjust and/or revise strategies to achieve the goals.	Shares inaccurate and/or incomplete information about progress towards meeting school improvement goals; monitors annual student achievement data but does not relate it to progress toward student achievement goals or use it to inform adjustments to strategies.

Sample Observable and Documented Indicators of Quality Professional Practice for
VISION AND GOALS

O = Observable

☐ = Documented

Using Data
- **O** Facilitation of school improvement team meetings with multiple stakeholder groups
- ☐ Concrete analysis of disaggregated student performance data by grade, subgroup, teacher, cohort, etc.
- ☐ Student achievement-oriented school improvement goals linked to data analysis
- ☐ Process for decision-making based on data

Implementing Vision and Goals
- **O** Presentations at meetings, forums, trainings, etc. that highlight open dialogue
- **O** Use of vision statement in messaging (verbally and in writing) student achievement-oriented school improvement goals
- **O** Personal interaction with staff, students, parents, and community members to communicate the school vision and goals
- **O** Supports for staff through the change process
- ☐ Strategic Plan aligns with school vision and goals
- ☐ Environmental use of the vision statement and goals

Promoting Vision and Goals
- **O** Vision focuses on high expectations for student academic achievement for all students
- ☐ Written expectations for teaching and learning aligned to state standards and student achievement-oriented school improvement goals

Communicating the Vision and Goals
- **O** Presentation to stakeholders focused on the vision and goals of the school
- **O** Facilitation of collaborative processes to analyze multiple sources of data
- ☐ Written forms of correspondence are differentiated based on the audience

COMPONENT 2: CULTURE OF LEARNING

4 Highly Effective	3 Effective	2 Needs Improvement	1 Ineffective
ADVOCATING A CULTURE OF LEARNING: Administrator provides leadership for assessing, developing and improving the school or district culture and instructional program that is conducive to student learning. Administrator can articulate the desired school or district instructional program and shows evidence about how he or she reinforces the instructional program and culture.			
Develops a culture focused on student learning by adapting and implementing rigorous curriculum aligned to Common Core and state and national standards; builds the capacity of staff to effectively implement rigorous instructional strategies and pedagogical methods that meet student needs and drive student learning.	Supports a culture focused on student learning by implementing rigorous curriculum aligned to Common Core and state and national standards; supports staff in implementing rigorous instructional strategies and pedagogical methods that meet student needs and drive student learning.	Attempts to foster a culture focused on student learning by developing and supporting the implementation of standards-based curriculum; provides inconsistent support in the use of instructional strategies or pedagogical methods that support student learning.	Supports a culture that lacks a focus student learning by utilizing a curriculum that is not standards-based; rarely ensures staff implement instructional strategies that support student learning
MONITORING THE CULTURE OF LEARNING: Administrator participates in monitoring and evaluating the effectiveness of the curriculum, instruction or assessment of students. Administrator evaluates staff and provides on-going coaching for improvement. Administrator uses a variety of sources of information to make decisions.			
Implements and monitors a rigorous, consistent evaluation system aligned to district requirements; builds the capacity of the leadership team to collect evidence of teacher practice; conducts frequent formal and informal observations to provide continuous, individualized feedback based on evidence from observations and student performance data; monitors teachers to ensure they implement feedback; uses multiple sources of evidence of teacher practice and student outcomes to make decisions about teacher effectiveness and instructional improvement.	Implements a consistent evaluation system aligned to district requirements; conducts frequent formal and informal observations to collect evidence of teacher practice; provides frequent, individualized actionable feedback based on evidence from observation and student performance data; ensures teachers implement feedback into their practice; uses evidence of teacher practice and student outcomes to make decisions about teacher effectiveness and instructional improvement.	Oversees an evaluation systems aligned to district requirements; designs a classroom observation approach to collect evidence of teacher practice with inconsistent implementation; provides global feedback based on either observational or student performance data; attempts to hold teachers accountable for implementing feedback into their practice; uses some evidence of teacher practice and student outcomes to make decisions about teacher effectiveness and instructional improvement.	Completes some required evaluation documentation based on limited evidence; conducts teacher observations as part of the evaluation system or when requested by a teacher; provides limited, confusing feedback to teachers based on limited data; does not hold teachers accountable for implementing feedback; rarely incorporates student outcomes or evidence of teacher practice when making decisions about teacher effectiveness and instructional improvement.
SUSTAINING THE CULTURE OF LEARNING: Administrator helps to ensure that staff have professional development opportunities that enhance their performance and improve student learning. Administrator is accessible and approachable by staff, families, and community and is visible in the school or district community. Administrator supports the use of technology as appropriate in teaching and learning.			
Develops and implements a system for tailored professional learning opportunities for staff to enhance their performance and improve student learning based on the most current, relevant learning theories and practices; supports effective staff in leading professional development opportunities for other staff. Is accessible, approachable, and active in the school community. Identifies and integrates relevant technology into the teaching and learning program to meet student learning needs.	Provides professional learning opportunities based on staff needs to enhance their performance and improve student learning; identifies effective teachers, provides them with leadership opportunities and supports their leadership development. Is accessible, approachable, and active in the school community. Supports the use of technology that meets student learning needs.	Facilitates undifferentiated, group-based professional learning opportunities for staff to enhance their performance and improve student learning; provides leadership opportunities for teachers who express interest and attempts to support their development in leading others. Inconsistently interacts with staff, families, and the community; is inconsistently accessible, approachable, and active in the school community. Identifies technology to meet some student learning needs.	Provides minimal opportunities for staff to enhance their performance and improve student learning; rarely provides leadership opportunities. Rarely interacts with staff, families, and the community; rarely is accessible, approachable, and active in the school community. Supports the use of technology that distracts from teaching and learning.
MAINTAINING THE CULTURE OF LEARNING: Administrator systematically and fairly recognizes accomplishments of staff and students towards a positive school or district culture. Administrator uses and analyzes data to instill the importance of continually developing programs and strategies to enhance opportunities for learning.			
Builds the capacity of staff to systematically and fairly recognize the accomplishments of colleagues and students. Creates and implements systems for consistent monitoring and frequent collection of quantitative and qualitative data to identify student outcome trends and drive continuous improvement; engages all staff in analyzing disaggregated student-specific data to determine appropriate differentiations and interventions based on individual students' learning needs	Systematically and fairly recognizes the accomplishments of colleagues and students. Consistently monitors data to drive continuous improvement; focuses the school improvement team on analyzing disaggregated student-specific data to determine appropriate differentiations and interventions.	Recognizes the accomplishments of some colleagues and students. Inconsistently collects data from limited sources to draw conclusions about instruction; inconsistently determines appropriate differentiations and interventions based on some students' learning needs.	Rarely recognizes the accomplishments of colleagues and students. Does not collect data to draw conclusions about instruction; rarely attempts to ensure that instruction is differentiated based on student need or that students receive appropriate intervention.

Sample Observable and Documented Indicators of Professional Practice for CULTURE OF LEARNING

O = Observable

□ = Documented

Advocating a Culture of Learning
- O Instructional strategies engage students in cognitively challenging work that is aligned to Common Core
- O Teachers use a broad range of pedagogical approaches
- O Facilitation and/or co-facilitation of professional learning activities focused on monitoring/evaluating the effectiveness of curriculum, instruction, and assessment
- □ Curricular materials align to Common Core
- □ Administrative or school climate survey results and action plan to: 1.) continue and fine-tune effective practices; and/or, 2.) improve areas of concern

Monitoring the Culture of Learning
- O Facilitation of the formal observation process (pre-conference, observation, post-conference including feedback) for every teacher
- □ Record of feedback and accountability systems for implementing feedback
- □ Teacher lesson plans that show evidence of professional learning activities
- □ Accountability procedures for teaching and learning are clearly communicated to staff
- □ Student work samples and classroom observation data are used to make decisions about teacher effectiveness

Sustaining the Culture of Learning
- O Facilitation and/or co-facilitation of professional learning activities aligned to teacher needs
- O Active, regular involvement in PLC meetings, community meetings, faculty meetings, etc. to support teacher professional learning
- □ Yearly calendar of opportunities for staff to develop capacity
- □ Alignment of technological resources to support student achievement-oriented school improvement goals

Maintaining the Culture of Learning
- O Recognizes the accomplishments of students and staff in PLC meetings, community meetings, faculty meetings, etc.
- O Active participation in collaborative community meetings to review student work and plan for instructional interventions
- □ School climate survey results and action plan to: 1.) continue and fine-tune effective practices; and/or, 2.) improve areas of concern

COMPONENT 3: MANAGEMENT

4 Highly Effective	3 Effective	2 Needs Improvement	1 Ineffective
SOLVING PROBLEMS OR CONCERNS: Administrator addresses and resolves issues as they arise in a timely manner and works to prevent potential problems. Operational procedures are designed and managed to maximize opportunities for learning for all students.			
Builds the capacity of staff to proactively problem-solve to address challenges; quickly and decisively resolves issues as they arise; Publicly models the belief that every student has the potential to achieve at high levels; creates and implements equitable systems and procedures to ensure all students have access to high-quality learning opportunities.	Leads staff in problem-solving processes to address challenges; quickly resolves issues as they arise; Builds expectations for students, staff and parents that success is possible for all students; implements equitable systems to ensure all students have access to high-quality learning opportunities.	Attempts to problem solve, but struggles when faced with challenges; resolves issues as they arise; States belief that all students can achieve at high levels; provides most students with access to high-quality learning opportunities.	Easily loses focus on improving student learning and reacts with visible frustration when faced with challenges; rarely resolves issues in a timely manner; Inconsistently demonstrates confidence in the potential of all students to achieve at high levels; rarely addresses situations where students or groups of students are systematically excluded from accessing high-quality learning opportunities.
MANAGING RESOURCES: Administrator manages fiscal and physical resources responsibly, efficiently and effectively. Administrator protects instructional time by managing operational procedures in such a way as to maximize learning. Administrator efficiently manages his or her time so that teaching and learning are a high priority.			
Creatively leverages and maximizes fiscal and physical resources responsibly, efficiently, and effectively; actively accesses additional resources that align with student achievement-oriented school improvement goals. Creates and implements schedules and routines to maximize instructional time; plans own schedule for the year, month, week, and day to prioritize instructional leadership activities focused on teaching and learning.	Allocates fiscal and physical resources responsibly, efficiently, and effectively in alignment with student achievement-oriented school improvement goals; seeks additional resources to fill gaps. Implements schedules and routines to maximize instructional time; plans and prioritizes own schedule to prioritize instructional leadership activities focused on teaching and learning.	Distributes fiscal and physical resources based on student achievement-oriented school improvement goals; seeks information about additional resources. Develops some routines to maximize instructional time; plans own schedule to address instructional leadership activities but is inconsistent on how time is spent.	Allocates fiscal and physical resources to initiatives that do not align to school goals. Allows distractions to interfere with instructional time; rarely plans and prioritizes own time and neglects to protect time for instructional leadership activities.
COMPLYING WITH POLICIES: Administrator complies with federal, state, and board policies. School or district contractual agreements are effectively managed. Administrator maintains confidentiality and privacy of school or district records, including student or staff information.			
Collaborates with district office to create and implement systems to ensure all school operations comply with federal, state, and board policies; fulfills all reporting requirements in a timely manner. Builds staff capacity to effectively manage their own contractual agreements and manages all school contractual agreements effectively. Ensures all staff maintain the highest level of confidentiality and privacy of school and/or district records, including student and staff information.	Ensures all school operations comply with federal, state, and board policies; fulfills reporting requirements in a timely manner. Provides opportunities for staff to manage their own contractual agreements; manages school contractual agreements effectively. Maintains confidentiality and privacy of school and/or district records, including student and staff information.	Attempts to align school operations with federal, state, and board policies; fulfills most reporting requirements. Inconsistently manages contractual agreements. Maintains confidentiality and privacy of most school and/or district records, including most student and staff information.	Oversees school operations that do not comply with federal, state, and board policies; rarely fulfills reporting requirements. Rarely manages contractual agreements effectively. Occasionally breaches confidentiality or releases private school and/or district records unnecessarily.
PROTECTING THE WELFARE AND SAFETY OF STUDENTS AND STAFF: Administrator works to ensure a safe and secure school or district environment and a culture that is conducive to teaching and learning. Challenges that could potentially interrupt teaching and learning are addressed and resolved.			
Builds the capacity of staff and students to create a positive school culture by clearly articulating and implementing a school-wide behavior plan including systems to ensure consistent and fair implementation; tracks student discipline data and ensures equitable application of consequences. Builds the capacity of staff to support and enhance students' emotional and social development. Continually assesses and refines school procedures to ensure a safe and secure learning environment.	Leads the school improvement team in creating a positive school culture through the development and implementation of a clear, school-wide behavior plan; supports staffs' consistent and fair implementation of positive and negative consequences; tracks student discipline data. Supports students' emotional and social development. Reviews and refines school safety procedures to ensure a safe and secure learning environment.	Develops a school-wide behavior plan and supports staff in implementing it; attempts to fairly apply positive and negative consequences; periodically reviews discipline data. Provides some supports for students' emotional and social development. Manages a safe learning environment.	Inconsistently implements a school-wide behavior plan and positive and negative consequences; tolerates discipline violations. Minimally supports students' emotional and social development. Rarely reviews school safety procedures; fails to make changes to procedures to ensure a safe learning environment.

Sample Observable and Documented Indicators of Professional Practice for MANAGEMENT

O = Observable

☐ = Documented

Solving Problems or Concerns
- O Interaction with staff to proactively solve problems
- O Seeks input from staff to resolve issues
- ☐ All students have access to rigorous course content
- ☐ Student achievement expectations reflect the belief that all students can achieve at high levels

Managing Resources
- O Ongoing budget meetings seek input from stakeholders and to share updates
- O Partnerships with community businesses to supplement resources
- O Alignment of resources (human & fiscal) to support student achievement-oriented school improvement goals
- ☐ Budgets reflect resource allocations in alignment with student achievement-oriented school improvement goals
- ☐ School expenditure reports reflect use of resources in alignment with the vision and strategic plan
- ☐ Personal schedule prioritizes teaching and learning

Complying with Policies
- O Facilitation and/or co-facilitation of professional learning activities focused on board policies and contractual agreements
- ☐ Clear procedures are in place for maintaining confidentiality of information

Protecting the Welfare and Safety of Students and Staff
- O Facilitation and/or co-facilitation of school improvement team meeting focused on school-wide behavior plan
- O Expectations for student and staff conduct are known and understood by all
- O Positive and negative consequences for behavior are implemented consistently
- O Interactions with students are supportive of their social and emotional development
- ☐ Student discipline data is continuously monitored
- ☐ School safety plan strategies and activities are understood by all teachers and students

COMPONENT 4: PROFESSIONAL RESPONSIBILITIES

4 Highly Effective	3 Effective	2 Needs Improvement	1 Ineffective
MAINTAINING PROFESSIONAL RELATIONSHIPS: Administrator fosters and maintains positive professional relationships with staff. Administrator is respectful of other's opinions and demonstrates an appreciation for and sensitivity to diversity in the school or district community.			
Builds and maintains positive, trusting professional relationships with adults and students; builds the school's collective capacity to engage in courageous conversations about diversity and culture as well as how they may impact student learning; leads staff through a process to understand how their personal experiences shape their interpretations of the world and leads them through a process to identify student's strengths and assets; corrects intolerant statements directed at members of the school community.	Builds positive professional relationships with adults and students; initiates courageous conversations about diversity and culture as well as about how they may impact student learning; provides formal and information professional development to staff to improve their understanding of how their personal experiences inform their assumptions about students and the school community; corrects intolerant statements directed at members of the school community.	Attempts to build professional relationships with adults and students; participates in conversations about diversity and culture, but rarely initiates conversations or connects them to student learning; provides whole group undifferentiated professional development about working in and supporting a diverse community; attempts to correct intolerant statements directed at members of the school community with limited success.	Avoids building positive relationships with adults and/or students; avoids courageous conversations about diversity and demonstrates limited awareness of the impact of diversity on student learning; does not correct inappropriate and/or insensitive statements directed at members of the school community.
PROMOTING FAMILY AND COMMUNITY INVOLVEMENT: Administrator collaboratively works to establish a culture that encourages and welcomes families and community members and seeks ways in which to engage them in student learning.			
Creates a school-wide culture in which all families and community members are welcomed into the school; builds the capacity of staff to implement multiple structures to meaningfully engage families and the community in achieving student achievement-oriented school improvement goals and priorities.	Welcomes all families and community members into the school, shares explicit information about student learning expectations with families and the community and identifies specific ways they can participate in and support their children's learning.	Sets expectations for staff on the process for welcoming families and community members into the school; communicates key information about student learning to families and the community and identifies some ways they can support children's learning.	Rarely welcomes families and community members into the school or engages them in student learning.
DEMONSTRATING FAIRNESS: Administrator is fair and consistent when dealing with students and staff. Administrator demonstrates values, beliefs and attitudes that inspire all students and staff to higher levels of performance.			
Publicly models fairness and consistency when engaging with students and staff and builds staff capacity to be fair and consistent with students; demonstrates values, beliefs, and attitudes that reflect high expectations for *all* students and adults.	Acts with fairness and consistency when engaging with students and staff; builds high expectations among staff, students and parents that success is possible for *all* students.	Inconsistently demonstrates fairness when engaging with students and staff; asserts belief that *all* students and staff can meet high expectations.	Rarely demonstrates fairness when engaging with students and staff; rarely demonstrates confidence in the potential of *all* students and staff to perform at high levels.
GROWING AND DEVELOPING PROFESSIONALLY: Administrator chooses and participates in professional development that is aligned with his or her professional needs and aligned with the needs of the school or district.			
Models and builds the capacity of staff to seek feedback on their own professional practice, self-reflect, and adjust their professional practice based on that feedback; engages in multiple professional learning opportunities aligned with the needs of the school.	Seeks feedback on own professional practice, self-reflects, and adjusts professional practice based on that feedback; engages in professional learning opportunities aligned with the needs of the school.	Demonstrates a non-defensive attitude in receiving feedback on own professional practice and makes minor adjustments to practice; engages in some professional learning opportunities aligned with the needs of the school.	Unwilling to accept feedback or adjust leadership practice; resistant to engaging in professional learning opportunities aligned with the needs of the school.

Sample Observable and Documented Indicators of Professional Practice for PROFESSIONAL RESPONSIBILITIES

O = Observable

☐ = Documented

Maintaining Professional Relationships
- **O** Interactions with staff and community members build positive rapport
- **O** Facilitates and/or co-facilitates ongoing conversations for staff to develop cultural competence and explore their personal assumptions and approach to diversity
- **O** Community conversations about culture and diversity occur regularly
- **☐** Systems that promote collegiality among staff

Promoting Family and Community Involvement
- **O** Active participation at school and community events with families, students, and staff
- **O** Family engagement in learning during school hours and at school-sponsored events (volunteers, parent trainings, etc.)
- **O** Families actively participate in school improvement meetings
- **☐** Family survey data reflects positively on how the school engages families and the community in student learning

Demonstrating Fairness
- **O** Teachers are fair and consistent with students
- **O** Interactions with students and staff are consistent and fair
- **☐** Administrative and school climate survey results and action plan to: 1.) continue and fine-tune effective practices; and/or, 2.) improve areas of concern

Growing and Developing Professionally
- **O** Participation in professional learning opportunities aligned with the needs of the school
- **O** Conferences with evaluator to identify way to improve professional practice
- **O** Participation on district and/or state committees to deepen leadership skills
- **O** Participation in district administrative PLC
- **☐** Professional growth plan includes goals for growth and aligned strategies
- **☐** Administrative survey results and action plan to: 1.) continue and fine-tune effective practices; and/or, 2.) improve areas of concern

Appendix E

AGENDA AND MATERIALS FROM MATHEMATICS BOOK STUDY: AN INTRODUCTION TO *TEACHING STUDENT-CENTERED MATHEMATICS*

Forum: January School-based Professional Development Day
Date: January 18, 2013
Focus: An excerpt from *Teaching Student-centered Mathematics Grades K-3*, *Teaching Student-Centered Mathematics Grades 3-5*.

Overview

During the 2012-3013 school year, math professional development focused on developing an awareness of the standards of mathematical practice and the individual grade level Common Core State Standards. Teachers received the text, *Teaching Student-Centered Mathematics*, as their primary resource for math instruction and were told to use it as a resource. However, many teachers did not even open the book by the month of December. The leadership team determined that in order for teachers to utilize *Teaching Student-Centered Mathematics*, they needed structured time to read and discuss the contents of an excerpt from the first chapter. The intent was to introduce them to teaching mathematics in a way that led to a deep conceptual understanding of mathematical concepts rather than relying solely on traditional teaching methods.

The leadership team that consisted of myself, the assistant principal, the Title I Resource Teacher, and the Talented and Gifted Instructional Coach spent several days planning the professional development session. Each of us read Chapter 1 of

Teaching Student-Centered Mathematics and then discussed the chapter. We

identified the key features of the chapter and developed guiding questions for teachers

to answer while reading. Those same questions would also be used to guide the

discussion during the professional development session. We structured the

professional development sessions to focus on the first two subtopics in Chapter 1,

"Foundations of Student-Centered Learning." The first part of the professional

development session was focused on how children learn and understand mathematics,

specifically, constructivism; the second section was focused on teaching with

problems. We organized the professional development session in such a way that

teachers had plenty of opportunities to discuss the reading and build their

understanding of the key points (i.e., a key ingredient of constructivism). We grouped

teachers into heterogeneous groups so that there was a mix of classroom teachers,

special educators, interventionists, and special area teachers all whom represented

different grade levels. We also considered teachers' present level of understanding of

teaching student-centered mathematics; this was based on teachers' contributions

during extended team planning meetings throughout the first semester . The purpose

of the heterogeneous grouping was to ensure vertical alignment of the way in which

math instructional practices were shifting in all grade levels; the key tenets of teaching

student-centered mathematics are the same for each grade level. One member of the

leadership team was assigned to facilitate each group. In preparation for the

discussions, the leadership team brainstormed possible responses to all of the

questions that were given to teachers (see Attachment 3) so that we could also be contributors to the discussion, not solely facilitators.

The professional development session began with one hour set aside for teachers to read Chapter 1 of *Teaching Student-Centered Mathematics* independently and respond to the guiding questions that were provided two days in advance. Teachers then reported to their assigned location. Since the teachers were grouped heterogeneously and did not necessarily work with those specific colleagues on a regular basis, they engaged in a "team building" exercise in which they solved a murder mystery based on a set of clues. For the next hour, the teachers discussed the following questions that were based on how children learn and understand mathematics:

1.) Look at Figure 1.2 on page 3. In your own words, how would you describe this visual to a parent?

2.) What does MENTAL ENGAGEMENT mean and how do you do this in the classroom? Be prepared to discuss the role of Kagan Cooperative Learning as it relates to mental engagement.

3.) What is the difference between MODELS and RELATIONSHIPS? What implications does this difference have for instruction and for assessment?

See Attachment 1 for the handout that was given to teachers, as well as a list of how teachers were grouped. Teachers were given a "Frame" on which to record notes (see Attachment 2). It was divided into two parts based on the two discussion topics. Following the first discussion, all groups met in the media center for a "Brain Break,"

in which they engaged in an interactive, fun movement activity. Teachers then

returned to their assigned locations for the second discussion on teaching with

problems. They answered three questions:

     1.) Why do we teach with problems?

     2.) How do we teach with problems?

     3.) What do we do when we teach with problems?

Teachers took note on their "Frame" during this discussion as well. Prior to lunch, all

teachers regrouped in the media center and worked with their grade level teams to

answer the questions, "So what? Why is this important to understand?" that were

listed on the bottom of their "Frame." See Table E.1 for teachers' responses to these

questions.

Table E.1

Teachers' Responses to Why Constructivism and Teaching with Problems is Important

Grade Level	Response
Kindergarten	This is the way we are headed. It is a shift in the way we are thinking. Early childhood has always been rooted in this, but we get squashed by time crunches and grades. Excited to incorporate this more.
Grade 1	Everything ties together to find "how and why" and affects how we teach which affects the students learning.
Grade 2	All about the students' understanding. We need to look at what basic foundational skills of our grade to teach through the constructivist lens. Not all lessons can be taught this way because of the time constraints and assessment limitations. It is quality vs. quantity.
Grade 3	This is the change that is coming our way and we need to understand and embrace the philosophy so that we can understand the methodology and thinking behind the constructivist philosophy.
Grade 4	Student success is directly related to well crafted problems that encourage students to develop their own connections and build understanding.
Grade 5	We need to create a world of problem-solvers by using constructivism which fosters problem solving skills in students.

Teachers evaluated the professional learning experience and provided feedback to the leadership team. They were asked, "What did you like about the format? What worked for you? What would you change?" See Table E.2 for the teachers' evaluation of the professional learning experience.

Table E.2

Teachers' Evaluation of the Professional Learning Experience

Grade Level	Response
Kindergarten	This was great and very cooperative. We all feel we got more out of this type of PD than any other kind.
Grade 1	We liked talking to different grade levels. The ice-breaker was fun. It was the perfect amount of time…not overwhelming. The questions helped us understand the text more. It was great having specialists involved – great point of view. This was so much better than sitting all day and it was "kid friendly" lingo!
Grade 2	We liked the small group interactions. Time flew by. We got a lot out of it. We really liked the murder mystery. Very good!
Grade 3	The format worked well for all of us. The team building activity got us thinking. We thought the small group was more comfortable, made it easier to share. Completing the assignment in advance made it easier to contribute as well. Mixed groups provided insight into how and what other grade levels are teaching.
Grade 4	We all liked (loved) the small groups with different grade levels – it allowed for multiple perspectives.
Grade 5	All of us liked the format. We would like to be in small groups with other intermediate grades. We liked hearing the different perspectives of other grade levels.

Reflection

Up until the 2012-2013 school year, teachers used the Houghton Mifflin

textbook series to plan and deliver math instruction. The skills were taught

sequentially and teachers only needed to review the teacher's edition to plan

instruction. When Fairview County Public Schools implemented the math Common

Core State Standards, it was no longer acceptable to use the math textbook in a page-

by-page fashion. Rather, teachers were expected to utilize *Teaching Student-Centered*

Mathematics to plan for math instruction. During the fall of 2012, informal and formal observations of math instruction showed that many teachers were still relying heavily on the Houghton Mifflin teacher's editions to plan for math instruction. Teachers continued to use the worksheets from the Blackline Masters workbook and students solved many problems that were absent of context or a true conceptual understanding.

Since the 2012-2013 school year was considered to be a "no fault" year, the Leadership Team and I often discussed how we were going to help teachers make the shift to problem-based learning in mathematics. In our interactions with teachers, we would informally ask how they used the text, *Teaching Student-Centered Mathematics*, and we would get mixed answers; some teachers could specifically tell us what parts they used, and others would say that they've "looked at it." During extended team planning meetings focused on math, we asked them to bring the *Teaching Student-Centered Mathematics* text and our assumptions were true: only a few teachers had actually opened the book.

The professional development session that was focused on the first chapter of *Teaching Student-Centered Mathematics* was the first step to begin the shift in math planning and instructional practice. Teachers needed time to read and digest the information in that first chapter, and they needed time to talk about it. When the structure was formalized and it was an expectation that was going to be monitored, the text was opened and read.

The facilitators observed that the first chapter of *Teaching Student-Centered Mathematics* challenged what many teachers believed about teaching mathematics. It brought awareness to the deficiencies that many teachers had in their own understanding of mathematics. The reading and discussion scared some teachers because everything that they thought about teaching mathematics was now going to be different. When teachers answered the "So what?" question on their note-taking "Frame," two grade levels mentioned the lack of time and a focus on county assessments to be a hindrance to planning and delivering problem-based lessons (see Table E.1). Nonetheless, teachers worked together to create their own value for how they might use the text to plan for instruction during the third and fourth marking periods of the 2012-2013 school year.

Following each planning session and then after we facilitated the professional development session, the leadership team debriefed together to discuss what went well. As a result of debriefing together, we gained a great deal of insight. During the planning sessions, we became stronger as a leadership team, realized strengths among team members that were not otherwise apparent, and developed our own capacities as learners. For example, we built on the instructional talents of one another; we had knowledge and expertise that represented the primary grades, the intermediate grades, and the gifted and talented students across all grade levels. We increased our knowledge of teaching student-centered mathematics by developing the guiding questions and brainstorming possible responses together; we became stronger leaders through that discussion as well. We also shared perspectives of how our teaching staff

was incorporating student-centered principles into instruction and what the "pulse" of the staff was at the given time period; we outlined what the existing stressors were, which teams were feeling overwhelmed, who needed different materials (math tools, manipulatives, etc.), and who might need individual coaching support. We, as a leadership team, facilitated the professional development with a shared understanding of the content and of our teachers.

From my perspective, this professional development session was successful for many reasons. First, the way in which the teachers were grouped not only helped to promote vertical alignment, but it increased positive school culture. Teachers engaged with colleagues from multiple grade levels and discussed the similarities of student-centered math instruction that was not specific to one grade level. Teachers began to see how what they taught in one grade level laid the foundation for the next. They also strengthened their relationships with teachers with whom they don't normally plan instruction and problem-solve. They left with fresh perspectives and a network of thinking partners on which they could rely in the future. Secondly, this professional development showed the leadership team as learning alongside the teachers. We did not facilitate the sessions with the air that we had all of the answers. We facilitated the sessions in a way that fostered shared learning about student-centered mathematics and that we all had something to contribute in order to build our understanding about how children learn and understand mathematics. Lastly, this professional development session was successful because it began the use of a common language

around planning and delivering student-centered math instruction; we developed a collective starting point to change instructional practice.

This professional development session laid the groundwork for subsequent professional learning experiences for teachers, and highlighted the need to focus on developing teachers' understanding of mathematical concepts. Teachers indicated that the format of the professional development session was a preferred service delivery model because it was not "sit and get;" they were active and they were cognitively engaged. Future professional development learning experiences will be more specific to the grade level standards; teachers will develop their understanding of the Common Core Math Standards, plan a problem-based lesson, and reflect on students' learning.

During the planning and facilitation of this professional development, I grew as a leader. My usual course of action prior to engaging teachers in professional learning experiences is to research topics extensively so that I am well prepared to answer the questions that may come up. During this professional development, I still did my research, but I practiced active listening rather than trying to be an expert on the topic. This was no small feat. I facilitated the discussion, but didn't lead the teachers to one particular "answer" in the questions. My contributions were more in the format of questions and discussion prompts, such as "What led you to that conclusion?" or "Tell us more about where you're coming from on …" or "Why do you think…?" This put the ownership of the content on the teachers, not me as the facilitator or principal of the school. Teachers' voices were heard and their contributions were valued. Another area of growth for me was recognizing that

teachers have different learning styles and processing times. I often frame

professional learning experiences and expectations based on my learning preferences

and the way in which I process information. At times I get frustrated when others

don't meet my expectation on my timeline. As this particular professional learning

experience was planned, we considered what we knew about how our teachers learn

best. We concluded that in order for the teachers to even consider changing their

practice, they needed time to process the information that they read at their own pace.

Sending out the reading assignments ahead of time allowed for self-paced reading and

processing. When teachers came to the discussion, they were prepared to engage. This

was an area of growth for me because I generally expect others to learn at the same

rate that I do and to seek out information when something is not understood.   I

realized that in order to move the staff forward, each teacher needed to feel supported

in their learning, regardless of their prior knowledge or comfort level of teaching

math.

Upon reflecting on this professional development session shortly after it was

completed, and then many months later, I feel there are a few areas in which I can

demonstrate growth as a leader. First, while this professional development was a first

step in increasing teachers' knowledge of student-centered mathematics, there were

few concrete action steps developed by the teachers or me to keep the momentum

going. For example, we did not establish future planning sessions for teachers to use

the text explicitly to plan for upcoming math lessons. Additionally, grade levels did

not link the math Common Core State Standards to the topics in the book so that they

knew where to turn when planning future lessons. I did not level any firm

expectations around utilizing the text, *Teaching Student-Centered Mathematics*, as a

primary resource for planning. Second, this professional learning activity was not

anchored by student data. We did not analyze students' present level of performance

in mathematics by grade level or class, nor did we set goals for how students should

demonstrate growth moving forward. Situating professional learning experiences with

our student data provides a context for why instructional practice needs to shift.

Lastly, I could improve on including teaching staff, not just leadership team members,

in planning and facilitating professional development. One of the barriers to including

classroom teachers has been the time in which the leadership team meets; typically,

we meet during the student day when teachers are teaching. It would be a challenge,

but it would be worth it to explore additional meeting times in which others are

available to participate. This would provide teachers with leadership opportunities

within the school and also identify additional teachers' areas of strength to be able to

help others.

Now, over a year later from the time in which I engaged staff in this initial

professional development, the school system has linked curriculum resources to the

text and directed grade levels to specific pages based on the standards that are being

taught at different times throughout the year. I have required teachers who are on

professional improvement plans to annotate their math plans with page numbers from

this text to ensure that it has been accessed and utilized. We still have a long way to

go in terms of teaching student-centered mathematics on a daily basis, but we are on

the right path to make this a sustained practice among all teachers in the school.

Math Professional Development
Friday, January 18, 2013

> You will need to bring:
> • Your Van de Walle text
> • Responses to the questions below
> • Math Practices
> • Snacks, beverages for your enjoyment

Tasks to Complete PRIOR TO 9:30 AM

8:30 – 9:30 AM PK – Grade 2: Read Van de Walle, pages 1 – 19; answer questions below
Grades 3 – 5: Read Van de Walle, pages 1 – 21; answer questions below

9:30 AM   Report to Specific Locations (see reverse for group assignments)

Guiding Questions
These questions will be used to guide our discussion. You are encouraged to take notes on these questions as you read.

SECTION 1: *How Children Learn and Understand Mathematics*

1. *Look at Figure 1.2 on page 3. In your own words, how would you describe this visual to a parent?*

2. *What does MENTAL ENGAGEMENT mean and how do you do this in the classroom? Be prepared to discuss the role of Kagan Cooperative Learning as it relates to mental engagement.*

3. *What is the difference between MODELS and RELATIONSHIPS? What implications does this difference have for instruction and for assessment?*

SECTION 2: *Teaching with Problems*

WHY do we teach with problems? (**WHY** = The core of what we do; the deep understandings behind our actions)	**HOW** do we teach with problems? (**HOW** = Our process)	**WHAT** do we do when we teach with problems? (**WHAT** = Our actions)

Locations for January 18 (9:30 – 11:45 AM)

Group 1	Group 2	Group 3	Group 4
Location: (B13)	Location: (B9)	Location: (C18)	Location: (B11)
Facilitator: Assistant Principal	Facilitator: Title I Resource Teacher	Facilitator: Talented and Gifted Instructional Coach	Facilitator: Principal
Pre-K Teacher A	Pre-K Teacher B	Kindergarten	Kindergarten
Kindergarten	Grade 1 Teacher A	Teacher B	Teacher C
Teacher A	Grade 2 Teacher B	Grade 1 Teacher B	Grade 1 Teacher C
Grade 2 Teacher A	Grade 3 Teacher B	Grade 2 Teacher C	Grade 3 Teacher C
Grade 3 Teacher A	Grade 5 Teacher A	Grade 4 Teacher B	Grade 4 Teacher C
Grade 4 Teacher A	Special Educator B	Grade 5 Teacher B	Special Educator D
Special Educator A	Media Specialist	Special Educator C	Interventionist B
Interventionist A		Art Teacher	Music Teacher

Agenda for the Day

Time	Task	Location
8:30 – 9:30 AM	Read Chapter 1 of Van de Walle	Classroom
9:30 – 10:45 AM	Team Building (15 minutes) *How Children Learn and Understand Mathematics*	See Assignment Above
10:45 – 11:00 AM	Brain Break	Media Center
11:00 – 11:45 AM	*Teaching with Problems*	See Assignment Above
11:45 AM – 12:00 PM	Team Comparison of FRAME	Media Center
12:00 – 1:00 PM	Lunch	Your Choice
1:00 – 2:30 PM	Team Planning Plan a lesson for MP3 with a problem-based approach * This lesson will be submitted.	Classroom
2:30 – 4:00 PM	Grading & Reporting	Classroom

Attachment 2: Note-taking "Frame"

Student-Centered Learning is about...

shifting instructional practices to provide student opportunities to make their own meaning of what they are learning.

Constructivism	Teaching with problems

So what? (Why is this important to understand?)

Attachment 3: Facilitator Responses to Guiding Questions

Student-Centered learning
Shifting instructional practices to provide student opportunities to make their own meaning of what they are learning.

CONSTRUCTIVISM
1. *Look at Figure 1.2 on page 3. In your own words, how would you describe this visual to a parent?*

AID-you need to **pre-assess** students to see where they are in terms of their existing knowledge, so you know where they are and where they need to go (where they are on the continuum).
Quantity and quality of understandings vary
Lack of retention occurs when the connections were never made-it was just rote memorization. The students know the rules/process, but lack an understanding of why the rules/process works.

2. *What does MENTAL ENGAGEMENT mean and how do you do this in the classroom? Be prepared to discuss the role of Kagan Cooperative Learning as it relates to mental engagement.*

You are mentally engaged when you are bringing/finding relevant ideas you already have and applying it to the new ideas. (implications of **pre-assessing**)
How to:
Engage in **reflective thinking**: reflective thinking allows students to bring existing knowledge forward in order to connect new ideas, reflective thinking=learning
Provide **social interactions**: increase reflective thinking because it tests ideas allowing more connections to be made.
Presenting students with learning experiences through **problems** prompts reflective thinking because students have to use their own strategies, activating existing knowledge (gray dots)
Kagan and how it related to mental engagement
Math practices-these behaviors are present when students are mentally engaged. Evidence of such.

3. *What is the difference between MODELS and RELATIONSHIPS? What implications does this difference have for instruction and for assessment?*

Object=relationship in your mind, the **assessment** shows the relationship
That's why kids use models in different ways, because of the different prior knowledge each has.
Sharing/**social interactions** is beneficial because it allows students to share how

models can be used in various ways or how concepts can be presented using various models.

Models are physical representations of a concept

A **rote procedure** without a model is just that (refer to figure 1.4)

Figure 1.5-This reflects a **way we can assess** student's understandings-they should be able to generalize a concept in these various ways, (frayer-use as an assessment tool to see where a student is in his/her understanding and where they can grow).

TEACHING WITH PROBLEMS

WHY do we teach with problems? (**WHY** = The core of what we do; the deep understandings behind our actions)	**HOW** do we teach with problems? (**HOW** = Our process)	**WHAT** do we do when we teach with problems? (**WHAT** = Our actions)
Page 11 "Teaching with problems" section *To learn math, not apply it Page 15 "The value of teaching with problems" (bullets) Prompts reflective thinking because students have to use their <u>own</u> strategies, activating existing knowledge (gray dots) By using their own existing knowledge, the students are solving the problem in a way that makes sense to them giving **meaning to the solution strategy.**	Page 16-21 The three-part format for problem-based lessons "Tell me how you figured that out." It's important to create a climate of learning where kids feel safe asking questions...model this and set expectations for what this should look, sound like. Say, "justify" your work instead of "check" your work. Have the student restate the problem in their own words forces them to think about the problem in a more complex manner. 5 E model Class discourse (after) should be 20+ minutes	Page 11 "Problem-Based Tasks" section. The definition and characteristics of

References

Van de Walle, J.A. & Lovin, L.H. (2006). *Teaching student-centered mathematics:*

  Grades K-3. New York: Pearson.

Van de Walle, J.A. & Lovin, L.H. (2006). *Teaching student-centered mathematics:*

  Grades 3-5. New York: Pearson.

Appendix F

DEVELOPMENT AND ANALYSIS OF MATHEMATICS FORMATIVE ASSESSMENTS

Introduction

During the months of January and February, teachers engaged in a three-part professional learning series called "Implementation Shifts" that was based on the three main shifts in math instruction as a result of the math Common Core State Standards. The purpose of this professional learning series was to: increase teachers' knowledge of the shifts in math instruction and the expectations of the Partnership for Assessment of Readiness for College and Careers (PARCC) assessment; provide support in the development of assessment criteria and formative assessments to measure students' progress on target standards; and, analyze student performance on the target standards. This professional learning series was one activity of many to help teachers shift their planning and instructional practices to align more closely with the changing expectations called for by the Common Core State Standards to increase student learning. In this paper, I will describe how the professional learning series was planned and how each of the three sessions was delivered; I will also reflect on this professional learning series and articulate the successes and challenges, as well as changes that I would make in the future.

Overview

In the first professional learning experience, teachers learned about the shifts in math instruction and analyzed sample math Partnership for Assessment of Readiness for College and Careers (PARCC) test items. In the second professional learning experience, teachers reviewed the three main shifts, and created a math formative assessment that emulated the sample PARCC items in format and conceptual understanding. Between the second and third professional learning experience, the teachers administered the assessment and scored it. In the third professional learning experience, teachers analyzed the formative assessment data.

Each of the three professional learning sessions was one hour in length, and each of the three sessions was presented six times throughout the day so that all grade levels attended the professional learning session on the same day. Four substitutes were contracted to cover an entire grade level at one time, and to also rotate among the grade levels based on a pre-determined schedule. At least one member of the leadership team, comprised of Title I Intervention Resource Teachers, the Assistant Principal, and myself, facilitated each session for each grade level.

Planning

The leadership team met several weeks in advance of the first session to plan the content of the professional learning series. We reviewed resources available on the PARCC website (www.parcconline.org) and the Achieve the Core website (www.achievethecore.org). We found an excellent PowerPoint presentation on the PARCC website that provided an overview of the shifts in math instruction and

included sample test items. We used this PowerPoint in its entirety, added notes for the presenters, and supplemented information on rigor. See Attachment 1 for the PowerPoint presentation and supplementary materials that were used for Session One.

Session One

We began Session One by providing an overview of the PARCC test item development process and the shifts in math instruction that were the driving force of the design of the PARCC test items. The shifts in math instruction concentrate on *focus, coherence,* and *rigor*. Teachers engaged in a sorting activity in which they sorted the "Advances in Assessment Demanded by the Shifts;" for example, for "Shift #3 – Rigor," they were to match that shift with: *Advance - PARCC assessments will reach the rigor in the Standards through innovations in technology and item design.* As a group, we reviewed and discussed the advances for each shift. We then reviewed the different task types and analyzed at least two sample test items; we solved the test item in the same manner that students were directed to solve it and compared our problem-solving process to the scoring and evidence chart that was provided as part of the sample test item.

According to the final evaluation survey data, the analysis of the PARCC test items proved to be the most worthwhile part of Session One. Of the 23 respondents, over 40% indicated that their knowledge increased most on understanding student expectations on the math PARCC assessments. The teachers and facilitators engaged in a rich discussion that helped to build teachers' understanding of what students were now expected to demonstrate in the area of mathematics. The sample test items

brought to light how students would be assessed on concepts, skills, and procedures; how students would need to develop written arguments and justifications, critique reasoning, and be precise in their mathematical statements; and lastly, how students would need to model and apply their understanding of concepts to real-world contexts.

At the end of Session One, teachers were charged with identifying the math standard(s) for which they would create a formative assessment and any additional resources that they might need to build their own and/or students' understanding of the standard(s). Teachers had two weeks in between Session One and Session Two to identify the standards and the resources.

Session Two

Session Two of the "Implementation Shifts" occurred three weeks after the first session. We began with a review of the three key shifts in math instruction, followed by a discussion of the standard(s) that the grade level chose and their ideas for how to assess the standard. The PARCC test items from Session One were also consulted to determine the type of task that would be developed and the format that would be used. In addition to using the text, *Teaching Student-Centered Mathematics*, by Van de Walle and Lovin, and the math resources developed by the school system, we also directed teachers to a Wikispace developed by Howard County Public Schools (HCPS) in Maryland. On the Wikispace for each grade level, the standard was defined as well as the prerequisite skills students would need in order to be successful. Teachers discussed which skills had already been taught, which ones needed to be reviewed and/or re-taught, and which ones would need to be introduced in preparation

for the assessment. The assessment samples from the HCPS Wikispace also served as

a starting point for most grade levels to create their formative assessments. Teachers

used the exact language from the standard to create the assessment criteria and the

actual assessment. Table F.1 outlines the standard(s) selected by each grade level.

Table F.1

Math Common Core State Standards Selected for Formative Assessment

Grade Level	Standard(s)
Grade K	K.NBT.1 Compose and decompose numbers from 11 to 19 into ten ones and some further, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (e.g., 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
Grade 1	1.OA.6 Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on; making ten (e.g., 8 + 6 = 8 + 2 + 4 = 10 + 4 = 14); decomposing a number leading to a ten (e.g., 13 – 4 = 13 – 3 – 1 = 10 – 1 = 9); using the relationship between addition and subtraction (e.g., knowing that 8 + 4 = 12, one knows 12 – 8 = 4); and creating equivalent but easier or known sums (e.g., adding 6 + 7 by creating the known equivalent 6 + 6 + 1 = 12 + 1 = 13). 1.MD.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.
Grade 2	2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put- together, take-apart, and compare problems for using information presented in a bar graph. 2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using >, =, and < symbols to record the results of comparisons. 2.NBT.5 Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction.
Grade 3	3.MD.8 Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
Grade 4	4.NF.4a Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. A. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).
Grade 5	5.NBT.5 Fluently multiply multi-digit whole numbers using the standard algorithm.

By the end of Session Two, each grade level had created some assessment criteria and at a minimum, a sketch of the assessment that would be given to students. On the final evaluation survey, teachers were asked to identify the practices that they would incorporate into planning for math instruction. As Table F.2 demonstrates, over 70% of the respondents indicated that they would incorporate studying the standard and its progressions, identifying clear assessment criteria, and developing assessments that measure progress on the entire standard (not just one part) into planning practices.

Table F.2

Survey Responses Related to Future Planning Practices

Item	n	Number	Percent
From this learning experience, what will you incorporate into your planning practices? Check all that apply.	23	23	100
Studying the target standard and developing my understanding of what is expected of students	23	19	83
Identifying clear assessment criteria	23	17	74
Developing assessments that measure progress on the entire standard (not just one part)	23	17	74

At the end of Session Two, teachers were charged with finalizing the formative assessment, administering the assessment, and scoring it. Grade levels used one additional planning period to finalize the formatting of the assessment, and the Title I Intervention Resource Teachers assisted teachers with this task. Teachers had two weeks in between Session Two and Session Three. A sampling of the formative assessments created by various grade levels is located in Attachment 2.

Session Three

During Session Three, teachers reviewed the three key shifts in mathematics once again and then reflected on students' performance on the formative assessment. Three questions led the discussion:

1.) How did the assessment measure student progress on the focus standard?

2.) How did the assessment help you to understand the students' learning processes?

3.) How would you change the assessment to give you better information about your students' progress?

Since Session Two ended without a complete product, teachers first gave an overview of the final assessment that was given. Three grade levels followed the PARCC format that was introduced in Session One, while three grade levels used an entirely different format. Five of the six grade levels developed word problems, three grade levels created problems that required students to interpret data, and two grade levels developed problems that had more than one correct answer.

Next, teachers analyzed students' performance on the formative assessment. The structure for how grade levels reported out their class data was different, depending on the type of assessment and/or whether or not assessment criteria had been fully developed as part of the formative assessment development. For example, the kindergarten team discussed the items on which the majority of students did and did not show evidence of representing a specific number. Four grade levels reported out the point values that each student earned on each question. One grade level did

not have clear assessment criteria and each teacher on the team scored the assessment differently; with that grade level, the analysis focused not on the scores, but rather the students' problem-solving process to determine area and perimeter.

The student data and the teachers' interpretation of that data were used to determine how the teacher-created assessment measured student progress on the focus standard; the assessments either *fully* measured progress, *partially* measured progress, or *not at all* measured progress. In order to receive the rating of *fully* measured progress, the assessment needed to address all components of the target standard(s). If the assessment only measured a few components of the standard but not all components, then it only *partially* measured the standard. If none of the components of the standard were measured, then the assessment received the rating *not at all*. Of the six formative assessments created, 50% fully measured student progress on the focus standard, while only 33.3% partially measured student progress on the focus standard (see Table F.3 below). The three grade levels that developed assessments that fully measured student progress on the focus standards also developed clear assessment criteria when they created the assessment. Consistent, clear assessment criteria were not developed by those grade levels whose assessments only partially or did not measure student progress on the focus standard.

Table F.3

Ratings of How Formative Assessments Measured Student Progress on the Focus Standard

	n	Number	Percent
Fully	6	3	50
Partially	6	2	33.3
Not at all	6	1	16.7

Student progress was measured in multiple ways on each formative assessment because each assessment had a minimum of two parts. Three grade levels analyzed students' visual representations. Three grade levels analyzed the way in which students interpreted data. Two grade levels analyzed how students organized data and how they compared two data points. Two grade levels included a one-point value question that was either right or wrong. One grade level utilized a multiple-choice question that had more than one correct answer for one part of the assessment.

As teachers described how the assessment helped them to understand students' learning processes, three main themes emerged. First, three grade levels indicated that they better understood how students used the previously taught strategies to solve the problems. For example, in kindergarten, teachers observed that some students relied on math manipulatives while others used drawings to represent the number on the assessment. In first grade, teachers observed that students used the "part part whole" strategy and others used anchors of five to make a ten. In fourth grade, students used

visual representations to multiply a fraction by a whole number; the visual

representation was indicative of the students' understanding of fractions. Second,

three grade levels indicated that students' reading comprehension affected students'

understanding of the task. The second grade teachers stated that the students needed

to read the questions more carefully and needed more practice with reading word

problems; they also indicated that the students needed to use reading strategies to

unlock the problem. The third grade teachers indicated that students did not follow the

written directions, while the fifth grade teachers described how the students extracted

the numbers from the word problem but didn't read the entire problem. In these cases,

the teachers did not fully articulate how the assessment helped them to understand

how students learn mathematics, but rather focused on reading comprehension as a

contributing factor to their learning difficulties. Lastly, two grade levels expressed

how they were better able to identify misconceptions after analyzing students'

progress on the assessments. For example, one student in first grade showed a high

level of understanding, but would need additional instruction on writing numbers on a

graph. Fourth grade teachers indicated that some of their students showed a

misconception of subtracting six wholes rather than a fraction of a whole; essentially,

subtraction was an area identified for re-teaching. As a result of time, teachers did not

fully deconstruct the learning processes that contributed to the misconceptions and

learning difficulties.

During the analysis of student progress and learning processes, teachers also

reflected on how they would change the assessment to give them better information

about students' progress. Four of the six grade levels concluded that they would change the format of the assessment if given again. Two grade levels stated that they would make a few minor edits to the way in which the word problem was worded. Two grade levels determined that they would structure the assessment differently, and two grade levels indicated that they wouldn't make any changes to the assessments. The second grade team felt strongly that the formatting of the assessment negatively impacted students' progress as well as the way in which the assessment was given; they reformatted the assessment, decided to read the assessment to the students, and had the students complete it again. Students' scores increased on the second administration of the assessment. See Attachment 3 for a complete description of teachers' responses to the three guiding questions used for Session Three.

By the end of Session Three, the teachers had gone through an entire process of learning new content related to student expectations on PARCC math assessments, creating a formative assessment that emulated those expectations, and reflecting on students' performance on the assessments that were created. This professional learning series was one of many experiences to deepen teachers' understanding of the changing expectations related to the math Common Core State Standards. On the final evaluation survey, teachers were asked what other supports were needed to shift math planning and instructional practices to meet the expectations outlined by the Common Core State Standards. The majority of teachers (70%) responded that they needed focused planning time with the Intervention Resource Teacher. Only two teachers (9%) indicated that they needed explicit professional development focused on the

math standards, and one teacher indicated a need for assistance with the development of a KUDo frame for specific standards (a KUDo frame outlines what students should *know, understand,* and *do* to show progress on the identified standard). Teachers overwhelmingly agreed (96%) that the "Implementation Shifts" process facilitated professional learning.

Reflection

As a school principal, I feel that I demonstrated true instructional leadership during this three-part professional learning series. It was a leadership highlight for me to facilitate a few of the sessions and to be a co-facilitator in the others; it was hard work, but it was worth it. It was important to me to be a facilitator in some capacity because I wanted to model the expectation for the Intervention Resource Teachers (IRTs). All of the IRTs were new to that role and new to facilitating professional learning experiences for teachers. Prior to facilitating the second of the three sessions, I researched all of the standards that the grade levels had identified and deconstructed them to determine what was expected of students. I brainstormed and found ways to assess the students on those standards and came up with concrete examples for students to demonstrate their understanding. I felt this was necessary in order for me to lead and guide the teachers, and to also be a contributor in the professional learning experience. I modeled what I expected of them in terms of developing an understanding of the focus standard before planning and delivering instruction. I learned alongside the teachers, which proved to be most rewarding to me. It is not a sustainable practice for me to be a facilitator of all professional learning experiences.

This professional learning series allowed me to build the capacity of the IRTs by actively planning and helping to facilitate the sessions. Moving forward, they will take the lead in facilitating the majority of the professional learning sessions; teachers will also have opportunities to facilitate professional learning activities, which will build leadership beyond just the instructional leadership team.

I also feel that this professional learning series was effective in increasing teacher capacity. It was designed to increase teachers' knowledge, provide support in the development of assessments, and analyze student performance on the teacher-created assessment. The final evaluation survey data showed that indeed, they increased their knowledge and intended to incorporate what they learned into future planning and instructional delivery practices. This series also forced grade level teams to come to the table together and work towards a common goal; collaboration was an expectation and for this professional learning experience, working in isolation was not an option.

The three-part professional learning series had its challenges as well. For example, this took place during January and February, two months that had a significant number of snow days and delayed openings; as a result, instruction was incredibly inconsistent, teaching schedules were disrupted regularly, and the marking period dates were changed with each snow day. Session Two fell at the end of the second marking period, which was a stressful time for teachers. They didn't have enough grades because of the school closures, and they were working on the end of the marking period assessments at the same time as developing and administering the

assessment for the Implementation Shifts. At the time, I did not want to adjust the dates for the sessions any more than we already had because I felt that a long gap between the sessions would disrupt the pace of learning. The teachers felt that there was not enough time in the school day to get everything accomplished, and the Implementation Shifts were just one more thing that took them away from instructional time with their students. In hindsight, helping them to adjust their teaching schedules to prioritize the tasks that needed to be accomplished may have been a welcomed support.

Another challenge was that one grade level team had difficulty getting along throughout the school year; one member of the team did not administer or grade the assessment by Session Three and then took the day off so that she did not have to participate; this grade level had to meet beyond the three scheduled sessions to finish analyzing the results. I addressed this with the specific teacher after the fact, but at the time, there was very little that I could do to get her data for the team to move forward on the scheduled date. In the future, I could be very intentional with the teachers who I know have difficulty meeting deadlines by making sure that they have completed their assignments prior to the day of the professional learning activity.

One grade level team came to Session Two with an assessment that one team member had created and it was flawed. They were resistant to changing it, and ultimately didn't. Since the question was flawed, they had difficulty analyzing the results. Two teachers went along with one teacher's idea, and they all failed together. This bothered me because I wanted every grade level team to have a successful

experience with this professional learning series. However, as a leader, there are times when you have to give the teachers autonomy in decision-making so that they will learn from their mistakes. Looking back, I don't think I would have changed my approach with this team; if I had forced them to change their assessment, it's my feeling that they would remember that from the professional learning series rather than the importance of creating quality assessments with clear assessment criteria to better understand student learning.

Upon reflecting on this professional learning series several months after it was completed, I realized that there was a major piece missing from the series. Teachers did indeed increase their knowledge about how students would be assessed on the math PARCC assessments and they analyzed student performance data. The professional learning series was intended to shift planning and instructional practices, but a key piece was missing: the actual planning of instructional activities to cognitively engage students in constructing meaning of the target standard(s). Teachers developed an understanding of the standards, but they did not explicitly plan the learning activities for students or think about students' learning processes prior to engaging them in the assessment; this may be a reason why many grade level teams had difficulty describing students' learning processes.

In future professional learning series that may follow this structure, there are a few changes that I would make. First, I would add a session between Session Two and Session Three that focuses solely on planning the instructional activities and the actions that the teacher will take in the classroom. This is a much-needed change to

the format of the series so that teachers begin to shift their planning and instructional practices to see that their actions in the classroom drive the level to which students achieve.

Second, I would make sure that all facilitators understood the data analysis process and had practiced using it prior to working with teachers. I found that each Instructional/Resource Teacher began to tweak the data analysis process in Session Two; this was an area that needed to be somewhat standardized so that student progress could be analyzed school-wide. Moving forward, we need to be very specific about *process* and make sure that each leadership team member has the same understanding of that process.

Third, I would like to get feedback from teachers on how I can better support their work. I have asked teachers how I can better support their work in individual conferences, such as during post-observation conferences or during the end of the year evaluation conferences. During the next school year, teachers are going to set team and individual goals based on shifting math planning and instructional practice. Based on their goals, I will be able to check in with them throughout the school year, rather than just once or twice and offer specific support based on their goals; needs are different depending upon concepts that are being taught, or content that teachers are learning to improve their practice. By asking, "How can I better support your work?" and taking action, staff morale will increase, teachers will feel supported and valued, and teachers will be more likely to take risks with their instructional practices.

Lastly, there is an addition to the questions and conversation that needs to be included in order to have continuous improvement around student learning. During Session Three, teachers were very specific about what *students* did or didn't do, but there was little outward *teacher* accountability for how their own instruction drives student learning. In doing this again, I would add the question, "How will you change your own instruction to increase student learning on this standard?" as well as the sentence frame, "If students are/aren't _____, then I need to _____." This will help teachers to make the connection between their actions and student learning. It would also be appropriate to then follow up with the question, "How can I better support your work?" so that teachers have support to change their instructional practices.

Overall, this three-part professional learning series achieved what it was intended to do: increase teachers' knowledge, provide support in the development of assessments, and analyze student progress. Both the content and the structure of this professional learning series were worthwhile for teachers. On the final evaluation survey, several teachers indicated that deconstructing the standard, reviewing PARCC expectations, and increasing their knowledge of students were all positive aspects of this learning experience. Finally, 73% of teachers affirmed that the structure of this professional learning experience should continue for the next school year.

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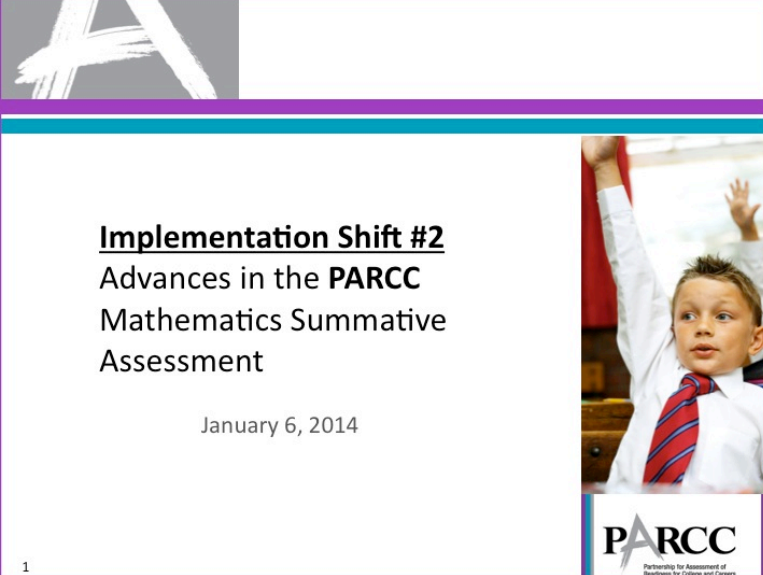
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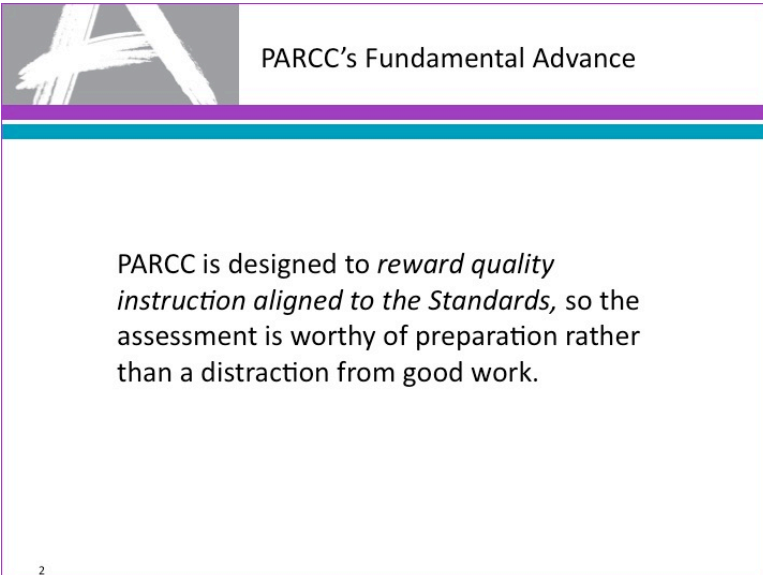   http://www.mindstepsinc.com/2012/04/what-is-rigor/

Attachment 1

Session One PowerPoint Presentation & Supplementary Materials

PowerPoint Source: Partnership for Assessment of Readiness for College and Careers
(n.d.). PARCC Task Prototypes and New Sample Items for Mathematics. Retrieved
from https://www.parcconline.org/samples/math

Goal: *Evaluate PARCC assessments in order to inform instruction.*

Do:

- *Information Overview of PARCC*
- *Sorting the **Advances in Assessment Demanded by the Shifts***
- *Discussing the Shifts in PARCC*
- *Analyze Sample Assessment Items*

PARCC's Core Commitments to Mathematics Assessment Quality

- **Focus:** PARCC assessments will focus strongly on where the Standards focus. Students will have more time to master concepts at a deeper level.

- **Problems worth doing**: Multi-step problems, conceptual questions, applications, and substantial procedures will be common, as in an excellent classroom.

- **Better Standards Demand Better Questions:** Instead of reusing existing items, PARCC will develop custom items to the Standards.

- **Fidelity to the Standards**: PARCC Evidence Statements are rooted in the language of the Standards so that expectations remain the same in both instructional and assessment settings.

4

What is Different About PARCC's Development Process?

- PARCC states first developed the Model Content Frameworks to provide guidance to key elements of excellent instruction aligned with the Standards.
- The Model Content Frameworks were then used to provide guidance in the content emphasis for the mathematics assessment.

So, for the first time. . .

- PARCC is communicating in the same voice to teachers as it is to assessment developers!
- PARCC is designing the assessments around exactly the same *SHIFTS* the standards expect of teachers and students.
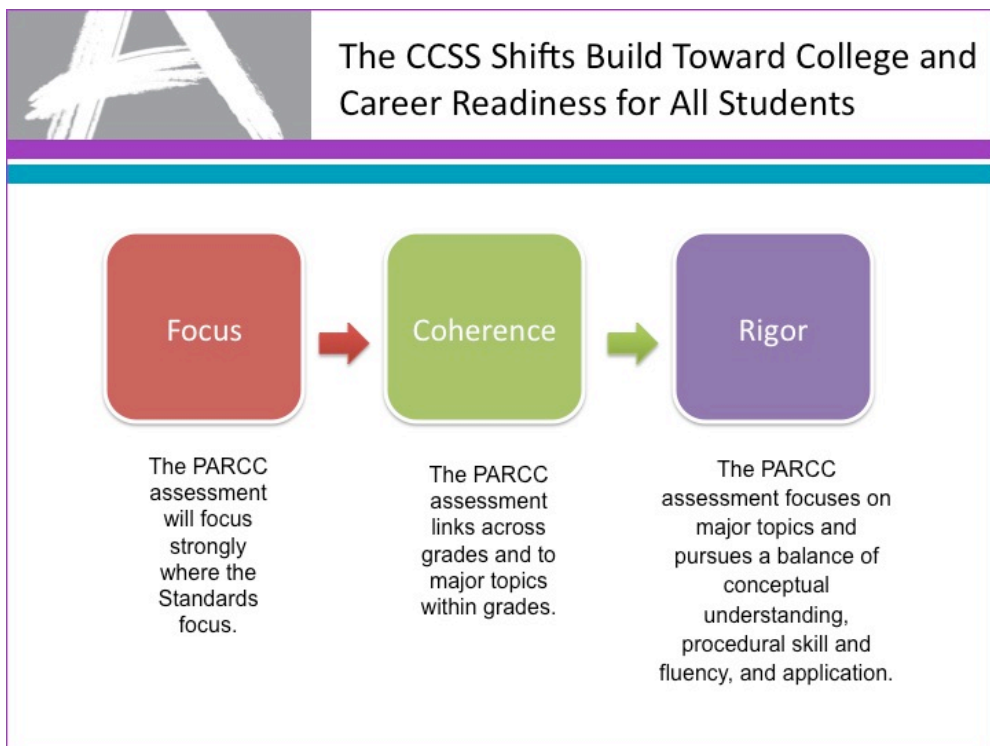
5

What Are the Shifts in the Math Standards at the Heart of PARCC Design?

1. **Focus:** The PARCC assessment will focus strongly where the Standards focus
2. **Coherence**: Think across grades and link to major topics within grades
3. **Rigor**: In major topics, pursue conceptual understanding, procedural skill and fluency, and application.

6

The CCSS Shifts Build Toward College and Career Readiness for All Students

Focus	Coherence	Rigor
The PARCC assessment will focus strongly where the Standards focus.	The PARCC assessment links across grades and to major topics within grades.	The PARCC assessment focuses on major topics and pursues a balance of conceptual understanding, procedural skill and fluency, and application.

Advances in Assessment Demanded by the Shifts

Shift #1 – Focus: The PARCC assessments will **focus** strongly where the Standards focus

Advance: 70% or more on the major work in grades 3-8.

▪Focus allows for a variety of problem types to get at concept in multiple ways.

▪Students will have more time to master concepts at a deeper level.

8

Shift #2 - Coherence: Think across grades, and **link** to major topics within grades

Advance: The assessment design is informed by multi-grade progressions in the Standards and the *Model Content Frameworks*.

- Key beginnings are stressed (e.g., ratio concepts in grade 6), as are key endpoints and takeaway skills (e.g., fluency with the multiplication table in grade 3).

9

Shift #2 - Coherence: Think across grades, and **link** to major topics within grades

Advance: Integrative tasks draw on multiple standards to ensure students are making important connections.

- The Standards are not treated as a checklist.

10

Advances in assessment demanded by the shifts

Shift #3 - Rigor: In major topics, pursue **conceptual understanding,** procedural skill and **fluency**, and **application**

Advance: PARCC assessments will reach the rigor in the Standards through innovations in technology and item design.

11

Sample Items Illustrating the Advances in Assessment

The next section of this presentation is comprised of sample items that illustrate some of the advances called for by the three shifts.

12

Grade	Item	Click to View Item with Annotation/Rubric
3	Patricia's reading time	●
3	The art teacher's rectangular array	●
4	Fraction comparison	●
4	Three friends' beads	●
5	Two aquarium tanks	●

13

Grade	Item	Click to View Item with Annotation/Rubric
6	Proportions of instruments	●
6	Fraction model	●

14

Summary of Items Released November 2013
Mathematics: High School

Course	Item	Click to View Item with Annotation/Rubric
Alg2/Math3	Graphs of functions	●
Alg1/Math2	Mini Golf prices	●
Alg1/Math1	Brett's race	●
Alg1/Math2	Picture frame	●
Alg1/Math1	Popcorn inventory	●

15

Resources

- Any publicly released assessment policies, item prototypes, PARCC Model Content Frameworks, and other valuable resources can be found at www.PARCConline.org

Next Steps

<u>January 13th</u>-
•Come prepared with ideas and resources to create PARCC assessment task.
•**Implement and score assessment before January 27th.**

<u>January 27th</u>-
•Evaluate and reflect on results of assessments.

What is Rigor?

April 16, 2012

Whenever we deliver a rigor workshop, one of the first questions we get is "What is rigor?" While everyone agrees that rigorous instruction is important, few agree on what rigor is. In most cases, educators believe that they know rigor when they see it without really having a fully defined idea of what it looks like.

Rigor is a quality of instruction that requires students to construct meaning for themselves, impose structure on information, integrate individual skills into processes, operate within but at the outer edge of their abilities, and apply what they learn in more than one context and to unpredictable situations.

Let's examine each of these qualities of rigor more closely:

Construct meaning for themselves:
Rigorous instruction goes beyond helping students memorize facts, acquire understanding of concepts, and develop basic skill proficiency. Students learn how to unpack concepts, ask interesting questions, develop their own ideas and standards of evaluation, and think critically about the content.

Impose structure on information:
By imposing structure on information, students learn how to organize concepts, make connections among and between concepts, and deal with ambiguity and complexity. Doing so helps them to think accurately, consider multiple meanings and interpretations, and engage in disciplined inquiry and thought.

Integrate skills into processes:
Students aren't just asked know information or perform a skill; students are asked to develop individual thinking skills about what they are learning and then combine those thinking skills into thinking processes which they then apply to the content.

Apply what they learn in more than one context and to unpredictable situations:
Rigorous instruction teaches students to use or adapt what they have learned and how they have learned to think to solve real-world problems in multiple contexts, even when the "correct" answer is unclear and they are faced with perplexing unknowns.

Attachment 2

Sample Formative Assessments
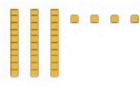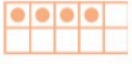
Kindergarten Formative Assessment

Name _____

Listen to the number your teacher gives you. Show the number in different ways!

Set	Base ten blocks	Sticks and dots
Word eight	Number 3	Ten Frame

Equation/Number Sentence   1 + 3 = 4   4 = 1 + 3

Grade 2 Formative Assessment

Sue was tracking the number of minutes she read each night for her Reading Log. Her teacher asked her to graph the number of minutes she read each day to show the total number of minutes she read in a week.

1. Complete the bar graph to show how many minutes she read on Wednesday and Thursday. (2 points)
2. How many minutes did Sue read this week? Justify why you got the answer you did.

Amount of Minutes Read in This Week

Days of the Week	Number of Minutes Read
Monday	37 minutes
Tuesday	28 minutes
Wednesday	32 minutes
Thursday	25 minutes

Amount of Minutes Read in a Week
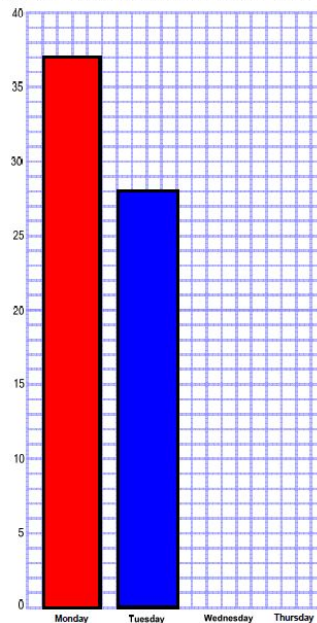
Sue wants to see if she read more minutes this week compared to last week. Last week she read a total of 109 minutes.

3. Write a comparison equation using <, >, = to show your answer. (2 points – 1 point for the symbol, 1 point for correct numbers)

Grade 4 Formative Assessment

Jaden made 6 bracelets. He gave away 1/3 to his friends.

Part A:
How many bracelets did he give away? Check all the possible expressions that you could use to solve the problem.

_____1/3 + 1/3 + 1/3 + 1/3 + 1/3 + 1/3

_____ 6 X 1/3

_____ 6 – 1/3

_____ 3 X 2/3

_____ 6 + 1/3

Part B: Create a visual representation to show how many bracelets Jaden gave away.

Jaden gave away _____ bracelets.

Scoring:

Part A: 1 point = 2 out of 3 correct choices selected

Part B: 2 points:
　　　　　　1- Visual representation
　　　　　　2- How many he gave away

234

Attachment 3

Session Three Discussion Questions and Responses

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade K K.NBT.1	A: It did measure progress when I did one skill a day (unifix cubes, sticks and dots, ten frame, sets). When I gave this whole thing, they were confused. They could do the unifix cubes, but then couldn't do the sticks and dots. R: 14 out of 16 kids were able to do the sticks and dots. Asked, "What would be a really easy picture to show a ten stick?" Students then came up with it on their own. Students had difficulty drawing the set. Didn't really get to teach everything because of the snow days. Z: Agreed that her students also had difficulty with a set. S: A lot struggled with sticks and dots. Most got ten frames because of using ten frames for attendance. Surprised on the number sentence – students did well on the number sentence, and that was a surprise. Used number sentences with story problems in prior learning. Students were all over the place with sets. Which showed the most progress: A: Sets Z: Ten Frames S: Ten Frames R: Between ten frames and sticks and dots. Pretty event between the cubes, sticks and dots, and ten frames. Team agreed that sticks and circles is the most efficient way to compose ten and extra ones.	Shows you what kind of thinkers the students are. Some really need the manipulatives and hands on activities, while others prefer the drawings. It helps us identify the types of learners that we have. A few students put the ten lines on the sticks to show ten.	I'm not sure if I'd change it, but I'm interested in using it again at the end of Unit 3. Can they use bigger numbers? It offered students the opportunity to show the numbers in different ways. It highlights strengths and weaknesses. It's a really good assessment of our teaching. It lays out each type of strategy for them. What was the problem with the sets? They weren't taking their time. For the sets, one student drew the ten circles and then shaded in the two circles to represent the two ones (for the number 12). Next Steps for Unit 3: Lots of opportunities for incorporating the skills in the standard. For example, add these methods in the calendar routine, and attendance. Big focus in Unit 3 is on sets and representing numbers; must know a group of ten. Building place value understanding.

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade 1 1.OA.6 1.MD.4	Six Question Assessment Question 1 (1 pt) - Decompose 1 pt: 60 Question 2 (3 pts) – Organize data 3 pts: 54 2 pts: 5 1 pt: 1 Question 3 (3 pts) – Represent data 3 pts: 55 2 pts: 4 1 pt: 0 0 pts: 1 Question 4: (1 pt) – Write a sentence about the data (interpret) 1 pt: 43 0 pts: 17 Question 5 (3 pts) – Compare two categories: What is the difference between _____ and ___? (Students determined the categories) (interpret) 3 pts: 30 2 pts: 11 1 pt: 12 0 pts: 8 Question 6 (1 pt) – How many students (total) are in the class? 1: 59 0: 1 L: Students bombed on comparing the difference (question 5). J: Students had difficulty with the difference. Struggled with counting up on the graph.	Students needed more time setting up a bar graph "Low" students used part part whole strategy; some used anchors of 5 to make a ten. Organized it so that they made a ten first, and then used the extra ones. Precision: Even though one student showed a high level of understanding, she lacked precision on writing the numbers in the graph. Creative thinkers took off because there were multiple strategies that could be used. Multiple entry points, multiple answers. Students need to justify their answers.	Add a table component. Decomposing into 3 addends: should have been an equation with 3 addends to help them justify or prove their answer. Is this an assessment piece or an instructional strategy? Need more practice with representing the data. Takeaways: - Do more lessons like this with graphing - Teach academic vocabulary - Do more critical thinking strategies, even in different content areas. - Looking for patterns (purpose and reason for actions)

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade 2 2.MD.10 2.NBT.4 2.NBT.5 Big take away: Formatting affected how well students answered the questions.	*Sue was tracking the number of minutes she read each night for her reading log. Her teacher asked her to graph the number of minutes she read each day to show the total number of minutes she read in a week.* Question 1 (Scale: 0 1 2 points): **PARTIALLY MEASURED PROGRESS** Complete the bar graph to show how many minutes she read on Wednesday and Thursday. 1st Admin. 2nd Admin. 0: 12 0: 7 (Were they close? Scribbling, some were 1 off, not counting correctly 1: 17 1: 6 2: 32 2: 48 Students did not draw neatly. All numbers were not listed for the increments. Inaccuracy for drawing lines. Some students filled in the missing numbers to complete the scale. Gridlines needed to be accurate. Question 2 (Scale: 0 1 2 points): **DID NOT MEASURE PROGRESS ON FOCUS STANDARD** How many minutes did Sue read this week? Justify why you got the answer you did. 1st Admin. 2nd Admin. 0: 42 0: 25 (Adding 4 2-digit numbers is still very difficult) 1: 11 1: 18 (More students justified their answer which was actually added wrong) 2: 7 2: 18 (Only 7 understood what it is asking. Formatting was an issue) Students need to read carefully to understand what the question is asking. Students need to add correctly. Issue with the formatting – no lines for the answer, no lines for the explanation. Students had access to manipulatives/math tools (cubes, base 10 blocks, 100s chart) Students did not read and understand the question. Intent: to add multiple numbers (2.NBT.5). *Sue wants to see if she read more minutes this week compared to last week. Last week she read a total of 109 minutes.* Question 3 (Scale: 0 1 2 points): **FULLY MEASURED PROGRESS ON FOCUS STANDARD** Write a comparison equation using <, >, + to show your answer. 1st Admin. 2nd Admin. 0: 11 0: 7 1: 18 1: 31 2: 32 2: 22 For students who earned a 1, they used the comparison correctly, but not with accurate numbers.	Students need to read the questions carefully. Go back, where did you make a mistake, do it more whole group. Checking your work. Students need more practice with reading to understand what the question is asking. The word 'justify' threw them off. Students need reading strategies to unlock the problem.	Gridlines need to be accurate. Have the problem and the graph on the same sheet or side by side. Read question out loud and explain what students are to do. Put lines for an answer and the justification. Provide template for the comparison. Question 2 should be after the graph. Title on the table should be revised.

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade 3 3.MD.8	Part A (10 Points): Correct factors, area, and perimeter Students had difficulty with: T: Factors, Perimeter R: Perimeter D: They were given areas and had to find the perimeter. The numbers in the problem did not lead to much of a change in the perimeter or to exploring the options of different shapes. 20 was the only one that they could do with multiple factors. The size of the grid limited options. Multiplication is new, so 'friendly' numbers are used. However, limiting to things students are comfortable with, counting by 2s and counting by 5s, limited their options.	Students needed to be reminded to find additional factors. R: Asked students: What information is not necessary? Students did not follow directions Students made careless mistakes T: Thought of area as an array Using colors without a plan caused erasing trouble for some students.	Consistent formatting See if they can find the perimeter using different ways. Find all the ways you can make the perimeter of ___. Put it into a problem-based lesson.

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade 4 4.NF.4a	To make sure that they could do the visual representation Use what you know about prior multiplication knowledge, but applying it to fractions… Part A: Choices caused confusion. Some students solved them, they were not used to having more than one choice. It's hard to identify the progress because the choices threw them off; they were confused on how we approached the question. This assessment showed us that they are not used to this format. Part B: Depended on how the visual representations were drawn. Part A (1 PT): Check all the expressions that… 1 pt: 21 .5 pt: 1 0 pts: 22 Part B (2 pts): Visual representation, Answer 2 pts: 18 1 Pt: 8 (all received one point for the visual representation) 0 pts: 18 Many students represented sixths. Many don't have the fraction concepts. H: three out of five that got zeroes used sixths. E: Subtraction Error. One student added wrong.	If they were subtracting, they created a correct visual representation, but that was not what they were supposed to do. Higher students wanted to choose more for part a – they wanted to choose every single one of them, and then ended up getting one wrong. The lower students actually did better because they only picked the ones that they knew. Re-teaching will be focused on misconceptions, not based on if students got it right or wrong. Need to review taking away a fraction of a whole, not six wholes. Need to review subtraction. Visual Representations: If students did one third separately, they got the answer wrong. If they drew the box and then cut it into thirds then shaded in six of those thirds, they got the correct answer. If they shaded in consecutive boxes, they got the correct answer. Those that solved with the visual representation first wrote the answer as an improper fraction when the question asked them to write it as a whole number. Those who solved it first and then did the visual representation wrote it as a whole number. The visual helps them understand that they are doing parts. It helps them to see that they are multiplying and their number is smaller than what they started with (as a result of multiplying with fractions).	Would not change the assessment because they need the opportunity to see questions structured like this. Change the wording of Part A to read: Jayden made 6 bracelets. He gave away 1/3 of the bracelets. (leaving out the information about the bracelets changed the students' understanding) Should we accept both the improper fraction and the whole number? Perhaps give partial credit?

	How did the assessment measure student progress on the focus standard?	How did the assessment help you to understand the students' learning processes?	How would you change the assessment to give you better information about your students' progress?
Grade 5 5.NBT.B5	Part A (2 pts) 2 pts: 9 1 pt: 34 0 pt: 26 K: "Is pretty close for my class. They usually can get some of it, not all of it." A lot of them could get 805, but couldn't get 15; they could get 14. I have seven kids that can't multiply. Those who don't know their facts just give up. N: Thought that some kids could copy from the second part to solve the first part. Students just grab onto numbers that they know. S: I don't think many of the students used the information on the bottom. About 7 can't multiply. One group of students is still working on single digit multiplication. Part B (2 pts) 2 pts: 12 1 pt: 17 0 pts: 38	Most of the students are pulling out the numbers from the word problems, but not really comprehending what the problem is asking. When they see word problems, they just pull out numbers; they're not reading the whole problem to figure out if there is another step.	Was the question structured too much? The problem that she did is above Part B. That part should be below Part B. They were thinking that that information was part of Part A. Solution: Put Part A on the front and Part B on the back. Question: We had the word 'more' in the question. Is that phrasing used in the PARCC assessments? Having '14 more'…is that too much? Change formatting so that Part A is on the front. Do three parts instead of two. 1.) Find area first. 2.) Find the area of all the gardens. 3.) Then explain their thinking and how they got to their answer. Add in Part A that they need to show their work. Next Steps: More practice with word problems Problems where they have to solve it in more than one way Problems where they have to explain their thinking with words When asking kids to explain their thinking: What is happening in the problem? What is the problem asking? What operation do you need to use? What is the process/procedure? What is the answer?

Attachment 4

Final Evaluation Survey Instrument

The Implementation Shifts are a series of professional learning experiences intended to increase teachers' knowledge of changing expectations for students as a result of the Common Core State Standards. The Implementation Shifts follow a set sequence for three professional learning experiences. During the first learning experience, new content based on the CCSS is introduced. During the second learning experience, teachers use the new content to plan an assessment for students based on the new content learned. During the third learning experience, teachers analyze student progress on the activity and/or assessment that they planned and identify how instruction needs to change for students to make progress on the target standard(s).

1. Identify your grade level.

2. Rate your level of agreement for the following statement: *This process facilitated professional learning*.
Strongly Agree   Agree   Disagree   Strongly Disagree

3. For the Implementation Shifts focused on math assessments, in what area did your knowledge increase *most*?
___ My knowledge increased *most* on my understanding of the target standard(s) on which my team chose to focus.
___ My knowledge increased *most* on creating clear assessment criteria.
___ My knowledge increased *most* on understanding student expectations on the math PARCC assessments.
___ Other:

4. From this learning experience, what will you incorporate into your **planning** practices?
Check all that apply.
____ Studying the target standard and developing my understanding of what is expected of students
____ Identifying clear assessment criteria
____ Developing assessments that measure progress on the *entire* standard (not just one part)
____ Other:

5. From this learning experience, what will you incorporate into your **instructional practice** (lesson delivery)? Check all that apply.
____ Providing multiple pathways for students to demonstrate their understanding
____ Sharing assessment criteria with students

6. Please share what you found to be positive about this learning experience.

7. Please share what you found to be negative about this learning experience.

8. What other supports do you need to shift math planning and instructional practices to help students meet the expectations outlined in the Common Core State Standards?
___ Focused planning time with the Intervention Resource Teacher
___ Professional development focused on the math progressions
___ Assistance with the development of a KUDo frame for specific standards
___ Other

9. Looking ahead to next year, should the Implementation Shifts *process* continue as a professional learning experience?

      Yes   No

Comments:

Appendix G

**DEVELOPMENT AND USE OF A WALK-THROUGH INSTRUMENT
FOCUSED ON MATHEMATICS INSTRUCTIONAL PRACTICES**

Introduction

During the second semester of the school year, teachers worked collaboratively during two professional learning sessions to create a walk-through instrument focused on student behaviors during mathematics. The impetus behind the walk-through instrument was two-fold: to develop a structure for teachers to visit other classrooms during math instruction; and, to shift math planning and instructional practice to better align with the changing expectations called for from the math Common Core State Standards (CCSS). In the first session, teachers identified possible student learning behaviors during math instruction, came to consensus on walk-through norms, and developed the first walk-through instrument. Prior to the second session, each teacher utilized the walk-through instrument while observing math instruction in another classroom. In the second session, teachers reviewed the walk-through data collected from the first round of observations, identified student actions during math instruction, and revised the instrument based on their experience using it. Teachers then utilized the walk-through instrument one more time while observing in a different classroom.

Session One

The first professional learning session was conducted on a professional development day in which students were not in the school building; the session lasted about two hours. The session was designed to foster teacher-ownership of the walk-through process and instrument. Teachers were grouped heterogeneously so that they did not focus solely on their own grade level, but thought about student learning behaviors in mathematics from a school-wide perspective; this also ensured vertical alignment between the grade levels.

The first session was entitled, "Developing a Structure for Teachers to Visit Other Classrooms: Shifting Math Instructional Practices." The first part of the session set the stage for the work in which teachers were expected to engage during the morning; it began with teachers answering the question, "What happens when teachers visit other teachers?" In addition to their individual responses, the following responses to the opening question were also shared: note useful practices, build confidence to try something new, increase motivation to improve our practices, identify areas for professional development, and accelerate improvement in student performance. The four main outcomes of the session were articulated to teachers:

1. To provide more instructional support to teachers;

2. To validate current practices that align with the shifts in math instruction;

3. To build coherence between grade level concepts; and,

4. To shift math planning and instructional practices.

We then reviewed the three major shifts in math instructional practice that were called

for as a result of the math CCSS, which helped to anchor the work for the session.

A list of 17 potential student behaviors during math instruction was given to

teachers to review as well as the article, "Why the Common Core Changes Math

Instruction." The list of student behaviors was developed based on the Standards of

Mathematical Practice (see Attachment 2 for the full annotated list of student

behaviors). Teachers had 20 minutes to review the list of student behaviors, read the

article, and work with their team to narrow the list of 17 student behaviors to 10

student behaviors. Teams had the option of adding up to two student behaviors that

were not on the list. The 17 student behaviors were displayed prominently as well as

the additions to the list that individual teams made. Each team then put a checkmark

next to the 10 student behaviors that they selected. Teachers were able to visually

observe the other team's choices. In order to come to consensus on the student

behaviors, each teacher was given 10 individual "dollars" to vote on their top five

picks that they could "spend" any way they wanted (see Figure G.1).

Figure G.1. Coming to Consensus on Student Behaviors

Table G.1 displays the top six student behaviors selected by the teachers.

Table G.1

Top Student Behaviors

Student Behavior	Number of Votes
Represent the problem with visuals or math tools	55
Reflect on their thinking (for example, evaluating the reasonableness of their answer, identifying patterns, independently make connections to prior knowledge, etc.)	36
Communicate and justify their solutions	32
Apply math concepts to real-world problems (may include community or school problems)	24
Use a variety of math tools and can easily flow between different tools (formulas – graphs – function tables – number lines) and/or match the math tool with its purpose	22
Talk to other students about how they might solve the problem. (Partner, small group, or whole group discussion)	21

Teachers then took a brief online survey to gain their input on what to name the visits, how frequently teachers should visit classrooms, and how much time visitors should spend in the classroom. The results from the consensus activity and the brief survey were shared with the teachers and discussed as a group. The teachers determined that it was reasonable to focus on six student behaviors during math instruction. The majority of teachers voted that the walk-throughs should be called "Learning Walks;" during the discussion of the name, teachers decided on "Math Learning Walks: Where We Walk, Stalk, and Talk" (see Table G.2). Teachers determined that they would like to engage in Math Learning Walks at a minimum once per marking period, with the option to do them once per month if time and funding permits (See Table G.3).

Lastly, they decided that visitors should spend approximately 11 – 15 minutes in the

classroom during the Math Learning Walk, but it was okay if the visit was a few

minutes over or under the allotted time (see Table G.4).

Table G.2

Survey Responses Related to Name of Walk-through Tool

	What should we NAME our classroom visits?
	number
Learning Walks	11
Professional Learning Visits	8
Collaborative Walks	6
Instructional Walks	1
Other	4

Note. n=30

Table G.3

Survey Responses Related to Frequency of Visits

	How FREQUENTLY should teachers visit other classrooms?
	number
Once per marking period	14
Once per month	14
Twice per month	2
Once per week	0

Note. n=30

Table G.4

Survey Responses Related to Length of Visits

	How much TIME should visitors spend in each classroom during the visit?
	number
1 to 4 minutes	1
5 – 10 minutes	8
11 – 15 minutes	12
More than 15 minutes	9

Note. n=30

The next part of the first session focused on the best way to collect data on the student behaviors while visiting classrooms. Teachers were given two options from which to choose: yes/no or not evident/somewhat evident/fully evident. In their groups, teachers discussed the options based on the outcomes for the session:

Why?

How will that choice provide more instructional support to teachers, validate current practices that align with the shifts in math instruction, build coherence between grade level concepts, and/or shift math planning and instructional practices?

The two options were displayed prominently on chart paper and each team used a sticky note to vote on their choice. Teachers also wrote suggestions on the sticky notes. Three teams voted on the yes/no option, and two of the three teams suggested that it be worded as "observed/not observed at the moment." Five teams voted for not evident/somewhat evident/fully evident, and three teams commented on their selection. One team wrote, "If a practice is not fully observed sometimes, then 'somewhat evident' captures that." Another team suggested that the data sheet should

include a note-taking section to provide more information, while the third team stated that examples should be noted as evidence of the rating.

Lastly, the first session ended with a discussion on logistics including start dates, substitute coverage, and time for debriefing, and then they completed an optional open-ended survey to determine the norms and guidelines of the math learning walks. Of the 30 responses collected related to the norms and guidelines visitors should follow when in the classroom, 23 indicated that visitors should not interrupt instruction while in the classroom by talking to the teacher or to the students at inappropriate times. Five teachers indicated that it was acceptable to speak to students when direct instruction was not occurring, such as when they work together at their table groups. Three responses indicated that visitors should walk around the classroom, and two suggested that visitors leave a compliment/positive note for the teacher. When asked what other perspectives should be considered, five of 26 responses shared that the learning walks were an opportunity for both teachers to learn. Four responses indicated that it was necessary to be open-minded, and four other responses suggested that concrete feedback on improvements should be offered. In order for the math learning walks to be successful, seven of 29 responses indicated that the learning walks need to be viewed in a positive light and that conversation about the learning walks should be framed positively. Six responses indicated that all participants needed to have an open mind; six responses indicated that there needs to be time to debrief; four responses indicated that the visitors need time to reflect on

their observation before debriefing. Results of the survey were shared with staff in raw format, and then compiled into a logistics document (see Attachment 3).

Use of Walk-through Tool – Round 1

The first version of the walk-through tool was created based on the teachers' input during session one and then sent out to staff for review (see Attachment 4). It included six student behaviors, an area for notes, and two sentence starters for reflection: "My thoughts and ideas for ways I can change my own teaching…" and "I wonder…" Teachers chose a colleague in a grade level above or below their own to visit, and then collaboratively scheduled the visit and time to debrief. Two rotating substitutes were secured and scheduled based on the schedule determined by the teachers. Teachers engaged in the first round of math learning walks approximately three weeks after the initial professional learning session.   After the initial visit, teachers copied their math learning walk data collection sheet and submitted it to the office; no teacher names or grade levels were to be identified. The data for the student behaviors were entered into Qualtrics (see Table G.5). The data for the optional open-ended question, "My thoughts and ideas for ways I can change my own teaching…" were coded and are summarized in Table G.6; the data for the second open-ended question, "I wonder…" were not coded because they were very specific to the individual lesson and did not offer information regarding the shift in instructional practice. After engaging in the math learning walks, teachers shared with me anecdotally that they wanted to define the student behaviors more explicitly; as a

result, this became an activity for the next professional learning session focused on math learning walks.

Table G.5

Round 1 Math Learning Walk Data

	Not evident at the moment		Somewhat evident		Fully Evident	
Student Behavior	number	percent	number	percent	number	percent
Students talk to other students about how they might solve [or how they solved] the problem.	0	0	8	32	17	68
Students represent the problem with visuals or math tools.	1	4	3	12	21	84
Students reflect on their thinking.	3	12	5	20	17	68
Students communicate and justify their solutions.	4	16	7	28	14	56
Students apply math concepts to real-world problems and situations.	9	36	5	20	11	44
Students use a variety of math tools, can easily flow between different tools, and/or match the math tool with its purpose.	5	20	7	28	13	52

Note. n = 25

Table G.6

Round 1 Math Learning Walk Responses to Open Ended Question 1

	My thoughts and ideas for ways I can change my own teaching…
	number
Incorporate collaborative structures	6
Use more manipulatives	3
Give students an opportunity to explain reasoning	2
Incorporate realistic problems	2
Use specific language while teaching	2
Provide more opportunities for teacher-directed small groups	1
Show multiple ways to represent numbers	1
Incorporate more "Number Talks"	1
Increase think time	1
Have students represent the problem visually before solving it	1
Set expectations for each part of the lesson	1
Model think alouds	1

Note. n=22

Session Two

Approximately three weeks after teachers visited other classrooms for math learning walks, the staff came together to review the data and define the student behaviors. Session two followed a similar opening format as session one in which teachers were grouped heterogeneously; the overall outcomes of the math learning walks were shared; the three main shifts in math instruction were reviewed. Teachers then received a packet that contained the raw data from Qualtrics (see Attachment 5) and worked with their group to analyze the data. Teachers were asked to discuss the following questions:

1.) Which student behaviors were most prevalent during the visits?

2.) Which student behaviors were least prevalent?

3.) What do you wonder?

4.) What do you hypothesize?

Teachers then engaged in an activity in which they brainstormed possible student actions that would show evidence of the identified student behaviors. Each group was given four to five of the six student behaviors so that each teacher had one student behavior in front of them at all times. They were first to think silently about student actions that would constitute evidence of the student behavior, write one student action on the paper, and then indicate to their group that they were done thinking and writing by putting up their thumb. Once all group members were ready, they would pass the paper to the person on their right. This process continued for four minutes. When the activity was completed, each group had brainstormed several actions that would constitute evidence of the student behaviors. We engaged in a whole group discussion based on the following questions:

1.) Was it difficult to come up with student actions for any of the behaviors?

2.) Which ones?

3.) Do we need to revise our checklist?

4.) If so, how?

The teachers determined that there should only be one student behavior focused on the use of math tools; they concluded that the statement, "Students use a variety of math tools, can easily flow between different tools, and/or match the math tool with its

purpose," was too cumbersome and that the statement, "Students represent the problem with visuals or math tools," was sufficient.

The math learning walk data collection sheet was revised to reflect five student behaviors and the evidence of those student behaviors that teachers had brainstormed (see Attachment 6). The revised data collection sheet was emailed to teachers for review and then utilized during the second round of math learning walks.

Use of Walk-through Tool – Round 2

For the second round of math learning walks, teachers scheduled their visits electronically and visited the grade level above or below their own that was not visited during the first round of math learning walks. A total of 15 math learning walks were conducted; fewer math learning walks were conducted during the second round as a result of absences and spring assessments. Teachers engaged in the second round of math learning walks approximately two and a half weeks after the second professional learning session. After the classroom visit, teachers copied their math learning walk data collection sheet and submitted it to the office; no teacher names or grade levels were to be identified. The data were entered into Qualtrics (see Table G.7). The data for the optional open-ended question, "My thoughts and ideas for ways I can change my own teaching…" were coded and are summarized in Table G.8. Based on the timing of the second round of math learning walks and previously scheduled professional development plans, the data from the second round of math learning walks was not shared with or formally analyzed by teachers.

Table G.7

Round 2 Math Learning Walk Data

	Not evident at the moment		Somewhat evident		Fully Evident	
Student Behavior	number	percent	number	percent	number	percent
Students talk to other students about how they might solve [or how they solved] the problem.	0	0	3	20	12	80
Students represent the problem with visuals or math tools.	2	13	4	27	9	60
Students reflect on their thinking.	2	13	2	13	11	73
Students communicate and justify their solutions.	1	7	5	33	9	60
Students apply math concepts to real-world problems and situations.	3	20	4	27	8	53

Note. n = 15

Table G.8

Round 2 Math Learning Walk Responses to Open Ended Question 1

	My thoughts and ideas for ways I can change my own teaching…
	number
Incorporate collaborative structures	4
Use more manipulatives	3
Give students an opportunity to explain reasoning	1
Incorporate realistic problems	0
Use specific language while teaching	3
Provide more opportunities for teacher-directed small groups	
Show multiple ways to represent numbers	1
Incorporate more "Number Talks"	0
Increase think time	0
Have students represent the problem visually before solving it	0
Set expectations for each part of the lesson	0
Model think alouds	0

Note. n=12

Comparative Review between Round 1 and Round 2

A comparative review of the first and second round math learning walk data

shows that there were differences in the level of evidence of student behaviors that

were observed. In the first round of math learning walks, the student behavior,

"Students represent the problem with visuals or math tools" was fully evident in 84%

of the classroom visits. During the second round of math learning walks, this same

student behavior was only fully evident during 60% of the classroom visits. From the

first to second round of math learning walks, there was an increase in the level of fully

evident in four of the five student behaviors. With only two rounds of math learning walks, this increase cannot be utilized to measure a true shift in instructional practice. However, "Students apply math concepts to real-world problems and situations," was consistently the student behavior with the highest percentage of "not evident at the moment" ratings during the first and second round of math learning walks. During the second round of math learning walks, the majority of teachers indicated on the open-ended question that they wanted to incorporate more collaborative structures during instruction and use more manipulatives; this was consistent with the responses to the same question from the first round of math learning walks.

Reflection

The two main objectives of the math learning walks were to: 1.) develop a structure for teachers to visit other classrooms during math instruction; and, 2.) shift math planning and instructional practice to better align with the changing expectations called for from the math Common Core State Standards. The first objective was accomplished in its entirety. A successful structure was developed for teachers to visit other classrooms; this structure incorporated the direct observation of specific math learning behaviors, individual reflection, and meaningful dialogue between colleagues. The development of the math walk-through tool was rewarding for teachers and for me. It was fun. As the school leader, I facilitated the development of the tool, but it was teachers who made the decisions regarding the student behaviors, norms, and guidelines. During the first session in which the math learning-walk tool was created, I had to be very explicit that this was not a tool to evaluate teachers. Teachers needed

reassurance that a learning walk tool was not going to be a "gotcha" or something that would be reflected in their annual evaluation. Many of these feelings stemmed from my first year at the school in which the county-developed walk-through tool was introduced; I was in the classrooms frequently and provided constructive feedback during the visits. While my intent was not to be evaluative, the teachers and I had not established a trusting relationship and they perceived the visits and feedback to be just that. It took over a year to fully develop trusting relationships where teachers did not feel threatened or on edge when I came into their classrooms. When we first got started during the initial professional development session, there was an observable feeling of angst; it was obvious that teachers weren't sure how the structure of visiting other classrooms was going to impact them. Through conversation and shared decision-making, the angst turned to productivity; the teachers fully engaged in the process, articulated what was important to them, and then left the session excited to visit other classrooms. It was very important to me that the math learning walks not be stressful or negative in any way. My assistant principal and I intentionally did not schedule ourselves for math learning walks to convey that this was teacher-owned. Prior to the second session in which we were to revise the tool, I approached one teacher and asked her if she would be comfortable with me visiting her classroom during math to use the math learning walk tool. I shared with her that I wanted to use the tool and follow the process before we made revisions to it. She was more than welcoming and I found first hand that there were a few areas that needed to be changed on the math learning walk tool.

The second objective of the math learning walks, to shift math planning and instructional practice to better align with the changing expectations called for from the math Common Core State Standards, is one that will take years to accomplish fully; however, we have made progress towards meeting this objective by engaging in math learning walks. The teachers are talking about math instruction and thinking about what they can do differently; this is progress. During the weeks that teachers participated in the math learning walks, there was a buzz in the building. Teachers were talking about math instruction, reflecting on their own practice, and thinking about what they can do differently for their students. Teachers were also noticeably happy; it was evident that they felt good about what they were doing. The math learning walks energized staff and increased morale for that time period. During a focus group following both rounds of math learning walks, one teacher shared her experience with the math learning walks: "I like the math learning walks…I felt like I could learn…It was less pressure for me when it was just the teacher coming in. That's what I like about the math learning walk. It was interesting for me to go in and see how another teacher teaches. I feel like that helps me grow and gives me ideas and helps me reflect on how I do it. I like them!"

Based on my observations of teachers planning and delivering math instruction, I feel that they have made progress in their implementation of the math Common Core State Standards over the last few years; the data from the math learning walks help to support these observations. For example, during planning sessions teachers are working with their grade level teammates to deconstruct and make

meaning of the math standards; teachers are also engaging in conversations to deepen their understanding of the concepts that they are expected to teach. In the classroom, students are working together frequently to identify problem-solving strategies and they are also using drawings or math tools to represent their thinking. In many classrooms that I have visited, students are also able to explain why they chose specific math tools.

The development and implementation of the math learning walks was one of the first overt steps taken to deprivatize professional practice across grade levels. Teachers have historically collaborated with their grade level teams for professional learning, but they have not had consistent opportunities to work with teachers or visit classrooms from grade levels different than their own. The math learning walks have literally opened doors for teachers to engage with one another across grade levels and make sense of what it means to align instruction vertically. The math learning walks have involved teachers in authentic, collaborative professional learning.

If I were to facilitate the development of a math learning walk structure and tool again, there are only a few things I would change. First, if there was an unspecified amount of time to engage teachers in the development of the tool, I would have them study each Standard of Mathematical Practice (SMP) and identify all of the possible learning behaviors that correlate to that SMP. Then, I would have the teachers narrow down all of the behaviors and create the actual student learning behaviors on the tool themselves. This would help to build their capacity of what is expected of students. However, since time was limited, I researched the learning

behaviors associated with the Standards of Mathematical practice and narrowed them down to a feasible number for the teachers. Second, I would have teachers work in vertical teams each marking period to identify the common concepts that are taught and then define how each math learning behavior would look in the particular grade level. This would help teachers to build their understanding of the target concepts not only in their individual grade level, but also based on the progression of skills across grade levels. Lastly, I would develop a structure to hold teachers accountable for making changes to their instructional practice since this aspect is missing from the math learning walks. With the existing structure, I am unaware of the ways in which individual teachers intend to change their own teaching based on their experience in another classroom because the data are collected anonymously. One way to increase accountability for making changes to existing practice would be to work with teachers at the beginning of the school year to set measurable individual and team goals in the areas of planning for and teaching mathematics. We would collaboratively develop measures of success for each of the goals and schedule supportive "check-in" meetings throughout the school year. During the check-in meetings, we would discuss goal progress and how their experience of engaging in math learning walks contributes to meeting those goals. This would allow me to follow-up with teachers and provide them ongoing support to help shift their planning and instructional practices.

In order to continue shifting math planning and instructional practice in the upcoming school year, math learning walks will continue to be conducted. It will be a goal to have teachers visit other classrooms at least one time during each marking

period. Two of the aforementioned changes may be incorporated. Scheduling will dictate whether or not vertical teams work together each marking period to identify common concepts and define the associated math learning behaviors; teacher buy-in will be a determining factor for implementing the accountability provision.   As the school leader, I need to schedule in the time for staff to analyze the data following each round of math learning walks and to dialogue about the instructional practices that are having the biggest impact on student learning. The continuation of math learning walks coupled with teachers engaging in reflective dialogue about math instruction will deprivatize practice, build teacher capacity, and build a positive school culture, all of which are necessary to increase student learning.

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Developing a Structure for Teachers to Visit Other Classrooms

Shifting Math Instructional Practices

What Happens When Teachers Visit Other Teachers?

We can…
- Note useful practices
- Build confidence to try something new
- Increase motivation to improve our practices
- Identify areas for professional development
- Accelerate improvement in student performance

Our Purpose

- To provide more instructional support to teachers
- To validate current practices that align with the shifts in math instruction
- To build coherence between grade level concepts
- To shift math planning and instructional practices

Let's Review!

3 Major Shifts in
Math Instructional Practice

Focus → Coherence → Rigor

Shift 1

Focus

Fewer standards, more time on each standard

Focus deeply on the concepts that are prioritized in the standards

Result: Strong foundational skills & transference of skills across concepts and grades

Shift 2

Coherence

Each standard is not a new event, but an extension of previous learning.

Shift 3

Rigor

Procedural Skill & Fluency	Deep Conceptual Understanding	Applications (Modeling)
Speed & accuracy with simple calculations Fluency with core functions	Making connections between prior knowledge and new learning Knowing the meanings of the 4 basic operations, knowing what their mathematical properties are, and how they can be used	Use math and choose the appropriate concept for application Apply math to "real world" situations Apply math to other disciplines to make meaning of and access content

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When we visit other classrooms, we are going to focus on what **STUDENTS** are doing during math!

Classroom Visits during Math

When we visit other classrooms, which student behaviors should we focus on ?

Activity (Part I):
- Review the list of "Student Behaviors During Math Instruction" and the article, "Why the Common Core Changes Math Instruction"

- From the list of student behaviors, identify 10 that your team thinks should be the focus of the classroom visits

- Your team may choose to add up to 2 student behaviors that are not on the list

Coming to Consensus

Activity (Part II)
- Once your team has identified the 10 student behaviors that we should focus on during classroom visits, put a check mark next to each of those behaviors to indicate your team's preference.
- If you came up with other student behaviors, add each one to an individual white sheet of paper (make sure each one is on a separate piece of paper) and post them.

Coming to Consensus – Spend A Buck

- Rotate to the different pieces of chart paper

- Put your "money" on your top 1 to 5 picks

Let's Get Started on Our Protocol!

Open the email titled, "Shifts Survey – Part I"

- What should we name our visits?
- How frequently should teachers visit classrooms?
- How much time should visitors spend in the classroom?

Let's Review the Spend A Buck & Survey Results!

How many student behaviors are reasonable to note in a short time frame?

Remember, we are focusing on *math shifts!*

SURVEY RESULTS

FREQUENCY
- 1X MP = 14
- 1X MONTH = 14
- 2X MONTH = 2

TIME
- 1 – 4 MIN = 1
- 5 – 10 MIN = 8
- 11 – 15 = 12
- > 15 = 9

NAME
- LEARNING WALKS – 11
- PL VISITS – 8
- COLLAB WALKS – 6
- INSTR WALKS – 1

- OTHER
- MATH WALK THROUGHS
- THE MATH PATH
- WALK STALK & TALK

Making Sense of Our Visits

Logistics

- Start in February?
- Substitute coverage
- 2 teachers at a time?
- Time to debrief

Closure and Wrap-up

Open the email titled, "Shifts Survey – Part II"

- What norms or guidelines should visitors follow during classroom visits?
- What other perspectives would you like to share about classroom visits?
- What needs to happen for classroom visits to be an effective professional learning experience for our staff?

Responses will be synthesized and sent out to all participants.

Thank you for your thoughtful contributions!

Attachment 2

Student Learning Behaviors during Math Instruction
Aligned to the Standards of Mathematical Practice

Developed from:
Flaming, M. (2012). *Weekly math ideas*. Retrieved from:
http://michellef.essdack.org/blog.

Student Learning Behaviors During Math Instruction	Standards of Mathematical Practice
Talk to other students about how they might solve the problem. (Partner, small group, or whole group discussion)	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP6: Attend to precision. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.
Think about and try several ways to solve the problem	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP4: Model with mathematics. MP5: Use appropriate tools strategically.
Use a variety of mathematical tools to solve the problem	MP4: Model with mathematics. MP5: Use appropriate tools strategically. MP6: Attend to precision. MP7: Look for and make use of structure.
Share their thinking and solution.	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP8: Look for and express regularity in repeated reasoning.
Represent the problem with visuals or math tools.	MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP4: Model with mathematics. MP5: Use appropriate tools strategically.
Explain their answers, not just how they arrived at it.	MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP6: Attend to precision.

Student Learning Behaviors During Math Instruction	Standards of Mathematical Practice
Reflect on their thinking (for example, evaluating the reasonableness of their answer, identifying patterns, independently make connections to prior knowledge, etc.).	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.
Use symbols to represent the problem.	MP4: Model with mathematics. MP6: Attend to precision.
Use correct math vocabulary when discussing ideas.	MP3: Construct viable arguments and critique the reasoning of others. MP6: Attend to precision.
Communicate and justify their solutions.	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP6: Attend to precision. MP7: Look for and make use of structure.
Apply math concepts to real-world problems (may include community or school problems)	MP4: Model with mathematics. MP5: Use appropriate tools strategically. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.
Use a variety of math tools and can easily flow between different tools (formulas - graphs - problem - function tables - number lines) and/or match the math tool with its purpose.	MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP4: Model with mathematics. MP5: Use appropriate tools strategically.
Use correct terminology and are able to give examples and non-examples.	MP3: Construct viable arguments and critique the reasoning of others. MP6: Attend to precision.
Students share strategies and different algorithms with each other and discuss why different algorithms provide the same correct answer	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP3: Construct viable arguments and critique the reasoning of others. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.

Student Learning Behaviors During Math Instruction	Standards of Mathematical Practice
Look for patterns in numbers, operations, number of sides, attributes of shapes, side lengths, etc.	MP4: Model with mathematics. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.
Apply a variety of strategies to solve the same problem.	MP1: Make sense of problems and persevere in solving them. MP2: Reason abstractly and quantitatively. MP4: Model with mathematics. MP5: Use appropriate tools strategically. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.
Discover connections between the procedure and the concept.	MP1: Make sense of problems and persevere in solving them. MP7: Look for and make use of structure. MP8: Look for and express regularity in repeated reasoning.

Attachment 3 - Logistics

SCHEDULING:
Each month, days will be identified for teachers to sign up to visit other classrooms for the purpose of conducting Math Learning Walks. Since substitute coverage will be provided for the visits and the debriefing, teachers will need to identify the classroom(s) they want to visit, the time and length of the visit, and when they will debrief with teacher.

FREQUENCY:
All teachers will have an opportunity to participate in Math Learning Walks at a minimum once during both the third and fourth marking periods. It is our goal to have each staff member participate in the Math Learning Walks at least once per month.

TIME IN THE CLASSROOMS:
On average, teachers will spend approximately 15 minutes in the classroom they visit. If more time is needed, be sure to allow for that when you schedule your learning walk(s).

BEFORE THE VISIT:
Visitors:
- Ask the teacher where it is best that you sit.
- Ask the teacher when/if it is appropriate to talk with students while you're in the classroom.
- Ask the teacher if he/she would like for you to participate in any way while you're in the classroom.
- Ask the teacher if he/she would like a copy of the checklist after the visit.
- Gather your Math Learning Walk materials: checklist, writing utensil, paper on which to leave a note.

Teachers:
- Let your class know that they will have a visitor, and what they should do when the visitor arrives.
- Share with the visitor if you would like a copy of the checklist.
- Share with the visitor if you are open to answering questions and/or debriefing after the visit (this is optional).

NORMS & GUIDELINES IN THE CLASSROOM DURING THE VISIT:
- Slip in quietly and observe what's happening in the classroom.
- If direct instruction is occurring, refrain from interrupting the lesson or talking to students.
- Feel free to walk around the classroom as long as it does not distract the teacher or the students.
- When students are working in collaborative groups, feel free to ask them questions to better understand their thinking.
- As an observer, respect the classroom rules that are in place for students.
- If you visit the classroom with another adult, refrain from engaging in side conversations (it's distracting for the teacher and the student!).
- Leave a compliment for the teacher before you leave (on a sticky note, small piece of paper, etc.). Everyone loves to receive a positive note after a visit!

AFTER THE VISIT:
- Complete the checklist and make copies for yourself and/or the teacher.
- Submit the checklist so that the data can be entered.
- Reflect on what you observed during the visit. What ideas did you come away with to shift your current math planning and instructional practices?
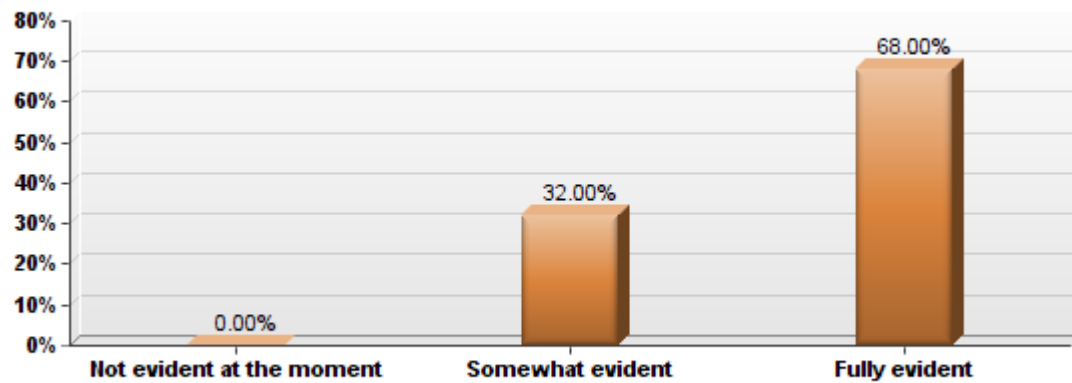
Attachment 4 – Walk-through Tool Version 1

Math Learning Walks
Where We Walk, Stalk, and Talk

Student Behaviors	*Notes*
1. **Students talk to other students about how they might solve [or how they solved] the problem** (with a partner, in small group, and/or during whole group discussion)**.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	
2. **Students represent the problem with visuals or math tools.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	
3. **Students reflect on their thinking** (for example, evaluating the reasonableness of their answer, identifying patterns, independently making connections to prior knowledge, finding a different solution, etc.)**.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	
4. **Students communicate and justify their solutions.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	
5. **Students apply math concepts to real-world problems and situations.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	
6. **Students use a variety of math tools, can easily flow between different tools** (manipulatives, hundreds chart, number lines, graphs, function tables, etc.), **and/or match the math tool with its purpose.** Not Evident at the moment ------------------Somewhat Evident-------------------Clearly Evident	

My thoughts and ideas for ways I can change my own teaching…
I wonder…

1. Students talk to other students about how they might solve [or how they solved] the problem (with a partner, in small group, and/or during whole group discussion).

#	Answer		Response	%
1	Not evident at the moment		0	0%
2	Somewhat evident		8	32%
3	Fully evident		17	68%
	Total		25	100%

2. Students represent the problem with visuals or math tools.
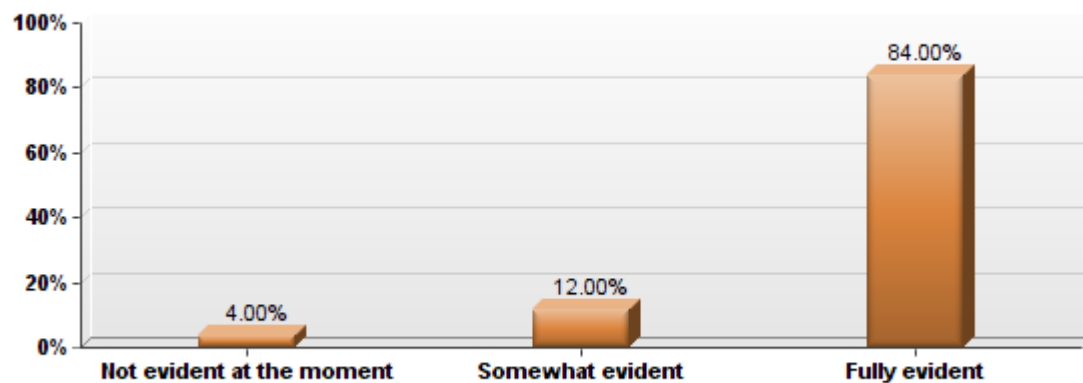
#	Answer		Response	%
1	Not evident at the moment		1	4%
2	Somewhat evident		3	12%
3	Fully evident		21	84%
	Total		25	100%

3. **Students reflect on their thinking (for example, evaluating the reasonableness of their answer, identifying patterns, independently making connections to prior knowledge, finding a different solution, etc.).**
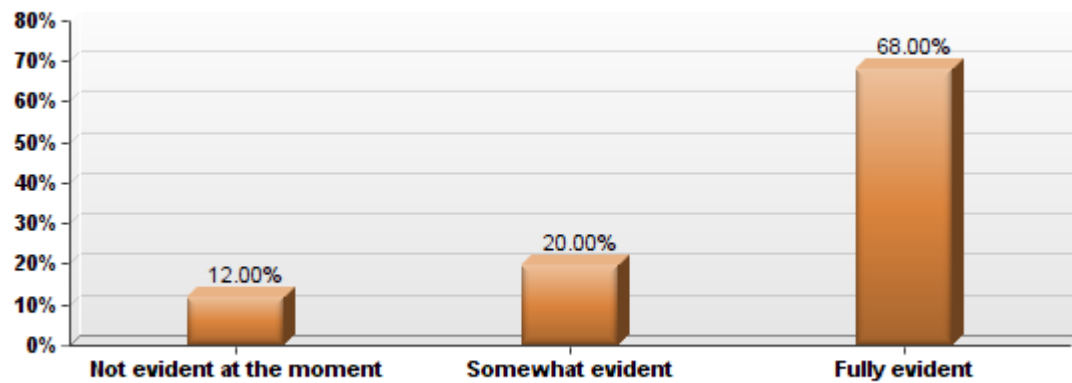
#	Answer		Response	%
1	Not evident at the moment		3	12%
2	Somewhat evident		5	20%
3	Fully evident		17	68%
	Total		25	100%

4. Students communicate and justify their solutions.
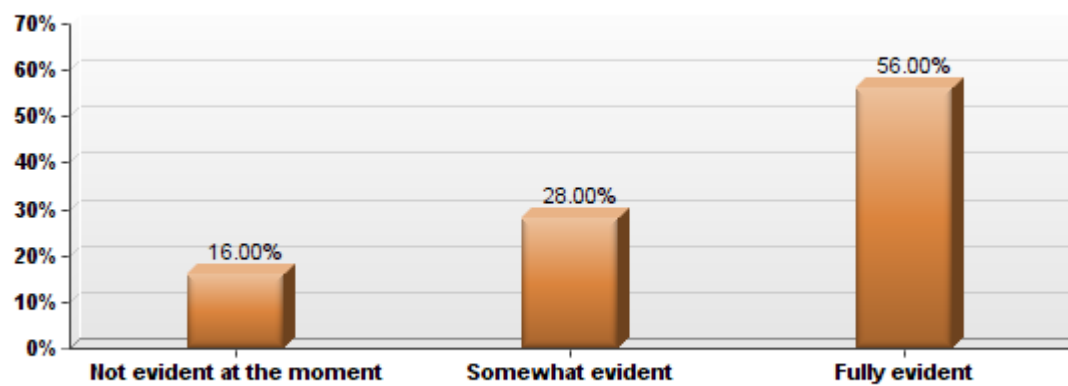
#	Answer		Response	%
1	Not evident at the moment		4	16%
2	Somewhat evident		7	28%
3	Fully evident		14	56%
	Total		25	100%

5.   Students apply math concepts to real-world problems and situations.
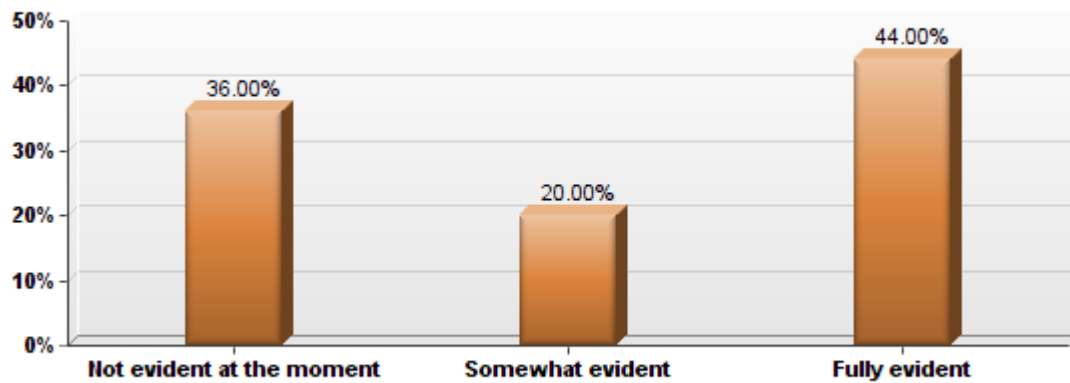
#	Answer		Response	%
1	Not evident at the moment		9	36%
2	Somewhat evident		5	20%
3	Fully evident		11	44%
	Total		25	100%

6. Students use a variety of math tools, can easily flow between different tools (manipulatives, hundreds chart, number lines, graphs, function tables, etc.), and/or match the math tool with its purpose.
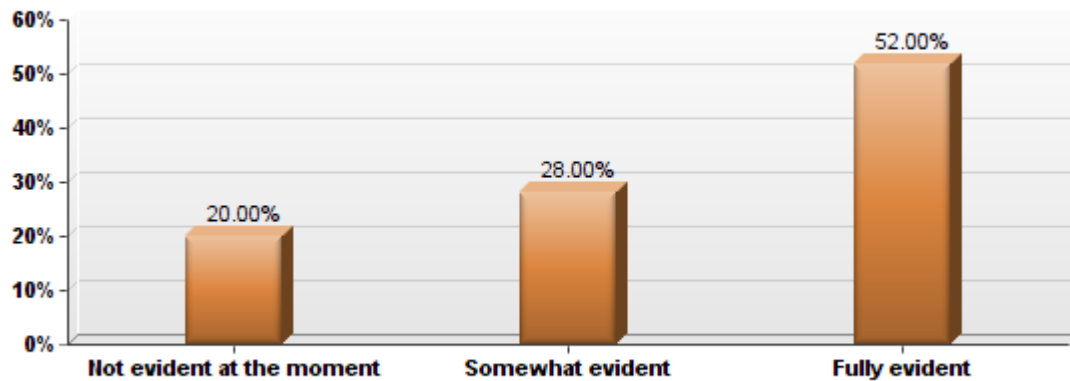
#	Answer		Response	%
1	Not evident at the moment		5	20%
2	Somewhat evident		7	28%
3	Fully evident		13	52%
	Total		25	100%

7. My thoughts and ideas for ways I can change my own teaching...

Text Response
I liked the stars for the problem - plan was to come back. Very hands on.
Giving more opportunities for teacher-led small group
Provide more manipulatives, tools, and partner work.   Be more fun with my silly sayings.
Incorporate more math manipulatives into my centers.
When introducing number lines, show the different types of number lines (by 1s, 5s, 10s).
Use more creative math tools   Use peer share to check answers
Give students more time to explore and think about possible solutions
Allow students opportunities to explain their reasoning and then test their theories.   Saying "Challenge your thinking" instead of "That's not right."
I want to make 0-5 rings for my students. Great way to keep the students engaged. I also noticed Velcro popsicle sticks for making shapes in the math center and I would like to make some for my center.
Draw it before you solve it.
Make problems or task for them to solve more realistic or relevant to their lives.
1.) Identify the objective for the class before the lesson. I'm not sure if I clearly present this.   2.) Ask students to verbally justify their thinking - clarify why they think this way.
Point of interest -- term used for students that wanted to offer a new opinion
Shake and spill for creating equations   Math stations to reinforce skills
Sid the Science Kid   Partner Work
Use more cooperative learning structures.   Provide ample opportunities for movement.
I enjoyed the use of rally coach and will add that into my daily instruction at times.
Real life connections   Modeling think alouds
I'm going to challenge your thinking...nice way to have students self-correct
Bring back CHAMPs!
I would like to incorporate more number talks during my lessons.
Adding more stand-up pair up games that are age appropriate.   Liked some of the teaching techniques used to teach the standard -> similar standard in my grade level.

Statistic	Value
Total Responses	22

8. I wonder...

Text Response
How my students would do with this activity
How my students would do with a set of 5.   If my high students (w/ math) could with an equation at the end of the year.
If introducing higher numbers with the number line will confuse my first graders.
how flex groups work
How my students would do with a similar lesson
Do the special ed students have tools for lessons? Do they have to simplify the fractions?
I think I would consider... Adding a 0 to my numeral rings and presenting problems for it. Also making a set of rings with dots that represent 0-5 instead of numerals. This would be good practice for subitizing.
How she used the preassessment to determine what concepts need to be taught.
How small groups were created
I think that student behaviors #1, 3, 4 were not seen because the students were working independently at their station.
Did you talk about measurement yesterday? How long have you been measuring?
Who the mystery math person is and what is the purpose? Do they earn an incentive?
If the vocabulary will stick with the students as they enter the other grades.   The teacher uses space so effectively for movement in the room.
How long students were working on fractions before this lesson.   What did teaching fractions look like in 1st and 2nd marking period?
What kind of assessment was used besides white board responses?
How well my students would do with similar lesson set up.   How students were able to make transitions successfully and effectively -> How long until they were able to follow the routine?

Statistic	Value
Total Responses	16

Math Learning Walks
Where We Walk, Stalk, and Talk

Student Behaviors	*Notes*
1. **Students talk to other students about how they might solve [or how they solved] the problem** (with a partner, in small group, and/or during whole group discussion)**.** Not Evident at the moment ----------Somewhat Evident-----------Clearly Evident	
2. **Students represent the problem with visuals or math tools.** Not Evident at the moment ----------Somewhat Evident-----------Clearly Evident	
3. **Students reflect on their thinking** (for example, evaluating the reasonableness of their answer, identifying patterns, independently making connections to prior knowledge, finding a different solution, etc.)**.** Not Evident at the moment ----------Somewhat Evident-----------Clearly Evident	
4. **Students communicate and justify their solutions.** Not Evident at the moment ----------Somewhat Evident-----------Clearly Evident	
5. **Students apply math concepts to real-world problems and situations.** Not Evident at the moment ----------Somewhat Evident-----------Clearly Evident	

My thoughts and ideas for ways I can change my own teaching…
I wonder…

Potential Evidence of Student Behaviors

1. Students talk to other students about how they might solve [or how they solved] the problem.	2. Students represent the problem with visuals or math tools.	3. Students reflect on their thinking.	4. Students communicate and justify their solutions.	5. Students apply math concepts to real-world problems and situations.
A student explains his/her thinking while the other one comments or asks questions for clarification of that thinking. All students solve problems on whiteboards. A student comes to the SMARTboard to explain his/her answer and the process of solving it. Students demonstrate their problem solving strategy. Students share their finished work and compare answers. Tip Tip Teach Students share ideas, explain why they think their ideas will work to solve the problem.	Draw a model that illustrates their thinking and solution to a problem or can use math tools to visually display their thinking/solution. Showing their understanding and drawing a visual using math tools in order to show how they got to their solution. Using tools that are the most comfortable and most efficient ways to represent their problems/solutions. Base ten drawings Base ten blocks Unifix cubes Use counters to show arrays Rulers (in/cm) Protractors (angles) Number line	Counting by 10's to 100 make connections when demonstrating 3-digit numbers with base ten blocks Evaluation the reasonableness of an angle measure (drawn or measured) by identifying type of angle and range or reasonability. Ex: My answer is reasonable because the angle is acute and needs to be between 0 and 90 degrees. Go over their responses and evaluate their own thinking by reviewing what they are being asked to do, reversing the operation they completed to get their answer, and asking themselves if their answer makes sense.	Share aloud how they got to their solution and how they know it is right. Display their solution and share with the group. Gallery walk with written justification. Students post their solutions and explain their approach or strategy in writing. Students can search for a solution similar to their own or a different one. Have students verbally explain differences. Teacher goes next to students and quietly asks what they did and why. Students could also share the resources or strategies used. Pair and share, discuss differences.	Students show work, use models, write equations, use tools etc. to solve a problem that has been purposefully crafted to simulate a real world situation. Students write in journals regarding word problems that they might encounter. Ex: Cookies that have been eaten. Students make real world connections to concepts such as building a Valentine's mailbox for their upcoming party. They apply their knowledge of area and measuring to construct the mailbox. Students use their knowledge of area to determine if a picture frame will fit on a wall.

1. Students talk to other students about how they might solve [or how they solved] the problem.	2. Students represent the problem with visuals or math tools.	3. Students reflect on their thinking.	4. Students communicate and justify their solutions.	5. Students apply math concepts to real-world problems and situations.
Students ask questions to better understand a friend's strategy.

Students teach their strategy to others.

A student in a small group starts by saying, "I think we should try this method."

Turn and talk to your shoulder partner about how you came up with your answer.

Students use a Kagan structure to share solutions. Example: Rally Robin.

Students respectfully disagree and justify why.

Students use math vocabulary to justify their answers.

Students support each other with positive feedback and hints/help | Hundreds chart
Sticks and circles

Students using ten frames or ten sticks to represent a number.

Students use blocks to show answers to addition problems.

Students use a number line to represent equivalent fractions.

Students draw a visual representation to show their thought process or explain how they solved the presented problem.

Students use base ten blocks to represent an array (multiplication).

Students use rekenreks properly | Checking (reflecting) on their solutions or thinking, and evaluate their solutions and justify it.

Showing another way to solve the problem and/or use a different operation to check their answer.

Ask team member about the answer – compare their answers and evaluate.

Showing the answer as a visual.

Students share answer with a partner that solved a different way.

Students may discuss their problem solving or solutions to justify how they know their solution makes sense. They may ask each other, "How did you get your answer?"

Students may ask for clarification on another's | Share solutions between groups.

Students may draw a visual to represent how they solved.

Students may justify their answer in terms of reasonableness.

Using a number sentence to prove the solution of a story problem.

After teamwork, teacher asks all students with a certain number (1, 2, 3, 4) to share how their group decided to solve the problem.

Teacher asks student to model how they solved the problem on a poster paper. If students solved it in another way, they would display and explain their answer. Students sign under the examples they did. | Measuring a fence for a yard.

Counting cards to see who won a game at directed play.

Using student-created word problems.

Using money like you are actually buying something from a cashier and the student must check to see if they got the correct amount of change back.

Problem-based lesson: measurement of student bodies with non-standard measurement tools

Students need to add the minutes they have read for Reading Rocks and then compare it to their goal.

Students need to divide an amount of candy equally between friends with |

Appendix H

PROFESSIONAL DEVELOPMENT PLANNING: A COMPREHENSIVE APPROACH

Introduction

For the last three years, professional development has been a key driver for improving student learning at East Lake Elementary School. Teachers have engaged in professional development activities focused on a variety of topics, some for only one session and others for an extended period of time. The impact of professional development on student learning has been difficult to measure because there are many different variables that contribute to student learning. Such variables include, but are not limited to, individual teacher motivation, beliefs, knowledge, and skills; transference of new knowledge into instructional practice; and at East Lake Elementary School, a variety of disconnected professional development topics without clear outcomes. With the implementation of the math Common Core State Standards (CCSS), instructional planning and practice for mathematics needs to align more closely with changing expectations to increase student learning.

The purpose of this paper is to describe how professional learning experiences for teachers in the area of mathematics were planned at East Lake Elementary School. Previous professional development offerings and schedules are examined; the practices of the past are used to inform changes to the way in which professional

development topics are chosen and scheduled. Specific steps are presented that guided the work of the Professional Development Design Team, inclusive of data analysis, identification of clear outcomes and measures of success, identification of appropriate service delivery models, and the selection of topics and corresponding sequence. The overarching goal of engaging in this comprehensive planning process is to help teachers shift their math planning and instructional practices to align with the changing expectations of math Common Core State Standards, and to ultimately increase student learning in the area of mathematics.

Background

At East Lake Elementary School, professional development is at the heart of the school improvement plan. Every Wednesday, students are dismissed early to allow an hour and a half for teachers to engage in collaborative planning and professional learning opportunities. Per the teacher contract, the first Wednesday is considered to be "Teacher Wednesday," in which they can engage in activities of their choosing; the second Wednesday is "Coordinator Wednesday," in which the instructional coordinators in the school district determine the topic for professional learning; the third and fourth Wednesdays are determined by the school improvement team and/or the principal. For the 2013-2014 school year, there were 27 Wednesdays available, not including the first Wednesday of every month, for collaborative planning and professional learning; there were a total of 40.5 hours available throughout the school year. At first glance, this model appears to be supported by best practice and research. Professional development has been shown to impact student

learning when teachers engage in approximately 49 hours of streamlined professional

development (Yoon et al, 2007).   However, teachers engaged in many more

professional learning opportunities beyond the Wednesday afternoon offerings. As

described below, teachers at ELES engaged in potentially 23 topics over the course of

the school year for six hours at most *on one topic*. This is not a model supported by

research or best practice.

Teachers at ELES engage in professional learning opportunities on designated

county professional development days when school is closed for students, in the

morning prior to the start of the school day through extended team planning meetings

and voluntary "coffee talks," in county-led content trainings specific to individual

grade levels, and in school-based trainings ("Implementation Shifts") that focus on

shifting instructional practice based on how students will be assessed on the PARCC

performance assessment tasks and end of the year assessments. The professional

development offered on Wednesday afternoons is mandatory for all certificated staff

and the "Implementation Shifts" series is mandatory for all classroom teachers and

special educators; the "Coffee Talks" offered on Friday mornings are optional. Figure

H.1 outlines the professional learning opportunities offered at East Lake Elementary

School throughout the 2013-2014 school year.

	August	September	October	November	December	January	February	March	April	May
Professional Development Days – 42 hours throughout the school year										
County Planned Prof Days	M - August 19 Instructional Expectations		M - October 21 Content planning			Th - January 16 Content planning			Th - April 17 Content Planning	
School Planned Prof Days	T - August 20 W - August 21 Reflecting on last year PLCs, PBIS, procedural					F - January 17 Math Learning Walks		M - March 31 Math Learning Walks		
WEDNESDAY PD – 40.5 hours throughout the school year (Includes 1 Wednesday in June)										
2nd Wed (Coordinator)		Sept. 11 Coordinator: 1st MP macro-concept Math focus	Oct. 9 Coordinator: 2nd MP macro-concept ELA focus	Nov. 13 Coordinator: 2nd MP macro-concept STEM focus	Dec. 11 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	Jan. 8 Coordinator: 3rd MP macro-concept Social Studies focus	Feb. 12 Coordinator: 3rd MP macro-concept Math focus	March 12 Coordinator: 4th MP macro-concept ELA focus	April 9 Coordinator: 4th MP macro-concept STEM focus	May 14
3rd Wed (Team)	August 21	Sept. 18 Macro-concept follow-up	Oct. 16 Macro-concept follow-up	Nov. 20 Macro-concept follow-up	Dec. 18 Reflect on 12-13 initiatives PLCs	Jan. 15 Macro-concept follow-up	Feb. 19 Macro-concept follow-up	March 19 Macro-concept follow-up	April 16 Macro-concept follow-up	May 21
4th Wed (Principal)	August 28 Teacher Eval or CFIP	Sept. 25 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Oct. 23 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	Nov. 27 No School	Dec. 25 No School	Jan. 22 2:15-3:00 Questioning PD 3:00-3:45 Questioning applications	Feb. 26 2:15-3:00 Evaluating PD 3:00-3:45 Evaluation applications	March 26 2:15-3:00 Collab PD 3:00-3:45 Collaboration application	April 23 OPEN	May 28 Articulation
Implementation Shifts – 6 hours total throughout the school year										
Day 1, Week 1: 1 hour of professional development										
Day 2, Week 2: 1 hour of working on putting the information into practice (prior to session 3, teachers put the information into practice)										
Day 3, Week 3: 1 hour of reflection										
Cycle 1	10/3 PARCC RELA	10/10 PARCC RELA		11/11 PARCC RELA						
Cycle 2							2/6 PARCC Math	2/13 PARCC Math	2/27 PARCC Math	
Coffee Talks – 13.5 hours total throughout the school year										
Friday mornings, beginning at 8 AM in the media center										
Topics will be determined throughout the school year	2nd Friday→	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion	Teach Like a Champion
	4th Friday→	Intervention	Divergent Questioning	Kagan	Depth & Complexity Icons	Kagan	Speech & Language	Kagan	STEM	Kagan

Figure H.1. ELES Professional Development Plan

During the 2013-2014 school year, there was a recognizable structure to the professional development offerings. On the second Wednesday of every month, with the exception of December, the focus was on math, English/language arts, or STEM; the focus of these sessions was on weekly and/or long-range planning for the specific content area. For example, teachers would revise upcoming weekly lesson plans to include specific requirements as set forth by the Instructional Coordinator; for long-range plans, teachers would identify the sequence that standards would be taught throughout the marking period, revise timelines for instruction, and/or identify formative and summative assessment dates. The third Wednesday of every month provided additional time to continue planning. The fourth Wednesday of every month was focused on the key pedagogy tenets that stretch across content areas: questioning,

evaluation, and collaboration. The second Friday "coffee talk" of every month was devoted to introducing teaching techniques from Doug Lemov's books, *Teach Like A Champion: 49 Techniques the Put Students on the Path to College* and *Teach Like A Champion Field Guide: A Practical Resource to Make the 49 Techniques Your Own*. The fourth Friday "coffee talk" was devoted to a range of topics that had been introduced in the past, but were offered to staff who wanted a refresher or who were not at East Lake when those topics were presented during previous years.

Throughout the school year, approximately six hours of professional development were devoted to each of the following topics: math, English/language arts, STEM, questioning, evaluation, and collaboration. Six hours total were devoted to familiarizing teachers with the PARCC assessment limits during the "Implementation Shifts;" the first round of implementation shifts focused on ELA while the second round focused on math. The mandatory professional development offerings focused on eight different topics, for a total of approximately 42 hours. On the surface, it appears that the *Teach Like A Champion* coffee talks total six hours of professional development because the topics all come from the same book, however, each one focused on a different unrelated technique; therefore, it is actually nine different topics for 45 minutes each. The professional development offered on the fourth Friday of every month hit six different topics; only one topic, Kagan Cooperative Learning, provided ongoing professional learning opportunities because each session was based on the same guiding principles. If a teacher were to attend all of the voluntary professional development offerings in addition to the mandatory

professional development offerings, he/she would have engaged in professional

development on 23 different topics throughout the school year. The professional

development focus at ELES was entirely too broad during the 2013-2014 school year

to make a significant impact on student learning.

Steps to Change Professional Development Structures

As the school principal, I have the freedom to reshape professional

development offered on school-based professional development days, on the fourth

Wednesday of every month, and in the mornings prior to the start of the school day as

long as it aligns with the school system's professional development goals. I have

involved teachers in the process of planning, delivering, and engaging in professional

development through the use of Professional Development Design Teams. The

Professional Development Design Team meets at the end of the school year to reflect

on the past year, over the summer to plan the professional development offerings, and

then throughout the school year to make changes as needed. All staff members are

invited to be a part of the Professional Development Design Team; this provides

everyone with the option to provide input on the process and the topics. The

Professional Development Design Team met three times between May and August

2014. Three Instructional Resource Teachers (IRTs) attended all three meetings; four

teachers attended the first meeting; one teacher attended the second meeting; and ten

teachers attended the third meeting. The Professional Development Design Team

determined that for the upcoming school year, the focus of the majority of professional

learning experiences will be on mathematics so as to provide some level of continuity

with the professional development topics. The steps below guided the work of the

Professional Development Design Team to plan professional learning experiences

focused on mathematics for the upcoming school year (2014-2015); these steps were

intended to strategically move teachers to align instructional practice more closely

with changing expectations to increase student learning.

1. Analyze math student performance data

2. Analyze math observational data

3. Analyze focus group and professional development survey data

4. Conduct a comparative analysis between the data sources to identify one to

    three areas in which instructional practice needs to be more closely aligned

    with changing expectations

5. Identify outcomes for professional learning and measures of success

6. Identify appropriate professional development service delivery models to

    increase student learning

7. Plan yearly math professional development based on the identified topics and

    service delivery models with a target of 40 – 50 clock hours

In preparation for the Professional Development Design Team meetings, I analyzed

the student performance data, observational data, focus group data, and professional

development survey data, and presented the findings to the team. Together, we

identified the outcomes and measures of success based on the data. The team also

used the data to determine the service delivery models, and then planned the offerings

based on the school calendar.

Data Analysis

      Student performance data. In order to analyze student progress in mathematics, two sources of data were utilized: the math benchmark assessment and the math unit assessments. Both assessments measured students' progress on the math Common Core State Standards (CCSS). The math benchmark assessed students' progress on the standards from the beginning of the year to the end of the year; the math unit assessments assessed students' progress on the math CCSS that were taught during each marking period. The math benchmark was administered to kindergarten through fifth grade students in October 2013 and again in early May 2014. The math unit assessments consisted of a pre-test and post-test; the pre-test was given at least one week in advance of the start of each marking period and the post-test was given within the last week of the marking period. For the 2013-2014 school year, students needed to only show one point of growth on each assessment to show progress towards mastering the standards; this growth target was set by the school system. Table H.1 below describes the number of students who made growth in each grade level and the percent of the entire grade level that made growth over the course of the school year on the math benchmark. The data in Table H.1 indicate that there is a decreasing growth trend from kindergarten to fifth grade.

Table H.1

Student Growth on Math Benchmark Assessment (2013-2014)

Grade Level	Total number of students	Number of students who made growth	Percent of grade level that made growth
Kindergarten	51	51	100
Grade 1	58	55	95
Grade 2	56	52	93
Grade 3	57	49	86
Grade 4	50	38	76
Grade 5	59	38	64

As evident in Table H.2, more than 75 percent of the grade level made growth on each unit assessment. It is noted that the kindergarten students did not take the Unit 4 math assessment, and the Unit 4 data set for first grade was incomplete. The math unit assessment data indicate that students are making growth on the math CCSS, and the percent of growth is different depending on the standards that are taught during the marking period.

Table H.2

Student Growth on Math Unit Assessments (2013-2014)

Grade Level	Unit 1	Unit 2	Unit 3	Unit 4
	Percent of grade level that made growth	Percent of grade level that made growth	Percent of grade level that made growth	Percent of grade level that made growth
Kindergarten	90	92	100	-
Grade 1	88	89	90	-
Grade 2	95	91	89	83
Grade 3	95	96	90	95
Grade 4	88	92	98	86
Grade 5	95	83	83	76

Formal observation data. During the 2013-2014 school year, 35 formal observations were conducted during mathematics in kindergarten through fifth grade. Teachers were rated as highly effective, effective, needs improvement, or ineffective on five components in the domain of Planning and Preparation and on six components in the domain of Instructional Strategies; teachers were also rated on components in the domains of Classroom Management and Professional Responsibilities, however those ratings were not analyzed for this report. Table H.3 describes the components of Planning and Preparation and Instructional Strategies; a more comprehensive description of each component can be found in Attachment 1.

Table H.3

Description of Planning & Preparation and Instructional Strategies Components

Domain	Component
Planning and Preparation	Focuses lesson on curriculum outcomes/indicators
	Utilizes student assessments congruent with learning outcomes
	Designs coherent instruction with appropriate pace and sequence of the lesson
	Demonstrates understanding of student interests, background, and needs
	Demonstrates knowledge of content to plan appropriate instruction
Instructional Strategies	Engages students in learning activities
	Uses effective questioning and discussion techniques
	Monitors student learning throughout the lesson
	Demonstrates accurate content knowledge
	Communicates clearly and accurately with students
	Demonstrates flexibility and responsiveness

Of the 35 observations, 12 were of tenured teachers and 23 were of non-tenured teachers. Each tenured classroom teacher was observed at least one time in mathematics throughout the school year, and each non-tenured classroom teacher was observed at least two times in mathematics throughout the school year. Two non-tenured teachers were on professional improvement plans in mathematics; one was observed a total of four times in mathematics and the other one was observed a total of

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three times in mathematics. A thorough analysis of the ratings in the domains of

Planning and Preparation and Instructional Strategies show that teachers were rated

less than effective at least 20% of the time on the following components:

- *Utilizes students assessments congruent with learning outcomes*,

- *Demonstrates knowledge of content to plan appropriate instruction*,

- *Engages students in learning activities*,

- *Uses effective questioning and discussion techniques*, and

- *Monitors student learning throughout the lesson*.

Two of the components are in the domain of Planning and Preparation, and three of

the components are in the domain of Instructional Strategies. Table H.4 summarizes

the less than effective ratings for the aforementioned components. The data in Table

H.4 indicate that the greatest need for improvement is in the Instructional Strategies

domain, specifically, *Engages students in learning activities* and *Monitors student*

learning throughout the lesson. These two components are at the core of high-quality

instruction. *Engages students in learning activities* calls for students to be cognitively

challenged and to actively construct understanding of the content through meaningful

interaction with peers. *Monitors student learning throughout the lesson* requires

students to be fully aware of the performance criteria by which they will be measured

and that students frequently assess their progress against the performance criteria; this

component requires teachers to monitor the progress of students throughout the lesson

and provide timely feedback. Both of these components are directly related to the two

components in Planning and Preparation, *Utilizes student assessments congruent with*

learning outcomes and *Demonstrates knowledge of content to plan appropriate instruction,* that were rated less than effective in 20% of the observations. In order to demonstrate accurate content knowledge, the teacher must have evidence of guiding students through ascending levels of understanding and mastery of the target concept in the lesson plans. Likewise, for *Utilizes student assessments congruent with learning outcomes*, the teachers must develop clear assessment criteria to evaluate student achievement of the intended outcomes, which helps to monitor student learning throughout the lesson. This observational data indicate that teachers need professional learning experiences focused on developing content area knowledge and aligning instructional outcomes, learning activities, and assessments in the area of mathematics.

Table H.4

Less than Effective Observation Ratings

Component	n	Needs Improvement		Ineffective	
		number	percent	number	percent
Utilizes student assessments congruent with learning outcomes	35	5	14	2	6
Demonstrates knowledge of content to plan appropriate instruction	35	6	17	1	3
Engages students in learning activities	35	8	23	1	3
Uses effective questioning and discussion techniques	35	5	14	2	6
Monitors student learning throughout the lesson	35	10	29	-	-

Teacher qualitative data. The student performance and observational data provided information to guide the decision making process for professional

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development topics. However, these two sources of data did not account for the individual teacher or grade level preferences and/or needs. A focus group and a professional development survey were conducted to gain direct input from teachers.

In the spring of 2014, I conducted a focus group with six classroom teachers from kindergarten through fifth grade to ascertain the areas in which teachers needed support to fully implement the math CCSS. During the discussion, the need for structured planning time with an intervention/resource teacher to deconstruct the math standards and plan lessons was stated as a needed support by all participants during the focus group. Participants were also very specific that the 45-minute planning period during the school day was not enough to thoroughly plan math lessons. Four of the six participants also stated that targeted professional development was a much-needed support; they indicated a preference for individualized professional learning experiences that deepen their understanding of the target concepts that are taught at their respective grade levels. A more detailed account of the focus group can be found in Appendix I.

A professional development survey was developed and given to all teachers at the end of the 2013-2014 school year. This survey sought to determine teachers' preferences for math professional development topics and professional development models. The survey items related to professional development topics were informed by the math learning walk tool that was created earlier in the school year by the teachers, math initiatives set by the school district, and previous professional development topics that needed more exploration; the survey items related to the

professional development models were informed by data from the math focus group and by the models that were already in place at the school. The instructional leadership team reviewed the survey and made changes as needed before it was sent to teachers. The survey items were put into the online survey system, Qualtrics, and then the entire survey was sent electronically to teachers. The survey window was open for three weeks; a total of 25 survey responses were collected, which represents 93% of the teachers on staff.

On the survey, the teachers answered a total of five questions. The first two questions asked for the respondent's name and grade level. It was important that teachers indicate their name and grade level to individualize the professional learning opportunities and to hold teachers accountable for engaging in their preferred professional learning topics. The remaining three questions were focused on mathematics and asked the teachers to rank order their preference for specific professional development topics, to rank order their preference for specific professional development models, and to share additional thoughts or comments about math professional development. The survey items are listed in Attachment 2.

The responses to the questions on preferred professional development topics and models were analyzed in three ways: by the first preference; by the first and second preference combined; and, by the first, second, and third preference combined. The topic that was ranked as the first preference the most was *How to plan problem-based lessons with real-world problems* followed by *How to engage students in communicating and justifying their solutions* and *How to analyze formative and*

summative math assessments to plan instruction. When the first and second

preferences were combined, the most preferred topic was *How to engage students in*

communicating and justifying their solutions followed by *How to plan problem-based*

lessons with real-world problems; when the top three preferences were combined, the

same two topics were the most preferred. Table H.5 summarizes the most preferred

professional development topics based on the top three preferences.

Table H.5

Most Preferred Professional Development Topics

		rank		
	n	1	2	3
How to plan problem-based lessons with real-world problems	21	5	4	4
How to engage students in communicating and justifying their solutions	22	4	7	3
How to analyze formative and summative math assessments to plan instruction	21	4	2	2
How to refine the use of Number Talks during math instruction	22	3	3	3
How to engage students in reflective thinking	21	2	3	6
How to introduce math tools and utilize them fluidly	21	2	2	2
How to teach specific math concepts	20	2	1	0
How to teach students to represent their thinking with visuals	20	1	0	1

The professional development model that was ranked as the first preference the most

was *Collaborative Planning* followed by *½ Day Data Day followed by ETP (Extended*

Team Planning) and *One-on-One Coaching with the IRT (Instructional Resource*

Teacher). These topics remained as the top preferences when the first and second

preferences were combined as well as when the first three preferences were combined.

Table H.6 summarizes the most preferred professional development models based on

the top three preferences.

Table H.6

Most Preferred Professional Development Models

		rank		
	n	1	2	3
Collaborative Planning	24	10	6	2
½ Day Data Day followed by ETP	24	5	3	4
One-on-One Coaching with the IRT	25	2	6	3
Book Study	23	2	1	2
Multi-grade level face-to-face PD (Wednesday Afternoons)	24	1	3	2
Voluntary PD (8:00 – 8:45 AM)	24	0	2	4
Online – Blackboard	23	1	0	0
Math Learning Walks (visit another classroom, then debrief with the teacher)	23	1	3	0
3-part Learning Series (just like the Implementation Shifts)	23	1	0	6

Six teachers responded to the last question that asked for thoughts or

comments about math professional development. Each response was different and is

captured below in Table H.7.

Table H.7

Additional Thoughts and Comments about Math Professional Development

Responses

Would prefer to learn more about strategy instruction and math Number Talks.

Would like more training on flex grouping.

Would like training on teaching math concepts to preschool students.

Would like more training from Beth Kobett (math consultant).

PD should be relevant and timely; it should make planning more functional and not more stressful!

Would like time to look through math progressions and curriculum documents.

The needs identified from the observational data are supported by the focus group and professional development survey data as summarized in Table H.8.

Table H.8

Professional Development Needs Identified by Observational Data, Focus Group, and Survey

	Observational Data	Focus Group	Professional Development Survey
Time to deconstruct math standards	✓	✓	
Individualized professional learning experiences	✓	✓	✓
Engaging students in communicating and justifying solutions	✓		✓
Planning problem-based lessons	✓		✓
Analyzing formative and summative assessment data	✓		✓
Additional planning time	✓	✓	✓

The focus group participants stated that they needed time to deconstruct the math standards and wanted individualized professional learning experiences based on target concepts in their grade levels, both of which are directly related to the observation component, *Demonstrates knowledge of content to plan appropriate instruction*. On the professional development survey, teachers indicated that their most preferred topics are *Engaging students in communicating and justifying their solutions* and *Planning problem-based lessons*; these two topics are associated with the observation component, *Engages students in learning activities*. Additionally, teachers indicated that they would like more training on *How to analyze formative and summative assessment data* which directly relates to two observation components: *Utilizes student assessments congruent with learning outcomes* and *Monitors student learning throughout the lesson*. It is also noteworthy that the focus group participants indicated a need for additional planning time and the top professional development models chosen were those that focused on planning.

The three data sources described above and in Table H.8 informed the development of the professional development outcomes and measures of success. There was agreement between all three data sources on the need for individualized professional learning experiences and additional planning time; this information led the Professional Development Design Team to prioritize grade-specific professional learning activities and increase time for collaborative planning during professional learning activities. The data from the professional development survey was then considered and relationships were established between the survey data and observation

components to draw clear connections between teachers' needs and needs identified from the formal observation process.

Professional Development Outcomes and Measures of Success

Guskey (2012) explains that outcomes are "goals or aspirations…[that] describe what we hope to accomplish and set forth the criteria by which success will be judged" (p.41). Guskey's definition was used by the Professional Development Design Team to inform the development of the outcomes for the 2014-2015 professional learning experiences. The Professional Development Design Team also used two questions presented by Guskey (2012) to guide the development of the outcomes: "What outcomes do we want to achieve, especially with regard to student learning, and what evidence best reflects the achievement of those outcomes?" (p. 41). The outcomes listed below in Figure H.2 are aligned to formal observation components and to teachers' needs (as determined by the focus group and survey). The overall goal of the 2014-2015 professional learning experiences is to facilitate a shift in planning and instructional practices to increase student learning in the area of mathematics.

Figure H.2

Outcomes Aligned to Observation Components & Teacher Qualitative Data

Outcome	Observation Component	Teacher Qualitative Data
Deconstruct math Common Core State Standards to identify what students should know, understand, and do for each target standard.	Demonstrates knowledge of content to plan appropriate instruction	Time to deconstruct math standards Individualized professional learning experiences
Create clear assessment criteria aligned to lesson outcomes.	Monitors student learning throughout the lesson	Analyzing formative and summative assessment data
Analyze and utilize assessment data to plan problem-based lessons	Utilizes student assessments congruent with learning outcomes	Analyzing formative and summative assessment data Planning problem-based lessons
Engage students in cognitively challenging math activities aligned to identified outcomes and assessments.	Engages students in learning activities Uses effective questioning and discussion techniques	Engaging students in communicating and justifying solutions
Monitor student progress on identified assessment criteria	Monitors student learning throughout the lesson Utilizes student assessments congruent with learning outcomes Uses effective questioning and discussion techniques	Analyzing formative and summative assessment data

The evidence that will best reflect achievement of the outcomes above is formal observational data and student performance data. For the 2014-2015 school year, at least 35 observations of both tenured and non-tenured teachers will be conducted in the area of mathematics. It is a goal to have each component identified in Figure 2 rated at the effective level in at least 90% of the formal observations focused on mathematics. It is an expectation that 100% of students meet the growth targets in the area of mathematics set by the school system on the math benchmark assessment and the unit assessments. Informal observations of teachers engaged in professional learning activities will also be used as evidence of achievement of the specified outcomes, since some outcomes are more difficult to measure through formal observation data. For example, I will observe teachers deconstruct the math standards during collaborative planning sessions; the knowledge that is developed during the collaborative planning sessions will be evident in lesson plans that are reviewed as part of the formal observation process.

Professional Development Plan for the 2014-2015 School Year

The yearly professional development plan was developed in order to meet the identified professional learning outcomes. Multiple data sources were utilized to identify the professional development topics and models. Formal professional development activities will take place during extended team planning meetings (ETP) and on Wednesday afternoons when students are released early.

The Professional Development Design Team changed the format and structure of ETPs for the 2014-2015 school year. Previously, teams met prior to the start of the

school day and a special area teacher covered classrooms as students arrived. Teams had approximately 45 minutes in which to engage in planning; however, this structure proved to be challenging for teachers because they lost much-needed preparation time in the morning and coverage was inconsistent. The Professional Development Design Team elected to utilize Title I funds to cover the cost of substitutes and provide 60 minutes of team planning during the student day every other Wednesday. Substitutes will be contracted to rotate among the classrooms throughout the day and teachers will have structured, collaborative planning with their teammates and their assigned Intervention/Resource Teacher (IRT). While this structure does give up instructional time with students, the Professional Development Design Team felt that the investment in the teacher's professional growth outweighed the loss of direct instructional time by the classroom teacher two times per month for students. It will be necessary for the teachers to leave detailed substitute plans so that the participation in ETPs does not hinder student learning.

The structure of ETPs is such that professional learning will occur over the course of three sessions in which teachers build their content area knowledge and discuss corresponding instructional actions, create assessment criteria and an actual assessment, review student performance data, and identify changes to instructional practice based on student performance data. Teachers will have specific roles and responsibilities before, during, and after each session, and those roles will rotate among team members for each session.

Prior to Session 1, the team is to identify the target standard(s) on which they

would like to focus; the Session 1 Team Leader sends the standard(s) to the IRT at least one week in advance of Session 1. Teachers are to read the Progressions document for the identified standard and develop questions they have about the standards. Since Universal Design for Learning (UDL) is a school system focus for planning and instruction, team members are to split the components of UDL (multiple means of engagement, multiple means of expression, and multiple means of representation) and each member is to bring an instructional idea for the chosen component with them to Session 1. Lastly, team members are to think about what students need to know, understand, and do for the identified standard(s).

During Session 1, teachers will identify what students need to know, understand, and do for the identified standard(s). They will discuss how the target standards will be taught, and identify explicit instructional actions that will lead the students to the mathematical understanding called for by the standards. This will include the way in which the content will be represented, the way in which students will engage with the content, and the way in which students will express their understanding of the content. The teachers will then identify the assessment criteria for the target standard(s).

Between Session 1 and Session 2, the team members are to identify the assessment format and the Session 2 Team Leader sends it to the IRT at least one week before Session 2. During Session 2, the teachers create the assessment and the corresponding scoring tool. Between Session 2 and Session 3, the teachers engage students in learning activities focused on the standard(s), give the assessment by the

Friday before Session 3, and score the assessment by the Tuesday before Session 3.

Teachers are to complete an assessment chart that answers the following questions.

Based on the assessment criteria…

1. What were students' strengths? List student names under each strength. What instructional actions contributed to students' success?

2. In what areas did students struggle? List student names under each area. What instructional actions hindered students' success?

During Session 3, the team reviews the strengths and struggles for the entire grade level for each assessment criterion that was identified in Session 1. Teachers identify specific planning and instructional actions that they will take for the students that were listed under each assessment criterion. The extended team planning activities connect to the identified professional learning outcomes, as described in Table H.9.

Table H.9

Extended Team Planning Sessions Aligned to Professional Development Outcomes

Professional Development Outcome	Extended Team Planning Session
Outcome 1: Deconstruct math Common Core State Standards to identify what students should know, understand, and do for each target standard.	Session 1
Outcome 2: Create clear assessment criteria aligned to lesson outcomes.	Session 1
Outcome 3: Analyze and utilize assessment data to plan problem-based lessons.	Between Session 2 & Session 3 Session 3 Session 1
Outcome 4: Engage students in cognitively challenging math activities aligned to identified outcomes and assessments.	Between Session 2 & Session 3 Session 3
Outcome 5: Monitor student progress on identified assessment criteria.	Session 3

The new structure of ETPs will be introduced at the initial ETP of the school year. The entire ETP schedule, inclusive of session dates and grade level meeting times can be found in Attachment 3.

Professional development will also be scheduled on Wednesday afternoons from 2:15 – 3:45 PM. Voluntary professional development will be offered on the first Wednesday of every month. The topics will include those that are not addressed formally in extended team planning meetings, such as using "Number Talks" to

increase mental math capacity. On the third Wednesday of every month, teachers will engage in professional learning on how to plan and deliver problem-based lessons. For the first 15 minutes, they will engage in a problem-based lesson; in the next 15 minutes, they will gain new knowledge about using the problem-based lesson structure and how to engage students in communicating and justifying their solutions; lastly, they will have 60 minutes to engage in collaborative planning with their teammates to plan a problem-based lesson. It is likely that the time within the duty day will not be enough to thoroughly plan a problem-based lesson. Title I funds will be utilized to compensate teachers who would like to stay beyond the duty day to finish planning the problem-based lesson. This structure addresses the most preferred math professional development topics and models specified on the professional development survey. Information will be learned over time and in small increments, and time will be provided to put the new information into practice in order to foster sustained changes to planning and instructional practice. The second and fourth Wednesdays have not been formally scheduled so as to allow flexibility for the staff to focus on professional learning activities determined by the instructional coordinators and to focus on school improvement initiatives.

Planning Process Reflection

At first glance, the professional development plan for the 2014-2015 school year does not have a lot of professional development activities. Historically, we have engaged in professional learning on several topics at every possible moment. This practice has exhausted teachers because the topics were not connected to one another

and there was very little time to actually process and implement what was learned. The professional development plan moving forward has a laser-like focus on math planning and instruction. It is structured to build new knowledge, to provide time for planning, and to provide time for reflection. The professional development plan is actually more intensive than in years past, but with fewer activities.

There are pros and cons to the new structure for ETPs. Teachers have a full 60 minutes in which to engage in professional learning. Teachers have specific roles and responsibilities so that each one participates and is accountable for learning. The rotating substitute schedule has time buffers built in so that the substitutes have ample time to travel between classrooms and so that the teacher has time to explain the instructional outcomes to the substitute. The way in which the ETP sessions are designed provides a predictable structure and ongoing learning. However, in order for ETPs to be successful, teachers must complete the required assignments prior to each session. If they fail to complete those assignments, they will not be able to fully engage in the session. At the first ETP of the school year, we are going to review the expectations for ETPs; based on previous experience, there are a few teachers who I will need to check in with frequently to make sure that they are completing their assignments before each session. One other challenge that may present itself is with substitutes; this structure will only be successful as long as substitutes are reliable. At ELES, there are a core group of substitutes that work in the building frequently. Prior to the start of the school year, I am going to reach out to those substitutes to gain a commitment from them for every Wednesday throughout the school year. This way,

the students will have the same substitute cover their classroom every other week and coverage will be consistent.

The majority of the professional learning activities will be facilitated by the instructional leadership team, which includes the assistant principal, the intervention/resource teachers (IRTs), and myself. We will meet on B week Wednesdays (see ETP schedule in Attachment 3) to plan and reflect on the professional development activities. We will need to be intentional about gaining teacher input for these planning sessions since they will occur during the student day and teachers will not be available to participate in the session. We will gain input through conversations, reflections during ETPs, and by sending agenda items in advance of the planning sessions via a Google form and request input on the items to guide the planning session; outcomes of the planning session will be shared electronically. Once the ETPs are up and running, it is a goal to have the teachers facilitate the sessions in partnership with the IRTs to foster teacher leadership and ownership of the process.

I have learned in the last three years that I cannot plan and deliver all of the professional development on my own or even with the assistance of the assistant principal. The creation of the Professional Development Design team two years ago has created collective responsibility and ownership for the professional learning activities throughout the school year. Since the Professional Development Design Team is open to all teachers, it sends the message to teachers that their voice is an important part of the planning process and their talents and strengths can be utilized in

the planning and/or facilitation of professional learning experiences. The Professional

Development Design Team has always been a transparent team; notes are shared after

every meeting and input is solicited before final decisions are made. This way, even if

teachers do not participate in the planning meetings, they have access to the

information and have the option of providing input before a final decision is reached.

One of the challenges that I have faced with the Professional Development

Design Team is finding a time when teachers are available and when it does not take

away from instructional planning. I have incorporated varied times for this team to

meet such as during the duty day on Wednesday afternoons, in the evenings after

school, and over the summer; as a result, the participants are not always consistent.

By sharing the notes and reviewing them at each meeting, it helps to bring new

participants up to date.

Moving forward, I want to capitalize on the talents of the teachers so that they

have a more involved part in facilitating the professional learning activities. Several

teachers have shared that they value the opportunity to be included in the planning

sessions, but are not comfortable presenting to their colleagues. In order to increase

teachers' comfort level with facilitating professional development for colleagues, I am

going to start slowly by asking them to be a co-facilitator for one part of an activity

that is in a small group. This will build their confidence with presenting to adults, will

strengthen the professional networks within the school, and will also build teacher

leadership skills.   I will need to hone my coaching skills in this area so that the

teachers who are presenting for the first time have support and feedback, both of

which will contribute to them presenting again at a later date.

Leadership Reflection

Throughout the process of planning professional learning experiences for teachers, I have learned the importance and value of using data, current research, and past practices to inform decisions. I analyzed both quantitative and qualitative data to identify areas that need improvement and areas of strength. In previous years, I only used teacher surveys to inform professional learning activities because I wanted to make sure that teachers felt that the offerings were relevant to them. However, there is much value in reviewing student achievement data and formal observational data as well; both of these sources helped to identify priorities based on students' needs. Current research and articles were useful to gain ideas for professional development structures, specifically, to move away from "stand and deliver" professional development sessions. The research article by Yoon et al (2007) had the most profound impact on me as a leader in terms of how professional learning was planned at the school level. It was eye opening to me when I calculated the number of hours devoted to professional learning at ELES and then when I looked at how many topics we were trying to cover throughout the school year. No wonder teachers felt overwhelmed with everything that they were learning! I have also learned throughout this planning process that the practices from the past can be very informative to plan for future endeavors. It was necessary for me to review the way in which I had planned professional learning in the past and identify the practices that would be maintained and those that would be improved.

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Upon reflecting on the professional development planning process, there are areas in which I need to further develop my own leadership practices. One area in which I struggle is finding the balance between pushing teachers slightly beyond their comfort zone and supporting them along the way. I have a tendency to push them to the point of frustration rather than just beyond their comfort zone; this is not ideal and does not help the learning process. As a learner myself, I learn best when I am overloaded; the high stress level actually helps me to be more productive. I like to be learning about multiple topics at one time to make connections. A quote that hangs in my office is, "If it doesn't challenge you, it won't change you." The level of challenge that I prefer is different than those around me. As a leader, in order to help others grow, I need to know each person's individual threshold. Another area in which I need to improve is training my leadership team to engage in all of the steps of the comprehensive professional development planning process so that it is sustainable when I am no longer at the school. In an effort to save time, I have a tendency to analyze the data independently, share the results, and then together make decisions based on that data. I also rarely delegate certain aspects because I want them to be done a certain way; for example, I like all documents to be formatted according to my standards. It's easier for me to analyze data and format documents myself, but I am not teaching my teammates when I don't include them along the way. It's difficult for me to delegate because I often feel like it takes more of my own time to train others on the discrete tasks; it's more efficient in the short-term if I just do it myself, but it's not more efficient over time.

Conclusion

In conclusion, the comprehensive process used to plan professional learning experiences changed the way in which professional development activities are identified, scheduled, and assessed at East Lake Elementary School. The student achievement data, formal teacher observation data, and teacher qualitative data informed the professional learning activities, which are now more streamlined than in years past. The professional development plan for the 2014 – 2015 school year requires a great deal of engagement and reflection on the part of the teachers, but I strongly believe that it will be well worth it for the students. With a commitment to learning new content and a willingness to shift existing planning and instructional practices, we will see evidence of an increase in student learning.

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Attachment 1 – Description of Observation Components

Description of Planning & Preparation and Instructional Strategies Components

Domain	Component	Description
Planning and Preparation	Focuses lesson on curriculum outcomes/indicators	The teacher selects learning outcomes for each day's lessons that align with county and state curriculum guidance. The lesson activities are clearly linked to these desired student outcomes and are appropriate for the current learning needs of the students.
	Utilizes student assessments congruent with learning outcomes	The teacher has clear assessment criteria identified to evaluate student achievement of the intended outcomes. These assessments, both formal and informal, help the teacher monitor student learning through the course of instruction and at various checkpoints, such as at the end of the lesson, week, or unit.
	Designs coherent instruction with appropriate pace and sequence of the lesson	The teacher has selected and sequenced lesson activities to utilize the available time effectively. The structure of the lesson allows for students to move through levels of complexity and depth of knowledge toward acquisition of the lesson's outcomes.
	Demonstrates understanding of student interests, background, and needs	The teacher demonstrates an understanding of the unique learning needs, styles, interests, and prior knowledge of the students in the class in order to plan effective instruction. This is demonstrated in selecting materials, designing activities, and adjusting strategies to meet differentiated needs of the students.
	Demonstrates knowledge of content to plan appropriate instruction	The teacher has a thorough command of a subject's content, principles, and methods of inquiry to guide students through ascending levels of understanding and mastery. The students' prior knowledge of enabling content, the demands of subsequent content, and authentic application of the knowledge guide the teacher's lesson design.
Instructional Strategies	Engages students in learning activities	The teacher selects learning experiences designed to get students actively, intellectually involved with the content or active construction of understanding. This engagement can be enhanced with appropriate materials, purposeful grouping of students, and the use of interactive lesson structures.

Domain	Component	Description
	Uses effective questioning and discussion techniques	The teacher poses high level questions forcing students to make connections, draw conclusions, and form hypotheses about the content of the lesson. Discussion prompts allow for critical thinking and participation by students exchanging ideas and questions in an analysis of the lesson topics.
	Monitors student learning throughout the lesson	The teacher understands what the students know before, during, and after instruction for the purposes of adjusting instruction in the current lesson and planning subsequent lessons. Whether through pretesting, instant learning checkpoints, or end of lesson assessments, the teacher gathers valuable information to guide the pace and direction of the lesson or unit.
	Demonstrates accurate content knowledge	The teacher demonstrates an accurate understanding of the content required of students prior to and subsequent to the observed lesson. This knowledge allows the teacher to make connections to real life applications and/or other contexts where the skill or information can be made clear to the students.
	Communicates clearly and accurately with students	Verbal and written communication is clear and appropriate to students' ages, backgrounds, and levels of understanding.
	Demonstrates flexibility and responsiveness	Teachers demonstrate flexibility when they are able to adjust their lesson to adapt to spontaneous learning opportunities that may occur in the course of a lesson. The teacher demonstrates responsiveness to students' learning and performance by knowing alternative ways to present information or to practice skills.

Attachment 2 – Professional Development Survey Results

1. Name

2. Select the grade level(s) with which you work

Grade Level	Number
Preschool	3
Pre-kindergarten	2
Kindergarten	5
Grade 1	5
Grade 2	5
Grade 3	5
Grade 4	3
Grade 5	4

3. Indicate your preference for the following math PD topics, with 1 being the most preferred and 8 being the least preferred.

Rank Order of Preferred Professional Development Topics	n	1	2	3	4	5	6	7	8
How to engage students in reflective thinking	21	2	3	6	1	3	2	3	1
How to teach students to represent their thinking with visuals	20	1	0	1	2	3	7	4	2
How to introduce math tools and utilize them fluidly	21	2	2	2	3	4	2	3	3
How to engage students in communicating and justifying their solutions	22	4	7	3	3	2	2	0	1
How to plan problem-based lessons with real-world problems	21	5	4	4	3	1	2	2	0
How to refine the use of Number Talks during math instruction	22	3	3	3	4	3	3	0	3
How to teach specific math concepts (name them in the box below)	20	2	1	0	4	1	1	7	4
How to analyze formative and summative math assessments to plan instruction	21	4	2	2	1	3	2	2	5

4. For the topics that you noted for math, indicate your preference for the following math PD models, with 1 being the most preferred and 9 being the least preferred.

Rank Order of Preferred Professional Development Models											
	n	1	2	3	4	5	6	7	8	9	10
Multi-grade level face-to-face PD (Wednesday Afternoons)	24	1	3	2	6	6	0	2	2	1	1
Voluntary PD (8:00 – 8:45 AM)	24	0	2	4	2	2	2	2	2	4	4
One-on-one Coaching with the IRT	25	2	6	3	1	2	6	2	1	1	1
Collaborative Planning	24	10	6	2	2	3	1	0	0	0	0
Book Study	23	2	1	2	3	2	1	3	3	4	2
Online – Blackboard	23	1	0	0	0	3	4	0	6	8	1
Math Learning Walks (visit another classroom, then debrief with the teacher)	23	1	3	0	1	1	3	9	3	2	0
3-part Learning Series (just like the Implementation Shifts)	23	1	0	6	6	1	1	4	2	2	0
½ Day Data Day followed by ETP	24	5	3	4	2	3	3	1	3	0	0

Other: (open response)
  - PD days at central office
  - Team grade level planning
  - Voluntary PD after school
	14										

5. Please share additional thoughts or comments about math professional development.

I would like continued development on more strategies to teach math in a whole group setting which all students are engaged throughout the whole lesson. I would also like to learn more about number talks. I enjoyed learning about Number Talks and would like to learn more.

I would like to have more training on flex grouping in math as well.

Would like PD for working with three-year olds to teach math concepts.

Beth Kobett is extremely knowledgeable and provides applicable ideas.

It should be relevant and timely to the unit of study. It should make planning more functional and not more stressful!

Being given the time to look through progressions and course organizers as a team and dive into the specific grade level content.

Attachment 3 – Wednesday Professional Development Schedule

WEDNESDAY ETPs

A Week: Kindergarten, Grade 1, Grade 5, Grade 4
B Week: Grade 2, Grade 3

	August	September	October	November	December	January	February	March	April	May	June
1st Wed		9/3 (B)	10/1 (B) Session 2	11/5 (A) Session 2	12/3 (A) B week grade levels meet for Session 3	1/7 (B)	2/4 (B)	3/4 (B)	4/1 (B)	5/6 (A)	6/3 (A)
2nd Wed		9/10 (A) Session 1	10/8 (A) Session 3	11/12 (B) Session 2	12/10 (B) Reflect on ETPs thus far; plan winter/spring ETPs	1/14 (A)	2/11 (A)	3/11 (A)	4/8 (A)	5/13 (B)	6/10 (B)
3rd Wed		9/17 (B) Session 1	10/15 (B) Session 3	11/19 (A) Session 3	12/17 (A) Reflect on ETPs thus far; plan winter/spring ETPs	1/21 (B)	2/18 (B)	3/18 (B)	4/15 (B)	5/20 (A)	
4th Wed	8/27	9/24 (A) Session 2	10/22 (A) Session 1	**HOLIDAY 11/26**	**HOLIDAY 12/24**	1/28 (A)	2/25 (A)	3/25 (A)	4/22 (A)	5/27 (B)	
5th Wed			10/29 (B) Session 1		**HOLIDAY 12/31**				4/29 (B)		

Appendix I

FOCUS GROUP WITH TEACHERS: WHAT DO TEACHERS NEED TO FULLY IMPLEMENT THE COMMON CORE STATE STANDARDS?

During the month of May, six teachers were selected to participate in a focus group. The purpose of the focus group was to ascertain the areas in which teachers needed support to fully implement the math Common Core State Standards (CCSS) and to inform math professional development for the upcoming school year. Diversity of opinion was important for this focus group, so one teacher from each grade level in kindergarten through fifth grade was asked to participate; selection was based on years of experience and willingness to share openly with a group. One teacher was in her first year of teaching, two teachers were in their second year of teaching, and three teachers had five or more years of experience teaching. All teachers had experience using the math CCSS for their grade levels. Participation was completely voluntary, and teachers were assured that their responses to questions would be confidential.

The focus group was conducted after school and teachers were given discussion topics, but not discussion questions, in advance. Teachers were asked to share openly based on their understanding of the math CCSS and their implementation of the math CCSS. Six questions were asked of teachers during the focus group:

1. Based on your understanding of the math CCSS, what would students' *ideal* math learning environment look like and sound like?

2. Where do you think we are as a school in terms of implementation based on that ideal? What would you consider evidence that we are implementing the math CCSS?

3. What types of supports do you need to get to that *ideal* math learning environment and to fully implement the math CCSS?

4. What types of resources do students need in order to access the math CCSS?

5. Based on the supports and resources that you shared, which are the most necessary [to get to that ideal math learning environment]?

6. What are the barriers that hinder you from creating that ideal math learning environment and fully implementing the math CCSS? How do you foresee those barriers being removed?

The focus group participants described the *ideal* math learning environment for students as one in which small group instruction was prevalent and student learning was student-centered. In regards to small group instruction, the participants from kindergarten, first grade, second grade, and fifth grade made parallels to how guided reading is taught in the elementary classroom. After whole group instruction or an exploratory activity, students would be divided into small, homogeneous groups based on their understanding of the target concept and engaged in learning activities that are at their instructional level. The teacher then would work with each group individually to provide individualized instruction. The same participants also identified that in this ideal learning environment, there would be more than one teacher in the classroom to provide small group instruction; this way, students in need of intensive remediation

would have more instructional time with a teacher. Participants who taught first, second, third, and fourth grade also identified that students would be engaging in problem-based lessons in which they are working together to identify multiple strategies to solve the problem. Participants want students to think critically, use previously taught problem-solving skills independently, and persevere when they are unsure of the best way to solve the problem. Participants said that in this ideal classroom, observers would hear students having "a-ha" moments with minimal teacher prompting. The third grade teacher said, "I would rather hear more of an 'a-ha' from the kids. Every time I plan a problem-based lesson, I'm thinking this is what I want them to come up with on their own…" The fourth grade teacher added, "…That's where I want to take them is to the more critical thinking problem-solving skills…I know that's where we need to go with the standards. The deeper connections and solving real-life problems and using what they know as opposed to it being so literal." In the ideal math classroom, students would seek a deep understanding of the problems rather than only look for very literal connections. Students would be collaborating with their classmates, listening to one another's contributions, and demonstrating leadership within their small groups.

The fifth grade teacher summed up the ideal math classroom:

I want students to feel that math is not against them. I had one student say, 'Why does math always try to trick us?' I feel like for me as a teacher through the Common Core, I feel like I understand math better now that I teach it and I feel that I have gained a lot more number sense and I want them to feel that

way. Now I think it's more fun than when I was in school, and I think they feel the same way I felt when I was in school and I hated it. And now it's my favorite thing. I want them to love math. I want them to have that deep understanding. And just not feel so defeated every time I ask them to take out their math notebooks.

When asked about their thoughts on how the school was implementing the math CCSS based on the ideal practices that they identified during the first part of the discussion, participants were somewhat unsure. Most participants quickly pointed out the areas in which students continued to struggle. For example, three of the six participants stated that students still struggled with number sense beyond first grade. Four of the five participants who were beyond their first year of teaching stated that they felt their students had made less growth than in years past towards proficiency of the math CCSS based on their individual data analysis of certain skills. The third grade teacher pointed out that the way in which students were being assessed on those skills was different than previous years; most of the other participants agreed that this was the case. In regards to evidence of implementation of the math CCSS, the fourth and fifth grade teachers identified that students are able to represent their understanding visually better than in years past. In the primary grades, subitizing has become a regular practice in which students see a number of items, usually dots, and quickly identify the quantity without counting. The third grade teacher commented on how the experience of visiting other classrooms to observe math instruction confirmed the alignment of the math CCSS for her. She said, "The learning walks kind of

confirmed the alignment of the standards. When I went down [a grade level], I saw the precursor to what I was doing and then when I went up [to the next grade level], I saw where the kids are going to go with area and perimeter. So that was really helpful to see. Just the alignment of the standards." Participants felt that as a school, implementation was further along than in other schools; they based this assumption on their experience of receiving new students from other schools within the district who arrived with less knowledge and skills on the previously taught concepts and problem-solving strategies in each grade level (visual representations, subitizing, understanding of multiplication, etc.).

Three main themes emerged when participants discussed the supports they need in order to get to that *ideal* math learning environment for students: time, professional development, and resources such as a sequence of which standards should be taught when, a pacing guide, and sample lesson plans. During the discussion, the need for structured planning time with an intervention/resource teacher to deconstruct the math standards and plan lessons was stated as a needed support by all participants and a total of 16 times during the focus group. Participants felt they needed time with another professional to outline exactly what was expected of students with each standard. One participant stated that she also wanted time with her grade level colleagues to review lessons prior to teaching them and to discuss what strategies they were each planning to use. Participants were very specific that the 45-minute planning period during the school day was not enough; they need at least a half to a full day on a regular basis devoted to deconstructing standards and planning lessons.

Throughout the focus group, four of the six participants stated a total of nine times that targeted professional development is a much-needed support. For example, they want individualized professional learning experiences that deepen their understanding of the target concepts that are taught in their respective grade levels. When discussing the county-developed performance task assessments and how several of the teachers administered them incorrectly, the fifth grade teacher said, "That's the lack of training that we're not getting from the county. I don't always pass the tests when I take them the first time. If I'm not able to achieve success, how am I supposed to get students there?" Two participants also felt like they had received ample training on how to scaffold the standards "down" for those students who struggle with the concepts, but they are not knowledgeable in providing learning experiences that enrich one's understanding of the concept when proficiency has already been demonstrated.

Resources inclusive of a teaching sequence, pacing guides, and sample lessons plans were noted as a necessity 13 times throughout the focus group by the majority of the participants (all but the kindergarten teacher), and five times in particular by the second grade teacher. For the last two years, teachers have been provided unit organizers for each marking period that summarize the major concepts as well as "teacher tips" that provide explanations for some of the more challenging standards. However, there is not a prescribed sequence for which standards should be taught when, how to pace them, or guidance on how to create and deliver lessons. The participants described that this was a huge challenge with the mobility rate in the

school, especially when new students enter the classroom throughout the school year who have attended another county school.

The second grade teacher said:

We are all left to figure it out on our own. Every single school, every single teacher in this county is probably doing it differently and there is no uniform way to say that this is the best way to scaffold this standard to get them to here. We're left to figure it out on our own and figure out some kind of sequence to deconstruct this standard and this is what you need to do first and this is what you need to do to get them there. That to me seems so ambiguous. For a lot of teachers, it probably is really ambiguous to not have any kind of direction, not to have anything to base this on. All we have are the lessons plans we created together. Every school is different. With these new kids we have coming in and out…their scores are either way higher or way…it's just all over the place. I just feel like how to get them to that assessment is too ambiguous. Maybe it's that I'm not doing it the right way or maybe there's another better way to figure it out, but we're just left on our own.

In regard to student resources, participants noted that students needed more time on each standard, intensive math intervention, and more math tools. The three participants from the intermediate grades indicated that students need more instructional time with each of the math CCSS. As the curriculum is written now, students are expected to master several standards in one marking period. Those three participants felt that students need more time for practice with fewer standards in order

to fully demonstrate proficiency. Intensive math intervention was also noted as an important resource for students by the first, third, and fourth grade teachers, especially in the areas of number sense and fact fluency. They also stated that while there were several math tools available in the school for students to use, there were not enough for one grade level to be using the same materials at the same time. The fourth grade teacher suggested that additional base ten manipulatives with multiple thousands blocks be purchased for each classroom as well as balance scales. Students are required to solve real-world problems and they should have varied math tools to be able to do so. The majority of the participants also pointed out that it would be helpful to have a resource list of the available math tools in the entire school; different grade levels have different tools that may be helpful to others.

When asked specifically about barriers of implementation, a few participants focused on the lack of parental support at home for homework and the lack of parents' understanding of the math CCSS. The two participants discussed how parents do not reinforce or practice fact fluency with their children, and then those that do try to help undo what is taught at school. One participant noted that the Family Involvement Advisor organizes parent education events to help them understand the math content, but that those have not been well attended. The participants did not identify any barriers for which they have control, nor did they suggest solutions to removing the barriers around parental support

Throughout the entire focus group, all of the participants did convey that time for planning and being left on their own to meet all of their students' needs were

challenges that they faced on a daily basis. The majority also expressed a strong

feeling of uncertainty about content knowledge of the standards and whether or not

they were teaching the math CCSS the "right way." They felt that in order to exude

confidence in what they were teaching, they needed time to actually understand and

become an expert themselves on their grade level standards. In order to address the

varied instructional levels in the classroom and provide access to all students, they

want another teacher to partner with them for planning and instructional delivery

Reflection

Throughout the focus group, the teachers were candid and honest about the

supports that needed to fully implement the math CCSS. I felt that this was a turning

point in my relationship with them because it was evident that they trusted me and felt

emotionally safe to share what they weren't doing instructionally and where they

needed help. There were times during the focus group that I needed to focus on being

a facilitator and truly listen to what they were expressing, rather than pushing them to

think about the ideal math learning environment differently. This was challenging for

me because I was surprised that they did not identify any commonalities between the

ideal math learning environment and our school's implementation of the math CCSS

based on that ideal. For example, the teachers listed small group instruction, student-

centered instruction, more than one teacher in every classroom, problem-based lesson

structures, and students thinking critically as components of the *ideal* math classroom.

Yet, they pointed out students' deficiencies when asked about implementation, and

then identified visual representations, subitizing, and vertical alignment as their

evidence of implementing the math CCSS. As the principal of the school who visits their classrooms often, I know for a fact that all of the teachers in the focus group have utilized the problem-based lesson structure on a regular basis to teach math concepts and have a relatively student-centered approach to teaching mathematics. However, none of them see themselves as doing either of those things.

Upon reflecting on the disconnect between the *ideal* math learning environment and our current implementation, it leads me to believe that many teachers do not view themselves as minimally proficient in the areas in which they identified as components of the ideal math learning environment. I came to this conclusion during a conversation with one of the focus group participants who was a second-year teacher about a month after the focus group. She and I were talking about math instruction and what we could do as a school to get all teachers on board with shifting their instructional practices. This teacher expressed that for her, she didn't know any different. There was no "shift" for her or for those teachers who were hired in the last two to three years. She felt that the "new" teachers were more excited and welcoming of the changes to instructional practice because they didn't have experience with teaching any other way. They still experienced the uncertainties that all new teachers felt, but those feelings weren't as a result of shifting practice. Broadly speaking, it is the teachers with five to twelve years of experience that were hired during the No Child Left Behind era who have the most difficult time shifting their instructional practice because the teacher's editions, reproducibles, and answer keys were all they needed to delivery what was deemed as "high-quality" instruction during that time

period. Therefore, it is important that the support I provide to teachers be tailored to where they are individually on the continuum of shifting instructional practice.

During the discussion on what factors hinder the implementation of the math CCSS, I found myself somewhat frustrated and annoyed when two teachers identified parental support as a barrier to implementation; this is something for which they have no direct control within the four walls of their classrooms.   One teacher believed that this was a barrier because she felt that the parents of her students are not in support of the math Common Core State Standards and they form negative opinions about the CCSS based on the information on the internet. The other teacher felt that parents "undo" what is taught at school by teaching the concept a different way to solely get the right answer when trying to help with homework, rather than helping the child to understand why the answer makes sense. She said, "I would rather the child be the leader in the homework. If a child can't explain to [the parent] how to do it, I would rather the parent send it in with note that says he couldn't explain this to me."   This is noteworthy because the participants did not reflect on their existing practice and make connections to what they identified as the ideal math learning environment; they did not articulate explicit barriers or concrete solutions to remove those barriers.   This is reflective of the disconnect between the *ideal* math learning environment and current implementation. During the focus group, teachers did not convey any concrete actions or intentions to make the *ideal* math learning environment become a reality. This made me question the level of ownership for creating the ideal math learning environment, implementing the math CCSS, identifying barriers, or thinking about

solutions. Upon further reflection, it makes me wonder if those actions and intentions were not expressed because of the questions that I asked during the focus group or if there is resistance to taking ownership, individual and/or collective, for fully implementing the math CCSS. In order to increase collective and individual ownership for shifting planning and instructional practice, I will work with teachers to set measurable goals in those areas; Leadership Practice 2 below describes the actions that I will take to foster increased ownership for fully implementing the math CCSS.

Lastly, it was my interpretation that they felt that in order to exude confidence in what they were teaching, they needed time to actually understand and become an expert themselves on their grade level standards. In order to address the varied instructional levels in the classroom and provide access to all students, they want another teacher to partner with them for planning and instructional delivery. I have two opposing views on this sentiment. For most teachers, this is beneficial because it fosters collaboration and professional growth, and it is one more step in providing individualized instruction for students. It works very well when both teachers contribute and are accountable to their collective decisions. However, for a select few, they view this second person as someone to do the work for them; they don't take ownership for the change in practice, and when probed about instructional actions, they put the onus on the other person for their planning and instructional practices. As a leader, I need to do what is best for students; in this case, that means leveraging human resources to ensure that each teacher has a partner for planning and delivering math instruction. I will address the few teachers who do not take responsibility for

their own planning and instructional practices on an individual basis. Recommendation 4 below outlines strategies to provide a second teacher in each classroom to assist with math planning and instruction.

Recommendations

The purpose of the focus group was to identify areas in which teachers need support to fully implement the math CCSS and to inform future math professional development activities. Based on teachers' responses to the questions during the focus group, I developed the following six recommendations and strategies that will directly address shifting instructional practice in the areas of planning for and teaching mathematics.

Recommendation 1: Provide targeted professional development for each grade level.

Rationale: Four of six teachers noted professional development as a needed support.

Strategies:

- Create and distribute professional development survey to determine specific professional development needs as well as preferred professional development models.

- Analyze results of professional development survey by individual teacher, by grade level, and by the school overall with the leadership team.

- Plan professional development offerings based on identified needs, set clear outcomes of each professional learning session that focus on shifting planning and/or instructional practice, and identify measures of success; include teachers in the planning process.

Feasibility:

This recommendation can be implemented with minimal to no caveats. Professional

development planning can occur during the duty day either before school or on

Wednesdays when students are released at 2:00 PM. The actual professional

development offerings can be offered during extended team planning, on Wednesday

afternoons, or in the morning.

Recommendation 2: Increase planning time with the Intervention Resource

Teacher (IRT).

Rationale: All teachers expressed that they needed more dedicated planning time with

the IRT to plan math instruction.

Strategies:

- Create master schedule so that the IRTs have the same planning time as the grade levels with which they work.

- Provide funds for ½ day of substitute coverage per marking period for teachers to plan with their IRT.

- Provide funds for the IRT and teachers to plan collaboratively after the duty day.

Feasibility:

This recommendation can be implemented with a few caveats. The master schedule

has been created so that each IRT has common planning time with the grade levels

with which they work. Per the Negotiated Contract, teachers are to have a 45-minute

individual planning period; therefore, the teachers must initiate the planning session

with the IRT. The teachers and IRTs will need to preplan the agenda for the planning

session and stick to it so that the planning session is productive.

Title I funds will be used to cover the cost of substitutes and teacher compensation beyond the duty day.

Recommendation 3: Provide resources, such as a sequence for teaching standards, a pacing guide, and sample lesson plans.

Rationale: Five of six teachers stated that they needed additional resources such as a sequence of which standards were to be taught, a pacing guide, and sample lesson plans.

Strategies:

- Provide funds for teachers to meet over the summer months to create the sequence for teaching the standards, a pacing guide, and sample lesson plans.

- Provide time on Wednesday afternoons (2:15 – 3:45 PM) for teachers to collaboratively develop lesson plans for upcoming concepts.

Feasibility:

The recommendation can be implemented as long as teachers have the desire to create the resources themselves. They will have a better understanding of the standards, the progressions, and instructional implications if they engage in the development process of the resources rather than someone else creating the resources for them. Title I funds will be utilized to compensate teachers during the summer months.

Recommendation 4: Provide a second teacher in the classroom to assist with small group instruction.

Rationale: Four of six teachers expressed that a second teacher in the classroom would be helpful for small group instruction.

Strategies:

- Assign an additional educator (special educator, paraprofessional, and/or IRT) to one classroom teacher each during math instruction to provide small group instruction at least three times per week.

- Schedule common planning time for the assigned educator and classroom teacher to plan collaboratively for small group instruction.

- Ensure that each teacher has specific roles and responsibilities for planning and instructional delivery to increase individual and collective responsibility for student progress.

Feasibility:

This recommendation will be challenging to implement *consistently*. Paraprofessional staffing has been reduced over the last two years. Class size has increased. There is adequate staffing to assign a special educator or an IRT to each grade level; however, that person would then be split between three or four classrooms. All teachers will need to be open and receptive to collaborative planning.

Recommendation 5: Incorporate structured math interventions to remediate deficiencies.

Rationale: Three of six teachers stated that students were in need of math intervention.

Strategies:

- Identify at-risk students whose math skills are one or more grade levels below grade level.

- Provide math remediation instruction on identified needs before school and/or during small group instruction.

- Pre-teach upcoming concepts so that students do not fall further behind.

Feasibility:

The recommendation has limitations. Teachers will need to be willing to give up their 30-minute planning block in the morning to provide remediation and/or pre-teach the daily lesson. Per the Negotiated Agreement, teachers are to have no more than two obligations during that time period per week. Instruction will need to be individualized for the specific needs of the students and teachers will need to differentiate small group instruction to meet those needs.

Recommendation 6: Increase the math tools available for student use.

Rationale: Three of six teachers noted that there were not enough math tools for student use.

Strategies:

- Utilize Title I funds to purchase supplementary math tools.

- Create a master inventory of all math tools available in the school and post electronically for all staff to access.

Feasibility:

This recommendation can be implemented with minimal caveats. Teachers will need to identify which resources are needed, how they will be used, and then complete a purchasing request. Funds are allocated for math resources. IRTs will assist with creating the math inventory, and then it will be available to all staff to review as a Google document.

Looking forward to the next school year, the aforementioned recommendations will be put into place in order to explicitly support teachers in their implementation of

the math Common Core State Standards. The recommendations are concrete,

measurable, and for the most part, attainable. In order to truly shift teachers' math

instructional practice, there are explicit actions that I must incorporate into my own

leadership practice that extend beyond the recommendations above.

Leadership Practice 1: Build teachers' confidence with planning for and

teaching mathematics.

Leadership Actions:
- Increase time in the classrooms for informal observations; schedule informal observations at least one week in advance.

- Provide formative feedback to teachers by using the Observation-Feedback Cycle.

- Express appreciation and gratitude for actions that meet and/or exceed expectations for planning and teaching mathematics.

- Recognize those teachers who are making progress by highlighting their actions during grade level team meetings.

- Seek out and share positive parent/student feedback regarding the math instruction taking place in the classroom.

Leadership Practice 2: Encourage individual and collective ownership for

changing instructional practice.

Leadership Actions:

- Work with teachers at the beginning of the school year to set measurable individual and team goals in the areas of planning for and teaching mathematics; collaboratively develop measures of success for the goals; schedule and follow through with supportive "check-in" meetings.

- Increase teacher leadership opportunities by soliciting input in the decision-making process, encouraging teachers to share effective practices with colleagues, and co-facilitating professional development sessions.

- Support innovation in the classroom by creating structures for reflection on what worked well, what didn't, why, and what changes need to be made in the next lesson.

In conclusion, I learned a tremendous amount from the teachers in the focus group about what they need in order to fully implement the math Common Core State Standards. I gained insight into their perceptions of themselves, the students, and our school community. In order to begin to make changes to planning and instructional practices, both the teachers and I have to fully engage and commit to collaboration, professional learning, and reflection. Our collective actions are what will increase student learning of math content.

Appendix J

**CASE STUDY: ONE TEACHER'S SHIFT IN MATHEMATICS
INSTRUCTIONAL PRACTICE**

Introduction

This case study is situated at East Lake Elementary School over the course of
two school years, 2012-2013 and 2013-2014, and is written from the perspective of the
school principal.   The purpose of the case study is to examine a series of events that
contributed to one teacher's shift in planning and delivering instruction aligned to the
Common Core State Standards of Mathematics. Sources of data for the case study
include two formal observations, pre- and post-conference conversations, informal
impromptu conversations, and a comprehensive interview that was conducted at the
end of the 2013-2014 school year; more explicit information regarding the sources of
data can be found in attachments.

*It was the second full week of the 2012-2013 school year, and Jennifer
Jacobson's math instruction was the first that I would be observing formally. This
was the first school year in which all elementary teachers were to implement the
Common Core State Standards (CCSS) in their entirety. The previous year, teachers
had engaged in professional development on the new standards, but continued to use
the existing state standards and textbooks to plan instruction and only minimally*

incorporated the key tenets of the CCSS; during that time, expectations of implementation were minimal.

Jen and I sat down for a pre-conference before her lesson and reviewed the objectives of the lesson and how she was planning to engage students in learning. The outcome of her lesson was for students to add within 20. The Houghton Mifflin math series teacher's edition and corresponding resources were utilized to plan instruction. She would be presenting "partner" and "break apart" numbers with ten frames; partners were two numbers that could be put together to make a larger number, and students would "break apart" one large number into two smaller numbers. Our interactions throughout the pre-conference were positive; Jen exuded excitement and enthusiasm for the lesson. She was comfortable with the planned activities, as they were similar to what she had done the previous year. When asked, Jen was able to articulate the CCSS to which this lesson was aligned, and she was confident that this lesson would meet the expectations of the new standards. As Jen described the sequence of activities and what students would be doing, I became concerned that there were few opportunities for students to construct meaning on their own. When asked how students would construct meaning of single-digit addition, Jen described the "partners" and "break apart" activities again. I realized that this brief pre-conference was not going to change what Jen had planned or change her understanding of how students construct meaning. I limited my feedback because I wanted to be able to address this in the post-conference with concrete, contextualized examples from the lesson.

Upon walking into Jen's classroom for the formal observation, it was immediately evident that this was a place where students loved to be. Children were jovial and would do anything that Mrs. Jacobson asked of them. Jen was an excellent classroom manager and had taught students to take pride and ownership in the classroom in a very short period of time. Students led the morning routines and chose a classroom job for the day. Jen complimented students for working together and then reviewed the objectives for the day. In the lesson, students reviewed related vocabulary, such as partners, total, sum, equal, and add. Students used dry erase boards to show visual representations of equations and "switch" partners (3+1 = 4, 1 +3 = 4). Students wrote 3 + 1 on their boards and Mrs. Jacobson asked, "If I switch them, am I going to get the same answer? If you think I'm going to get the same answer, stand up. Put three in your brain and let's count on by 1. Erik, put three in your brain and count one." Erik said, "Three, four." Mrs. Jacobson asked him, "What was the total?" and he responded, "Four." Mrs. Jacobson asked, "Did we get the same answer for 1 + 3?" and he responded, "Yes." Mrs. Jacobson showed students how to write a visual representation of the numbers.

Students received a "partner train" that visually represented an expression; students wrote and solved the equation and then circulated throughout the classroom to find the student with their "switch" partner. Students used chips and break apart sticks to solve additional equations on a double-decker partner train. Students placed their first chip on the first circle, and then placed their break apart stick after it. Mrs. Jacobson asked, "What's my first partner? What's my second partner?" One student

explained how to switch the partners and Mrs. Jacobson circulated to individual

students to guide them in writing the partners and switch partners for the "7-train."

Next, students worked in pre-assigned groups to solve addition problems and then

they pasted them onto construction paper to make a partner train. Throughout the

entire lesson, Jen was enthusiastic and got visibly excited when students put forth

effort. She recognized students for their hard work and was forthcoming with praise.

The lesson was primarily teacher-directed and heavily scaffolded so that all

students found the number partners and "switch" partners at the same rate; the lesson

was tightly structured and there was only one way to come to the answer. Jen

modeled each activity and then gave the class a similar problem with one or two

different numbers. Students only needed to be able to state the expression and

"switch" it around. Jen assessed students on their completion of the independent

activity, which was to find all of the "partner trains" with the sum of 9. As the

observer, I had questions about the students' understanding of the quantity of each

number and how addition changed that quantity. For example, did they understand

that each number had a value, and did they understand that when two numbers were

combined that the value changed? I did not observe that students understood place

value, nor did they use that place value understanding to add within 20; rather, I

observed that students were expected to change expressions into equations and then

solve them; without a full understanding of number sense, this was a difficult concept.

Background

 I was in my second year as principal at East Lake Elementary School (ELES) and had begun at ELES at the same time in which the Common Core State Standards were introduced; many teachers equated the shift in instructional practices to me, the instructional leader of the school, rather than to the state's adoption of the CCSS. In Fairview County Public Schools (FCPS), teachers were to be shifting their main math instructional resource from the Houghton Mifflin textbook series to the teacher resource book, *Teaching Student-Centered Mathematics* by Van de Walle and Lovin. Throughout the school year, it was a county expectation that teachers would fade out their use of the Houghton Mifflin series.

 In my first year at ELES, I hired Jennifer Jacobson for the open first grade position. She had been a student teacher for one half of the school year at the school where I had been an assistant principal and she had also been a student teacher at ELES for the second half of the school year. She and I had a brief history before she came to ELES, and had established a good, trusting relationship; she was someone who I wanted on our staff and who I knew would do amazing things with students.

 Right from the start, Jennifer Jacobson was a high performer in most areas. She had a firm grasp on classroom management and created a supportive community within her classroom. She had high expectations for her students and very high expectations for herself. Jen was well organized, reflective, thoughtful, and intentional about her lessons. She was an excellent teacher of reading and

independently studied the major shifts in instruction for reading/English language arts (RELA) as called for by the Common Core State Standards.

However, Jen did not demonstrate the same level of proficiency early on for teaching mathematics that she did for teaching reading. As a student herself, Jen didn't enjoy math and didn't like the way that it was taught. In elementary and secondary school, she didn't get the basic understanding of mathematics that she needed to be a successful teacher of math. The Houghton Mifflin math series was a safe choice for a teacher who didn't have a fully developed mathematical foundation.

On Jen's grade level team, the other two teachers were big proponents of the Houghton Mifflin resources and its approach to math instruction; it was structured and already planned out for them, regardless of where the kids were in terms of their understanding of the target concepts. The teammates were not fond of anyone deviating from the status quo and made sure that Jen knew that. Jen did not have a supportive grade level team to help her improve her understanding of mathematics, and the tension among the teammates was apparent.

Series of Events that Contributed to a Shift in Planning & Instructional Practice

Shortly after I observed Jen's math lesson, she and I engaged in a post-observation conference to discuss what students did well, what contributed to their success, and in what areas they needed to improve in order to show progress toward the lesson outcome. Jen highlighted that the students worked well together and that they followed directions. Jen did not elaborate on whether or not the students met the outcome or if they fully understood the target concept. I pressed Jen about the key

understanding that students should have related to number quantity and addition. From my perspective, I could tell that I was making Jen nervous with my line of questioning and that she didn't know the answers. Since we had an established rapport, I asked her bluntly if she had even opened the book, *Teaching Student-Centered Mathematics* by Van de Walle and Lovin. To my surprise, Jen broke down in tears; she had not looked at the book and was not familiar with the key tenets of the constructivist approach to mathematics.

The teacher who sat before me was not the confident, well-versed woman who had sat before me in previous post-observation conferences related to reading. Jen was scared, uncomfortable, and unsure of her practice. In my opinion, this was a good thing because Jen saw that she needed to make changes to the way in which she taught math.

During the post-observation conference, I encouraged Jen to take the first step towards changing what she knew about teaching math by looking at the table of contents and reading the first chapter of *Teaching Student-Centered Mathematics*. Jen independently studied the book to build her own understanding of the mathematical concepts, to learn a new structure for planning and instructional delivery, and to gain additional ideas for lesson activities.

Throughout the fall of 2012, Jen also sought out additional professional learning activities to develop her understanding of mathematics. During the month of October, Jen engaged in team planning during two after-school planning sessions in which the team identified upcoming math CCSS and created lessons plans; these

lesson plans were posted to an online forum for the entire school district and then the following week, the team reviewed math lessons created by first grade teachers from other schools within the district. Jen asked for assistance from the Title I Intervention Resource Teacher (IRT). Through one-on-one coaching sessions over multiple months, they studied upcoming standards, the concepts presented in the Van de Walle text, and collaboratively planned math lessons.

In the middle of the school year, the entire staff participated in a professional development activity that formally introduced everyone to the book, *Teaching Student-Centered Mathematics*, by Van de Walle and Lovin, and the constructivist approach that was needed in order to align math instruction with the expectations of the CCSS. Teachers were grouped heterogeneously, so Jen and her first grade teammates were all in different groups; this was important because Jen's teammates were resistant to change their practice and were not supportive of Jen, or anyone else, using materials other than the Houghton Mifflin math series. Teachers read the first chapter of the book independently and then discussed how children learn and understand mathematics; the second part of the professional development focused on how to teach with problems. Even though the expectation had been established to move away from the Houghton Mifflin math series during this particular school year, teachers still hung on to what they knew; this professional development session showed teachers why it was no longer acceptable to solely use the Houghton Mifflin math series to teach mathematics.

The professional development session also leveled the playing field between Jen and her teammates. By this point, Jen had already begun to study the Van de Walle text and was ahead of her teammates in her approach to math instruction. Jen utilized the Van de Walle text to build her own background knowledge of the first grade math outcomes and how the constructivist approach to mathematics would develop students' understanding of the major concepts at a greater level than that of Houghton Mifflin. She incorporated some of the suggested activities into her math lessons. The other two teachers had not studied the Van de Walle text to this level, nor had they begun to incorporate any of the activities into their daily lessons.

After the 2012-2013 school year, Jen participated in the county-sponsored curriculum writing professional development in the summer. This was a voluntary professional learning opportunity; teachers committed to one week of studying the standards and creating resources that would be used throughout the school system. Jen engaged with other first grade teachers from around the county and together they deconstructed the math standards and developed a shared understanding of what was expected of students in first grade. Jen found a great deal of value in discussing the first grade math standards and engaging in professional dialogue to identify not only learning expectations, but also instructional actions that would increase students' cognitive engagement and retention of math concepts. Jen wanted this same level of interaction with her teammates throughout the school year.

After curriculum writing, Jen continued to study all of the first grade math CCSS and she identified the learning targets that first grade students would need to

accomplish by the end of the school year; she then used backwards mapping to determine how she would teach the target concepts. Jen began this process by reviewing the county-provided documents for each marking period that just listed the standards that were to be taught. An explicit sequence in which to teach the standards was not provided, so Jen listed all of the standards for each marking period and then studied the individual standards by reading the math progressions and the Van de Walle chapters that corresponded to the target concepts. From there, she sequenced the standards based on the foundational skills needed to access the subsequent standards. Jen followed this process for the standards identified for each marking period. By the end, she had a deep understanding of all the first grade math standards and a full progression for how she would teach the standards throughout the school year before the school year even began.

It was now the beginning of the 2013-2014 school year, and I was to observe Jen's math instruction once again. I was excited about the observation because I wanted to see the fruits of Jen's labor in action a year later from the time that I had observed the dreaded Houghton Mifflin partner train lesson. During the pre-conference, Jen described the math CCSS on which the lesson would focus: 1.NBT.B.2.A – Understand that two digits of a two digit number represents amounts of tens and ones, and that 10 can be thought of as a bundle of ten ones, called a ten. The lesson would concentrate on two digit numbers from 11-19, and she was building the understanding that the teen numbers were made up of a ten and some extra ones. Similar to the previous year's lesson, ten frames would be used to build students'

understanding of number sense. However, in this year's lesson, the approach to building that number sense was completely different. Jen described how she used pre-assessment data to plan instruction based on students' present level of knowledge and the areas in which they struggled. Throughout the pre-conference, Jen did most of the talking and I listened. She highlighted the sections of the Van de Walle and Lovin text that contributed to her understanding of the target concept and she presented the first grade progression document that she had created during curriculum writing. As her principal, I was proud, and I was impressed with how much she had learned over the last year.

Jen's lesson began with "Flash Math," in which ten frames were used to represent numbers 1 – 10. The ten frame was "flashed" on the SmartBoard and students quickly identified what number was represented in the ten frame. The cooperative learning structure, "Whip Around," was explained and modeled. Students mingled while music was on, found a partner when it stopped, and then stood back to back. A teen number was represented in a ten frame on the SmartBoard. Each student wrote the number in numerical form individually and then "whipped around" to show their number to their partner. Jen circulated to each pair to give specific feedback and praise. For example, she said, "I want you to write the number, not the dots." She asked, "How many ten frames are full up there?" The student responded, "One." She continued, "How many extra ones are there?" The student stated, "Three." She responded, "Let's put ten in our brains and count up from there. " During the next activity, students worked individually at their desks with two empty ten frames and a

fill in the blank sentence to describe how the two digit number represents tens and ones. Jen modeled how to fill up one ten frame to make ten, and then how to add ones to make teen numbers. When students had difficulty representing a number from 11- 19, Jen used two different visual representations to make the concept of a ten frame more concrete for the students. It was evident that the activities were designed for students to develop number sense and build their understanding of place value. The lesson was student-centered and facilitated, rather than directed, by Jen. Jen was truly shifting her instructional practices to align to the expectations of the math CCSS.

When I observed Jen's math lesson at the beginning of the 2013-2014 school year, there was a tremendous difference in the way in which she had planned for and delivered the lesson. The lesson focused on numbers 11 – 19, and it was students who were engaging in activities to develop the understanding that those numbers were made up of a ten and some extra ones. Student engagement was high and there were multiple pathways for students to develop number sense. Jen exuded confidence during the lesson and when we met for the post-conference. She was able to fully articulate what was expected of students for the target concepts; she shared her entire progression of how she planned to introduce and teach the math CCSS, and she knew exactly how she planned to measure students' success.

Throughout the 2013-2014 school year, several professional learning opportunities were available for all teachers to strengthen their planning and instructional practices in the area of mathematics, including a county-planned professional day facilitated by a leading math consultant, after school planning

sessions focused on instructional activities, during school "Implementation Shifts," and a school-planned professional development day focused on the creation of a math walk-through tool. While all teachers were required to participate, their level of participation and engagement was determined by their self-interest. From my observations, it was like Jen's thirst for mathematical understanding couldn't be quenched; she was an active participant and key contributor during two professional development series in particular: the Math Implementation Shifts and Math Learning Walks.

During the winter of 2014, teachers engaged in a three-part professional learning series called "Implementation Shifts" that was based on the three main shifts in math instruction as a result of the math Common Core State Standards. In the first professional learning experience, teachers learned about the shifts in math instruction and analyzed sample math Partnership for Assessment of Readiness for College and Careers (PARCC) test items. In the second professional learning experience, teachers reviewed the three main shifts, identified the target standard(s), discussed instructional actions, and created a math formative assessment that emulated the sample PARCC items in format and conceptual understanding. Between the second and third professional learning experience, the teachers engaged students in learning activities focused on the target standard(s), administered the assessment, and scored it. In the third professional learning experience, teachers analyzed the formative assessment data.

Jen and her grade level team selected a few first grade standards on which to base their formative assessment. As part of the planning process, the team reviewed the county-developed math benchmark items for first grade. They had historically utilized this assessment in the planning process to design instructional activities for students and assumed that each test item was completely based on the standard. However, Jen realized that the test items that were based on the standards they selected for their formative assessment did not completely assess students' understanding of the standard, but rather, only one piece of the standard. This was pivotal for Jen's teammates and for Jen; they changed their entire approach to planning the formative assessment as well as how they used the math benchmark to plan instructional activities. They changed their instructional activities to align with the expectations of the *entire* standard, not just one or select parts of the standard. They realized during this process that the way in which assessment items were written had a direct impact on the instructional activities that they implemented in the classroom.

In addition to the Implementation Shifts, teachers created a walk-through tool that included specific student learning behaviors based on the Standards of Mathematical Practice. This tool captured the most prevalent student learning behaviors during math instruction in the elementary grade levels. During Math Learning Walks, the teachers visited the grade level above and below their own, and collected data on which student learning behaviors were evident; lastly, they reflected on the lesson and debriefed with the teacher to discuss the student learning behaviors

that were evident. The purposed of the Math Learning Walks was for teachers to see a variety of instructional activities in which students demonstrated the identified learning behaviors. Part of the reflection included identifying instructional practices that would be incorporated into future instruction. The entire Math Learning Walk process from the creation of the tool, to the classroom visits, to the debriefing and reflection were all intended to help teachers shift their math instructional practices to align with the expectations called for by the math Common Core State Standards. Jen utilized the Math Learning Walk process as yet another forum to enhance her professional practice. She studied each of the identified student learning behaviors and reflected on her own practice to determine if she was giving students an opportunity to demonstrate those behaviors during the math lessons. Jen chose to emphasize the one student learning behavior that focused on selecting appropriate math tools and using them efficiently. Based on that particular student learning behavior, she changed they way in which she directs students to use math tools. Previously, Jen would tell the students which math tool to use, where as now she directs them to choose their best math tool. Jen noticed an immediate difference in the way that students used math tools during instructional activities. [1]

Over the course of two school years, Jen took steps to strengthen her professional practice and shift the way in which she planned and delivered math

[1] More detailed information regarding the Implementation Shifts can be found in Appendix F. More information regarding the Math Learning Walks can be found in Appendix G.

instruction. During the 2012 – 2013 school year and in the summer of 2013, Jen studied the book, *Teaching Student-Centered Mathematics*; she participated in collaborative planning sessions with her first grade colleagues; she worked with the Title I Intervention Resource Teacher and received direct coaching in the area of mathematics; she engaged in math curriculum writing with first grade teachers from across the school district; lastly, she created a full progression of the way in which the first grade math standards would be taught. During the 2013 – 2014 school year, Jen received content-specific training from a leading math consultant; she participated in structured planning sessions; she learned about the key shifts in math instruction, created aligned instructional activities and assessments, and analyzed formative assessment data; she took part in the creation of a math walk-through tool and used it when observing other teachers' math lessons; and most importantly, she reflected on her practice. The above professional learning activities continued to strengthen Jennifer Jacobson's planning and instructional practices in the areas of mathematics. Is Jen's success unique to her as an individual or can it be replicated?

Assertions

After reflecting on Jen's professional growth, I now better understand what teachers need in order to change their professional practices, and specifically, to shift their planning and instructional practices to align with the changing expectations of the math Common Core State Standards. I have also learned how to foster professional growth and support teachers in shifting their practices. Three interrelated

themes emerged from this case study that very well may influence future teachers'

shift in instructional practice: support, professional development, and motivation.

Support. Taking risks professionally is not something with which all teachers

are comfortable. Many teachers are fearful of changing their planning and

instructional practices, and they need varied levels of support to make those changes.

During the interview, Jen indicated that she was hesitant to stray away from the

Houghton Mifflin math series because things became unpredictable, unstructured, and

in her opinion, out of her control. When reflecting on that initial lesson, Jen said, "Last

year, I was nervous to start something new…I was scared to let them do it [the

learning]. It was like an 'I do, we do, you do' [structure], and that change to

exploration and collaboration scared me a bit to let them do it." With Jen, just one

simple question got her moving to change her practice. In the initial post-conference,

I asked her, "So, Jen, have you cracked open that Van de Walle book yet?" Even

though this brought on a significant emotional response from Jen, it did the trick. She

shared during the interview that this was a turning point for her and that she was

scared; she needed the push and encouragement to just look at the book. I knew that I

needed to check in with Jen frequently to see how everything was going; these were

informal conversations in which I asked her if she had tried anything new, if she

needed additional math manipulatives for her students, etc. This direct, candid

approach worked with Jen, but it would not work with all teachers.

Support from school leaders can take on many forms. For example, if

recommending a text for teachers to read, school leaders could assign a specific

section of it to be read and then discuss that section with the teacher. Not only does it build the school leader's content-area knowledge, but it also opens the lines of communication for the teacher to ask questions and brainstorm future instructional actions. Another way in which school leaders could support teachers in shifting their practice is to help the teachers identify one or two areas for professional growth related to planning and instruction, and then work with them during planning to make progress on that goal. The level of support could be in the form of resources, discussion, or concrete examples. Then, the school leader could visit the classroom frequently to give feedback on the teacher's progress. When school leaders work directly with teachers, relationships are forged and support can be tailored to the individual teacher based on their specific need. School leaders can also identify other professionals in the building to work collaboratively with teachers, for example, in a peer coaching model. This way, teachers build networks within the school building to help them grow professionally. When implementing a peer coaching model, it's important that schedules are developed for this type of support to occur within the teacher's duty day.

As a school leader, I felt that I had supported Jen in shifting her practice by checking in with her, visiting her classroom to see her students engaged in the activities she had planned, providing feedback, and making sure that time was available for her to work with the Title I Intervention Resource Teacher. Even though Jen had my support in changing her practice, she did not have the support of her grade level teammates initially. She attributed their lack of support as a factor that stalled her

change in approach to planning and teaching math: "My team was definitely hindering me getting there…their openness to it [student-centered learning] and the openness to the new concepts being taught…I felt like it was always a struggle." When the staff engaged in the professional learning activity based on the first chapter of *Teaching Student-Centered Mathematics*, Jen and her teammates had a common understanding of what the expectation was for planning and teaching mathematics, and began to shift planning practices during future collaborative team planning meetings. This had a profound impact on me as a school leader. Even though I had verbally stated at the beginning of the school year that teachers needed to be using the Van de Walle and Lovin text rather than Houghton Mifflin as their primary resource for planning math instruction, I had not fully articulated the reasoning behind this shift, nor had I provided structured time for teachers to become familiar with the key tenets of *Teaching Student-Centered Mathematics*. In hindsight, I feel that I may have contributed to the dissonance between Jen and her teammates. In order to help teachers have the support of their colleagues, all teachers need to have a shared understanding of expectations and how to put those expectations into practice. School leaders can help teachers build a shared understanding of instructional expectations by involving teachers in the development of the expectations and the development of concrete examples of what those expectations would look like in practice. Continued conversations throughout the school year on the expectations will help to keep them in the forefront of teachers' minds, and adding to the bank of examples will help teachers to strengthen their planning and instructional practice.

Professional development. Teachers' knowledge and understanding of content and pedagogy are at the heart of student learning; if one area is deficient, student learning will be impacted negatively. Therefore, it is imperative that teachers engage in high quality learning experiences to strengthen their professional practice as it relates to content and pedagogy. Yoon et al. (2007) found that "substantial" professional development can have a positive impact on student achievement; of the nine studies reviewed, those teachers that had an average of 49 hours of professional development could increase student achievement by approximately 21 percentile points. The researchers assert that professional development impacts student learning through three steps. Professional development increases teachers' knowledge and skills, which leads to improved instructional delivery, which leads to improved student achievement. It is important to note, however, that students only benefit from the classroom teacher's professional development when those newly learned skills are applied in the classroom.

Therefore, teachers need time to engage in high-quality, authentic professional learning experiences with their colleagues. Jen attributed the math curriculum writing experience to having the greatest impact on shifting her planning and instructional practices because she had time to deconstruct the math standards and engage in collegial conversations about what each standard means. In order to help teachers develop their content-area knowledge and shift their planning and instructional practices, school leaders need to offer ongoing job-embedded professional learning experiences that focus on studying specific standards, planning aligned assessments

and instructional activities, analyzing student work, and reflecting on what needs to be

changed for future instruction. I learned from working with Jen that there is not just

one avenue to increase teacher proficiency. The table below includes the varied

professional learning activities that contributed to Jen's shift in planning and

instructional practice. The professional learning activities are in order based on those

that first develop content knowledge followed by those that contribute to professional

growth in planning practices and instructional delivery. Many of the professional

learning activities may occur over the same period of time, so it's important to note

that one activity does not necessarily need to be completed before moving onto the

next.

Table J.1

Professional Learning Activities and Contributions to Professional Growth

Professional Learning Activity	Contribution to Professional Growth		
	Content Knowledge	Planning Practices	Instructional Delivery
Explicit Instruction on the Common Core State Standards	✓		
Book Study	✓		
Peer Coaching	✓	✓	✓
Collaborative Planning	✓	✓	✓
Curriculum Writing	✓	✓	✓
Development of Formative Assessments		✓	✓
Analysis of Formative and Summative Assessments		✓	✓
"Make & Take" Sessions (to create an instructional activity to be used in a future lesson)			✓
Classroom Walk-throughs			✓
Ongoing Reflection on Professional Practices	✓	✓	✓

Such learning experiences are applicable to teachers' daily responsibilities and have the potential to have an immediate impact on professional practices.

School leaders also need to hold teachers accountable for implementing the newly learned material into instructional practices. School leaders can do this through the formal observation process and give direct feedback based on the level of implementation observed. They can also use informal observations to recognize teachers for applying the newly learned skills in the classroom.

School leaders need to engage in a collaborative, comprehensive planning process with their teachers when developing professional learning activities in which all staff will engage. A comprehensive planning process may include the following activities.

- Develop and send out a professional development survey to all teachers in order to ascertain areas of need.

- Review data sources such as the professional development survey responses, formal and informal observation data, and/or student achievement data.

- Set priorities for professional learning topics based on the data.

- Sequence the topics to allow for a progression of learning.

- Structure the learning experiences so as to maximize the time of teachers; determine if the information is best suited for multiple grades or individual grades of teachers.

- Determine the measures of success for each topic and share progress with teachers frequently.

As evidenced by Jennifer Jacobson, there were multiple professional learning activities that contributed to her shift in planning and instructional practice, many of which she chose based on her individual interests and needs. In order for professional learning activities to be relevant to individual teachers and their individual professional goals, there must be an element of choice so that teachers have the autonomy to shape their professional growth. In sum, a mix of professional learning activities set forth by the school leader and the individual teacher will positively impact student learning.

Motivation. Motivation plays a key role in the extent to which teachers are willing to shift their planning and instructional practices. In Jen's case, she was extremely motivated because she wanted to learn more and she took ownership for her learning. Her awareness helped her to see immediate results with her students. Teachers feel a great deal of success when their students are successful as a result of their efforts. Teachers are more willing to try new practices and continue taking risks when they see an increase in student learning. School leaders can capitalize on students' successes to help teachers shift their instructional practice. For example, school leaders can celebrate students' growth and help teachers to draw conclusions about why learning increased. School leaders can engage in conversations with teachers about contributing factors to student learning and practices that will have a

positive impact on students. These conversations will also help the school leader to build trusting relationships with their teachers.

There are also many complex factors that contribute to one's motivation, or lack thereof. School leaders need to be aware of the dynamics in the individual classrooms, among grade level teams, and in the school overall. The dynamics around student behavior, collaboration, parent contact, and stress levels impact teachers' motivation levels at various times throughout the school year. School leaders need to help teachers focus on the areas in which they have the most control: planning and instructional practices. By giving teachers "voice" and "choice" in setting goals, priorities, and professional learning activities, school leaders are more likely to fully engage teachers in shifting their practices. "Voice" and "choice" gives ownership, and with ownership comes empowerment.

Conclusion

In conclusion, this case study demonstrates that Jennifer Jacobson's success is not a unique occurrence, but rather one that can be replicated. Support, professional development, and motivation are all contributing factors to teachers shifting their planning and instructional practices to align with the changing expectations of the Common Core State Standards. School leaders can structure authentic professional learning experiences for teachers, celebrate their successes, and support them in their struggles; this will in turn motivate teachers to continuously improve their craft.

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Math representations for less, more, even, odd, less than greater than, equal to, etc. were posted on the front board.

Objective: TSW add and subtract within 20.

9:10 AM   T. completed morning routines and assigned roles for the day. Students followed procedures seamlessly. T: Great teamwork! T: What subject are we in right now? Ss: Math! T: Who can tell me what we look at for the schedule? What are those called? S: Objectives. One student read the objective: discover partners and total. S: An objective is what you are going to do and learn that day. Students completed the math warm-up in their math journals (9:13 AM). Students wrote the two partners for 4 + 2 based on a visual representation. T. circulated. T: If you could write the total really big, that would be great. If you remember another word for total, raise your hand. It rhymes with gum. S: Sum. T: Sum is another word for total. Students demonstrated addition by making a plus sign with their arms. One student came to the board to write the partners for the math warm-up. T: it's important that we are precise in math. T: What's the total amount? S: 4 +2. T: Okay, but what's the total? How many altogether? S: 6. T: What's the sum? S: 6. T: Excellent.

9:18 AM   T. reviewed vocabulary pertaining to the lesson. T: Let's talk about what are partners. T. set time frames for student responses - 10 seconds. T. read the multiple choice definitions of "partners." Students recorded their responses on a dry erase hand and held up their "hands." T. returned to the warm-up to show the example of partners. Next question: What symbol do you use when you are adding two numbers? T: Excellent, everyone tell me the answer! Ss: A! Next question: What symbol is the equal sign? Next question: What does equal mean?

9:27 AM   T: We're going to practice our "switch" partners. Students wrote 3 + 1 on their dry erase hands. T: If I switch them, am I going to get the same answer? If you think I'm going to get the same answer, stand up. Put 3 in your brain and let's count on by 1. T: Erik, put three in your brain and count one. S: Three, four. T: What was the total? S: 4. T: Did we get the same answer for 1 + 3? S: Yes. T. showed how to write a visual representation of the numbers. One student came up to the board to write the first equation. Another student came up to write the second equation.

9:33 AM   T. explained directions for the next activity. Each student was given a "partner train," and they wrote the equation and solved the problem. Then, they found their switch partner.

9:35 AM   T: Go around the room and find a friend that has your same total. T. checked students' responses before they walked around. Students found their partners

and then came to the front to sit down. Students explained their switch partners to the class. T. asked students to name their partners and then the total. T: What's your equation? What are your two partners? T: Don't say it [the answer] like a question, say it with confidence!

9:47 AM   Students returned to their seats to practice a double decker partner train before doing a group activity. Students used chips and break apart sticks to solve the problem. Students placed their first chip on the first circle, and then placed their break apart stick after it. T: What's my first partner? What's my second partner? One student explained how to switch the partners. T. circulated to individual students to guide them in writing the partners and switch partners for the 7-train. T: Be precise! Think about it!

10:00 AM   Students put their materials away and got ready for the next activity. T. posted the math tub groups on the SmartBoard. Students moved to their group. Each student received four cards. Students solved the equations and then made partner trains. Students had options to solve the problems: chips and break apart sticks or drawing circles and sticks. T. circulated to monitor student progress. Students made a double decker train and put it on construction paper.

10:15 AM   Students were directed to do an independent assignment once they finished their partner trains. Students were assessed based on their completion of the independent activity - partner trains with the sum of 9.

10:23 AM   As students completed the independent activity, they paired up to play a math game.

10:27 AM   7 students worked on the independent work.

10:33 AM   3 students worked on the independent work, the rest played "Bump."

10:37 AM   T. gave the direction for students to clean up their math games.

10:40 AM   Brain break, then transition to Writing.

10:10 AM Flash math. Boys over here, girls over here. Students lined up on either side of the classroom. T: We're just going to be flexible. T: What does 'be precise' mean? T: What is half of 30, Jeremiah? S: 15. T. explained the point system for flash math. T. showed ten frames with different numbers; students said the number. T: Imani is sweeping the room! S: Math never lies! The last one..S: One and ten is eleven! T: Give yourself six spaces!

10:17 T. introduced cheer, "looking good." T: This is ticket showers. T: An objective is something we S: Do T: and learn S: every day. S. read the objective: Identify teen numbers. T: What does identify mean? S: It means look at it and figure out what it is. T: We're going to be doing something new today. We're going to be flexible. If something does go well, we're going to… T. explained and modeled how to do Whip Around – mingle, when music stops, hand up pair up, stand back to back. T: Who's ready to rock and roll? All students: Me!

10:23 AM Slide posted on the SB: What's that number? Whip Around. T: When the music starts, you start mingling. All students mingled. Music stopped. All students put their hand up. T. modeled and facilitated back to back partners. T: If you don't have a partner, look around you. Jeremy and Beth, do you have a partner? What do you think you should do? T: Back to back. Here we go. Directions were posted on the SB, teacher read them. Teen number represented in ten frames was shown. T: What is being represented? Do you need to count like that? T. gave ample time for students to think and respond. T. monitored what students wrote. T: I want you to write the number, not the dots. T: Whip around and turn to your partner and show them your answers. Tell them why you have your number. S: I got 15. T. modeled: Ten and five is what number? S: 15. T: What did you guys write? S: 10. T: some of you wrote ten. S: There is ten and five so you should've wrote fifteen. T. showed how to get 15 on the SB from the ten frame.

10:29 AM Ss. mingled for round 2. T: Hand up. Stand up and up pair up. T. directed students to the sink if they needed a partner. T. facilitated partners and back to back. T. showed next number: 13. T. circulated and checked numbers. When one student didn't have anything written, T: What number do you see written up there? Write it quickly and swiftly. To next student: how many ten frames are full up there? S: 1. T: how many extra ones are there? S: 3. T: Let's put ten in our brains and count up from there. Students had 1 minute 20 seconds to solve the problem.

10:32 AM Students mingled for round 3. T: What number is being represented? Write it on your board please. T: I just heard Kamari say something beautiful. T. circulated and monitored.

10:36 AM Table managers came to the back table to collect their supplies. Students received a blank ten frame to write on and math counters. Supplies were prepared ahead of time. It took less than 2 minutes to distribute supplies to all students.

Throughout lesson, T. explained new vocabulary: identify, doozy, multi-tasking

10:39 T: What we're going to do today is introduce something new. We have to learn how to do the easy part first to get to the harder parts. T: I'm going to model what I'd like you to do. What does that mean? S: You're going to show us. T. showed one ten frame and had students fill in their ten frame to match it. T: How many ten frames do we have filled? S: Five! T: Oh, watch what I'm doing. T. demonstrated one full ten frame. T: Say that with me: This is one full ten frame! Ss. repeated. T: I would like you now to put two extra ones in the bottom ten frame. T: Excellent, this table's on it like a grilled cheese sandwich. T: Evan, what number am I representing? S: 12. I counted in my head 11, 12. T: You knew it was a … S: Ten frame. T: Like Evan said, the number we represented is 12. Please write that in your box. 12 is… Mackenzie, you said this earlier – you said 15 is one ten and five ones. Mackenzie, how would you say this one? S: 12 is one ten and 2 ones. T. modeled how to fill in the sentence frame: 12 is __ ten and __ ones. 12 is 1 ten and 2 ones. T: How can we count this quickly? How can we be efficient and do this quickly?

10:45 AM T: Let's try another one. Keep your top ten frame full. I'm testing your listening skills. I would like you to put four in your second ten frame.   T. circulated to each group. T: Who can write the number we represented? Madison, how many extra ones did I add? How many full tens is in 14? How many full ten frames do you have? S: ten. T: Watch me. You can box in that first ten frame. How many full ten frames do we have, Kamari? S: ten. T: How many are full? T. pulled out a ten frame – how many ten frames am I holding? Kamari: one. T: How many tens are in 14, Kamari? S: One. T: And how many extras do you have? Kamari: 4. T: Excellent. T: 14 is one ten and how many ones, Courtney? S: 4 more. T: everyone repeat after me. 14 is. One ten. And. 4 ones. Who wants to try being a leader for that one? Students repeated the statement again.

10:52 AM T: Take away your ones and leave your ten frame full. T: please add 8 extra ones in your bottom ten frame. T. represented the number on the SB. T: and fill in the bottom. Blank is blank ten and blank ones. T. noted the bundle of ten and how it equals one whole ten (showed ten frame). T. circulated. T: You need to add 8. T. circulated to individual groups and students. T: How many ten frames do you have? T. went to three students individually to explain the concept of a single ten frame.

11:01 T: Okay, we're running out of time. Remember how we did pass a note yesterday? We're going to do pass a note today. T. gave directions for how to clean up counters.

11:03 AM Observation ended.

<u>Introduction</u>
Tell me a little about yourself and why you became a teacher.

What is your background in mathematics? As a student, did you enjoy math? In your teacher preparation program, tell me about the training you received for teaching mathematics.

<u>Approach to Planning and Delivering Math Instruction</u>
- How do you choose the math concepts that will be taught and how do you choose the instructional delivery methods? Has that changed over time? How?
  [Prompt: Share a few examples of how that has changed.]
  Why has that changed?
- How do you differentiate for those students who need enrichment and for those students who may not yet have the prerequisite skills to be successful with the lesson? How has your approach to differentiation changed over time? Why has it changed?
- What is your process for selecting resources and learning activities? Has this process evolved over time? How come?
- How do you monitor and assess student learning on the concepts? What do you do with this information? Has this changed? Why?
- How do you choose the models, representations, and examples that you use with students?

<u>Lesson Comparison</u>
In the fall of 2012, you taught a lesson that focused on teaching students "break apart" numbers, for example that 4 has two "break aparts:" 2+2 and 3+1. This lesson was heavily focused on "Partner Trains" that were part of the Houghton Mifflin math series. In the fall of 2013, you taught a lesson that focused on two digit numbers from 11-19 to build the understanding that the teen numbers were made up of a ten and some extra ones. Both lessons utilized ten frames, but the instructional process was different. What changed? Why? How did this impact student learning?

<u>Changing Planning and Instructional Practices</u>
- Did your approach to planning and teaching mathematics evolve over the last few years? What helped/hindered your change in approach to planning and teaching math?
- What types of supports (for you as a teacher) are valuable to helping you grow as a professional?
- What barriers exist that hinder your professional learning?

- What do you think needs to happen in order for all teachers to change their planning and instructional practices? In what ways could I support that?