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Improving Assessment Scores Through Daily 5 Math

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Improving Assessment Scores through Daily 5 Math

An Action Research Report

By Brandy Geloff

Improving Assessment Scores through Daily 5 Math

By Brandy Geloff

Submitted on October 26, 2013
in fulfillment of final requirements for the MAED degree
St. Catherine University
St. Paul, Minnesota

Advisor _____

Date _____

Abstract

The intent of the research was to determine how incorporating Daily 5 Math into daily instruction would improve standards based assessment scores. The research study took place in a first grade classroom located in Bismarck, North Dakota. The four data sources of data collection used in this research included district standard based assessments, a student survey, teacher observations, and common formative assessments. The data showed an overall increase in students' assessment scores from trigger scores given at the beginning of the year to baseline scores, four weeks later. Students were very proud of their accomplishments over such a short period of time. The results of this research indicate that using the management system of Daily 5 Math may be a great way to improve students' assessment scores in a primary setting.

This action research project focuses on integrating the management system 'Daily 5 Math' into core instruction, as a way to increase scores in the standards based assessments. DeWitt states, "Daily 5 Math is all about the structure teachers put in place, so children are engaged in meaningful activities" (DeWitt, 2012), allowing teachers to be with individual students and small groups. The Daily 5 teaches students to be independent. For these reasons, the Daily 5 Math system, "will allow the teacher to differentiate instruction, so that students who excel can be challenged and students who struggle can be given the assistance they need" (Boushey, 2013). The question becomes to what effect will the integration of Daily 5 Math into the core curriculum improve standards based assessment scores in 1st grade?

There is a huge gap in what the district mandated math core teaches in comparison to what the common core standards are asking 1st graders to know. My goal is to find a way to integrate the management system of Daily 5 Math into my core instruction as a way to teach to all levels. This will also help me create specific centers that target the common core standards for students to practice effectively when they are not with me in a small group. Daily 5 Math would allow me to teach math in small groups at each groups targeted level in math, while still teaching the common core standards. Groups that are not with me would be working with partners doing activities that match the common core standards. Each student will have a 'math book box', full of games and manipulatives from the investigations series to work on while I am with a group. The students' would also be able to go to the computer center on the 'Xtramath' website that works on addition and subtraction facts. The action research project will take

place at Jeannette Myhre Elementary school in my 1st grade classroom. My incoming 1st graders will be involved with the action research.

Setting up the stage for Daily 5 Math requires building stamina and modeling appropriate behaviors. When correct behaviors are modeled, it helps students understand how good problem solvers use the processes and strategies appropriately. When we model incorrect behaviors, it allows students to learn how to use self-regulation strategies to monitor their performance and locate and correct errors. (Arefeh, Dragoo & Steedly, 2008). Self-regulation strategies are learned and practiced in the actual context of problem solving. Arefeh et al. (2008) states that when students learn the modeling routine, they can then exchange places with the teacher and become models for their peers. According to Boushey (2013) “students are actually doing math activities around 50% of the time.” Students will work independently, meet with the teacher for direct instruction, and play math games with a partner. Beth Newingham, author of *Math Workshop: Using Developmental Grouping to Differentiate Your Instruction*, offers her view on using developmental grouping, math rotation stations, and math games to meet the needs of students during math workshop. Newingham states, “In order to meet the needs of all of my students in the classroom, differentiated instruction is so important in elementary school.” (Newingham, 2010).

The size of the small groups is an important issue when it comes to deciding how groups will be formed. According to Margolin and Reger (2011),

Small groups should be no larger than five students in a group at one time. The small group may be even smaller if students have learning disabilities. Using

Daily 5 Math small-group instruction provides opportunities to meet the needs of students with mathematic disabilities. Small-group instruction is beneficial for students by allowing for personal attention from the teacher and collaboration with peers who are working at comparable levels and skills. (Margolin and Reger, 2011)

This arrangement allows students of similar levels to be grouped and progress through skills at a comfortable rate. (Garnett, 1998). In the article, *Adapting Mathematics Instruction in the General Education Classroom for Students with Mathematics Disabilities*, Lock stresses the need for all students to develop skills in readiness, computation, and problem-solving skills. Small-group instruction is given to help students in all three areas. (Lock, 1997).

In relation to the Common Core Math standards (2012), these areas are in great demand as far as first grade is concerned. According to the Common Core Initiative website (2012), the new math standards focus on comprehensive learning, which means it is a scaffolding process. Skills will build upon one another from one grade level to the next grade level. Since the standards build upon one another from year to year, students will have a deeper understanding of foundational math concepts and equations, resulting in real learning. Furthermore, the goal will be to tie these skills and concepts to real life. Through small-group instruction teachers can work closely with students on the critical areas set forth by the common core standards. According to the Common Core Initiative website (2012), in first grade, students should focus on four critical areas:

(1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; (2) developing understanding of whole number relationships and place value, including grouping in tens and ones; (3) developing understanding of linear measurement and measuring lengths as iterating length units; and (4) reasoning about attributes of, and composing and decomposing geometric shapes. Daily 5 Math will lay the framework for students to set expectations for themselves and for teachers to give assistance to children who struggle with certain math standards (Common Core, 2012).

The length of time that small-groups last is very important to consider when forming your groups accordingly within the time allotted for math instruction. Davidson and Urion (2007) authors of, *Student Achievement In Small-Group Instruction Versus Teacher Centered Instruction in Mathematics*, state that a typical math small-group should range in times of 17-20 minutes at the primary level. According to Cebulla and Grouws (2002) the amount of time spent instructing in small groups can increase student mathematics achievement. The authors reviewed studies that compared student achievement in small-group settings with traditional whole-class instruction. Cebulla et al. (2002) “found that in more than 40% of these studies, students in the classes using small group instruction significantly outscored control students on measures of student performance.”

The research shows that the size of the small-group and length of time used to instruct in the subject area of math, improves students assessment scores. Baxter (2005) states that

Differentiated classroom instruction, flexible grouping, and immediate intervention for students who are not mastering math standards give students the individual instruction they need to succeed in math. Teacher collaboration, within and across grade levels, acknowledges the importance of year-to-year continuity in mathematics instruction. The quality of math teachers, particularly with regards to their content knowledge of mathematics, is critically important. (Baxter, 2005).

Assessment is ongoing, allowing teachers to re-teach as needed. Teachers need to use assessments for learning and plan effectively to ensure consistency and high expectations. They use the data to make adjustments within their small-groups to make sure their students meet the standards. Teachers identify students strengths and weaknesses and use the curriculum as a tool/resource to improve the students overall understanding of the concept. Through Daily 5 Math teachers can be data driven and accountable to make sure our students are learning and this management system provides those experiences. (DeWitt, 2012).

The goal of this action research project is to improve student learning using Daily 5 Math as a way to teach to the core with the standards brought forth by common core. Small-group instruction will benefit students only if the teacher knows when and how to use this teaching practice (Protheroe, 2007). Daily 5 Math will allow for students to get targeted instruction on the common core standards. This system will also provide practice, engagement, and motivation for students who are not directly with the teacher

for explicit instruction. When all of these important pieces are put together, research has shown that assessment scores will improve.

Description of Research Process

The research process and data collection began on September 3rd and continued through October 4th. The data collection sources for my research included standards based assessments, common formative assessments, teacher observation, and a student survey. The goal is to improve standards based assessment scores on the district provided summative assessments in a 1st grade classroom. The data will measure the effectiveness of Daily 5 Math pushed into the core curriculum.

The first data source used was district standards based assessments. On September 4th, the assessments were given as a baseline to see where students' were at in their learning on the following common core math standards (see Appendices A, B, C, & D). Standards assessed were 1.NBT.1 Count to 120, starting at any number less than 120, 1.NBT.2 Understand that the two digits of a two-digit number represents amounts of tens and ones, and 1.OA.6a Add within 10 using mental strategies (Common Core State Standards Initiative, 2012). Standards 1.NBT.1 and 1.NBT.2 were given in a small group setting with no more than 4 students at a table at one time. District protocol was followed with reading the directions to the students and then students were given as much time as needed to complete the assessments. If students were able to complete the task with no errors in standard 1.NBT.2, they were allowed to take the advanced portion of the assessment. The same protocols were followed with directions read to the students and all papers were immediately collected after completion. Standard 1.OA.6a was the only assessment given as an individual assessment as it was on a timed power point on the teacher's computer. The assessments were finished on September 7.

The second data source used was the Daily 5 math attitude survey (see Appendix E). This survey was given on September 9th and was used to get an idea of how the students felt about math in general and how they liked the Daily 5 math set-up in the classroom. This was the second week of school at this time so Daily 5 math was all very new to the 1st graders. Prior to this we had been busy working on our stamina and putting procedures into place to successfully implement Daily 5 math in the classroom. Just as Reading Daily 5 takes time and practice to put in place, Daily 5 math takes the same level of dedication and practice. The survey included 5 questions. The questions were the following, “I like math,” “I think I am good at math,” “I practice math at home,” “I like how I practice math in math groups,” and “What part of Daily 5 math do you like best?” The directions were to circle their choice with answers ranging from “Yes,” “Kind of,” and “Not so much.” The last question dealt with them specifically circling their favorite part of Daily 5 math “Math by myself,” “Math with someone,” and “Math in writing.” I gave the survey in a whole group setting with privacy folders up at each desk. The questions were read to the students’ as well as the answer choices. Students were not rushed and could raise their hands if they needed any questions or answer choices repeated at the end of the survey. Papers were collected immediately following the student survey.

The third data source, teacher observations/journaling started on September 10th. A binder housed my recordings of students’ progress, notes, reflections, and annotations. I kept this easily accessible to write down notes as necessary when working with students, while also waiting until block time or after school to record more extensively. Specific items that were recorded ranged from student’s strength and weaknesses, targeted skills they were working on, progress that had been made, or further instruction

that may be needed in order for the student to be successful in learning the standard.

These observations along with the data compiled from the baseline assessments given the week of September 3rd formed my first targeted math groups.

The new data allowed me to form four math groups, thus starting our Daily 5 math set-up. Specific centers were created that targeted the common core standards for students to practice effectively when they were not with me in targeted small group instruction. Daily 5 Math allowed me to teach math in small groups at each groups targeted level. Students that were not getting direct instruction were working with partners also known as, “Math with Someone,” doing activities that match the common core standards. Each student had a 'math book box', full of games and manipulatives from the investigations series to work on, while also having a leveled box full of reinforcing games that matched to what they needed based on data from the prior assessments. Students were also given access to the ‘Xtramath’ website that allowed them to master basic math facts, with addition being our focus in 1st grade.

When conducting my research, I found that small-group instruction is a valuable way to teach math. When students are in a small-group setting, they are more engaged, focused, and are learning at their level with other students. I found this to be true as the students were working together on the standard they all needed further instruction and practice on in order to meet proficiency on the next standards based assessment. Daily 5 Math enforced the small group setting way of instructing and allowed student’s needs to be met and common core standards to be integrated into core instruction.

The fourth data source used was the common formative assessments. The common formative assessments were given the week of September 23rd. These assessments were given approximately 16 days after the first baseline assessments at the beginning of September. These assessments were teacher created using the district mandated summative assessments as templates. The common formative assessments looked the same as the previous baseline assessments, however the assessments had different numbers in the counting strips and the amount of base ten blocks along with the arrangement of the blocks were different than the previous assessment. Standard 1.OA.6a was given on a timed power point where students had three seconds to answer the addition facts up to 10. Standards assessed were 1.NBT.1 Count to 120, starting at any number less than 120, 1.NBT.2 Understand that the two digits of a two-digit number represents amounts of tens and ones, and 1.OA.6a Add within 10 using mental strategies (Common Core State Standards Initiative, 2012). All of the above assessments were given once again in a small group setting with the exception of 1.OA.6a which was given as an individual assessment. District protocol was followed with reading the directions to the students as they were given as much time as needed to complete the task. Papers were immediately collected after completion. Assessments were finished by September 27th.

The week of September 30th through October 4th was used to correct the assessments and compile the data to compare the scores to that of the baselines given at the beginning of September. Teacher observations and journaling continued throughout the month, as well as targeted small group instruction. Changes in groups were made after the results of the common formative assessments. Students also continued working

in pairs, “Math with Someone,” “Math in Writing,” using their common core math workbooks, and on their own, “Math by Myself,” using their ‘math book boxes’ that matched the skills they needed to meet proficiency.

At the end of my research, all four data sources stated in my action research plan had been administered. The data sources used were district standards based assessments, common formative assessments, teacher observations/journaling, and a student survey. The next part of the research paper will describe the analysis of data to determine if the district standards based assessment scores were improved with the integration of the Daily 5 Math management system in a first grade classroom.

Analysis of Data

At the conclusion of my research, I analyzed the data collected by looking at my four main data sources. These data sources included standards based assessments, a student survey, teacher observations, and common formative assessments. I first analyzed the standards based assessments which provided quantitative data. I then went to my student surveys which took on another quantitative approach. From the surveys, I moved onto teacher observations which gave me qualitative data to analyze my students' attitudes toward math. Finally, I looked at common formative assessments to track the students progress providing more quantitative data. All of these data sources allowed me to get a great balance between quantitative and qualitative data needed to analyze the effectiveness of my research.

The standards based assessments were the first data source analyzed. The standards based assessments gave excellent starting data to see what background knowledge my students were entering first grade with in early September. The students were assessed during the first week of the four week study. They were given three different assessments provided by the district to match the common core standards. The standards addressed were the following:

1.NBT.1 Count to 120, starting at any number less than 120

1.NBT.2 Understand that the two digits of a two-digit number represents amounts of tens and ones

1.OA.6a Add within 10 using mental strategies (Common Core State Standards Initiative, 2012).

After the initial assessments, I was able to form my first targeted small groups based on the data from the above standards. In our school district we follow a graded scale (see Appendices F, G, & H) toward meeting proficiency. A score of ‘0.5 – 1’ is where we are expecting students’ to be entering first grade. At the end of first grade we want them at a ‘3’ which would mean they have reached proficiency at the end of first grade.

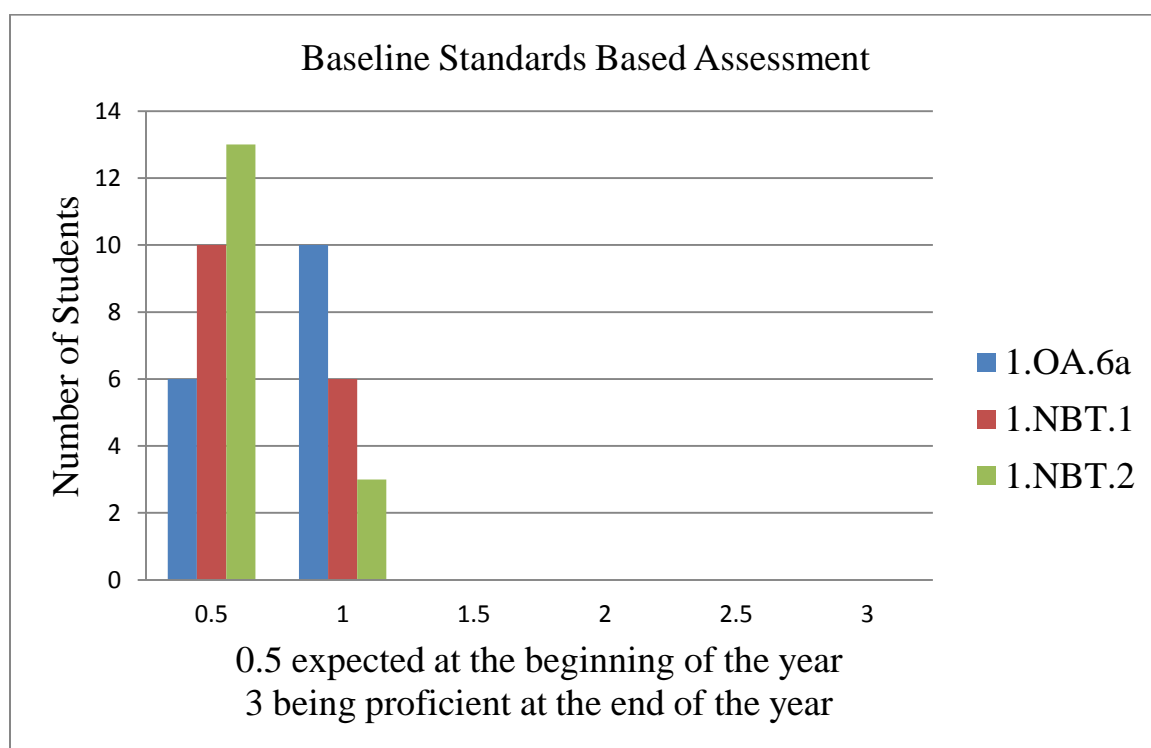


Figure 1. Total number of students who took assessments on the three math standards and their scores at the beginning of September

When analyzing the graph, 38% of students scored a 0.5 on standard 1.OA.6a, while 62% of students scored a 1. 62% of students scored a 0.5 on standard 1.NBT.1, while 38% scored a 1. 81% of students scored a 0.5 on standard 1.NBT.2, while 19% scored a 1. From this data source, it showed that students were exactly where we would have expected them to be entering first grade. Some of the students were already at a 1 on the baseline standards assessments.

The next data source that was given and studied was the math survey (see Appendix E). I administered this survey during the second week of my research. The survey had five questions on it and was about their attitudes toward math. The questions included the following, “I like math,” I think I am good at math,” I practice math at home,” I like how I practice math in math groups,” and “What part of Daily 5 math do you like best?” The directions were to circle their choice with answers ranging from “Yes,” Kind of,” and Not so much.” The last question dealt with them specifically circling their favorite part of Daily 5 math “Math by myself,” Math with someone,” and Math in writing.”

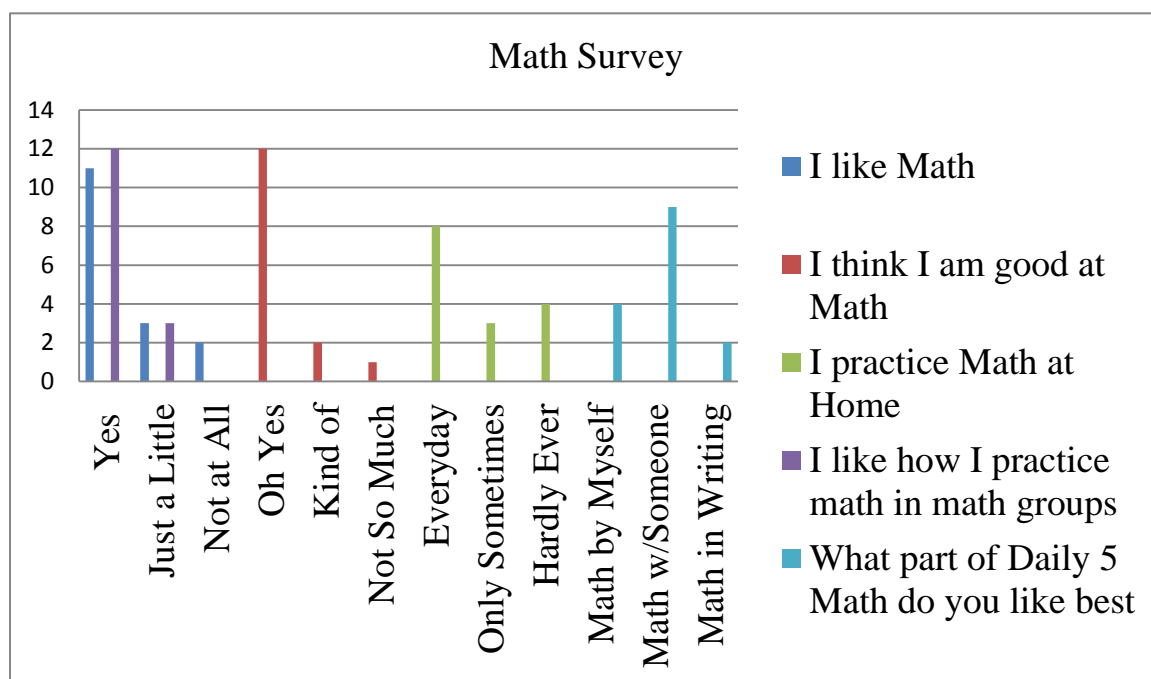


Figure 2. Math survey student responses to math group’s activities

When looking and tallying up their responses, it was clear to me that the overall consensus of liking math was very good. Some of the scores that stood out to me was; 11 out of 16 students said they liked math, 12 out of 16 students said they thought they were

good at math, 8 out of 16 students said they practice math at home, 12 out of 16 students said they like how they practice math in math groups, and 9 out of 16 students agreed that they like math with someone the best. My goal is to do this survey again in a couple of months to see if their attitudes change toward math and also look into some ways on how I can increase the practicing math at home to reinforce what we are doing in the classroom.

From the student surveys, it was time to start my next data source which was teacher observations. A binder housed my recordings of students progress, notes, reflections, and annotations. I kept this easily accessible to write down notes as necessary when working with students, while also waiting until block time or after school to record more extensively. Specific items that were recorded ranged from student's strength and weaknesses, targeted skills they were working on, progress that had been made, or further instruction that may be needed in order for the student to be successful in learning the standard. This type of data came to be one of the most important pieces I used to determine if students were growing in terms of the standards I was teaching at the time. It allowed me to truly see their growth and gave me clues of things I needed to work on or specific strategies that I tried with them that may not have worked or ideas that I could possibly try next with a student.

The last data source, were common formative assessments given during the fourth week of the study. These assessments were on the previous standards given during the first week of September. Figure 3 shows once again where the students started at the beginning of September.

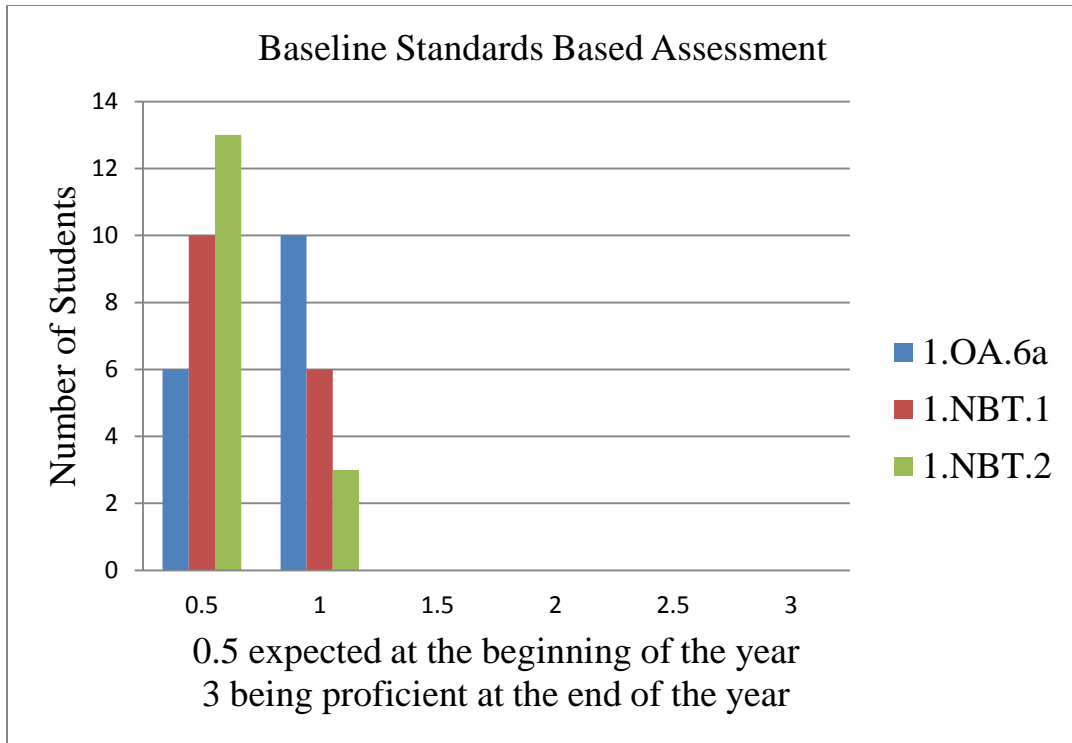


Figure 3. Total number of students who took assessments on the three math standards and their scores during the first week of the study.

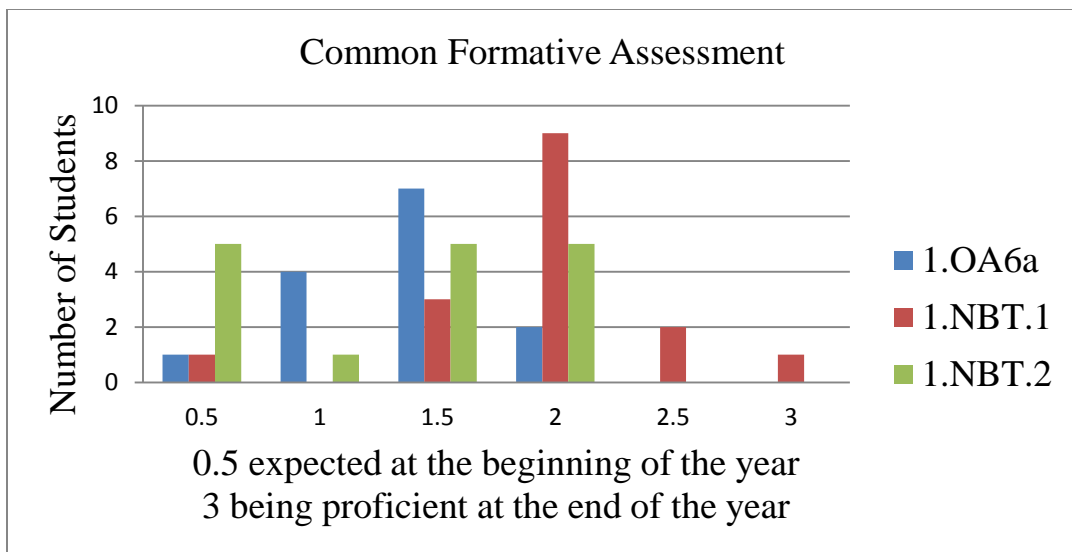


Figure 4. Total number of students who took the common formative assessments on the three math standards during the last week of the study.

When looking at this data, I was so delighted with the results! At the beginning of the study, the students all scored within the 0.5 or 1 range on the proficiency scale. At the end of the four week study, the majority of the students were at a 1.5 or higher which is middle of the year expectations already at the end of September.

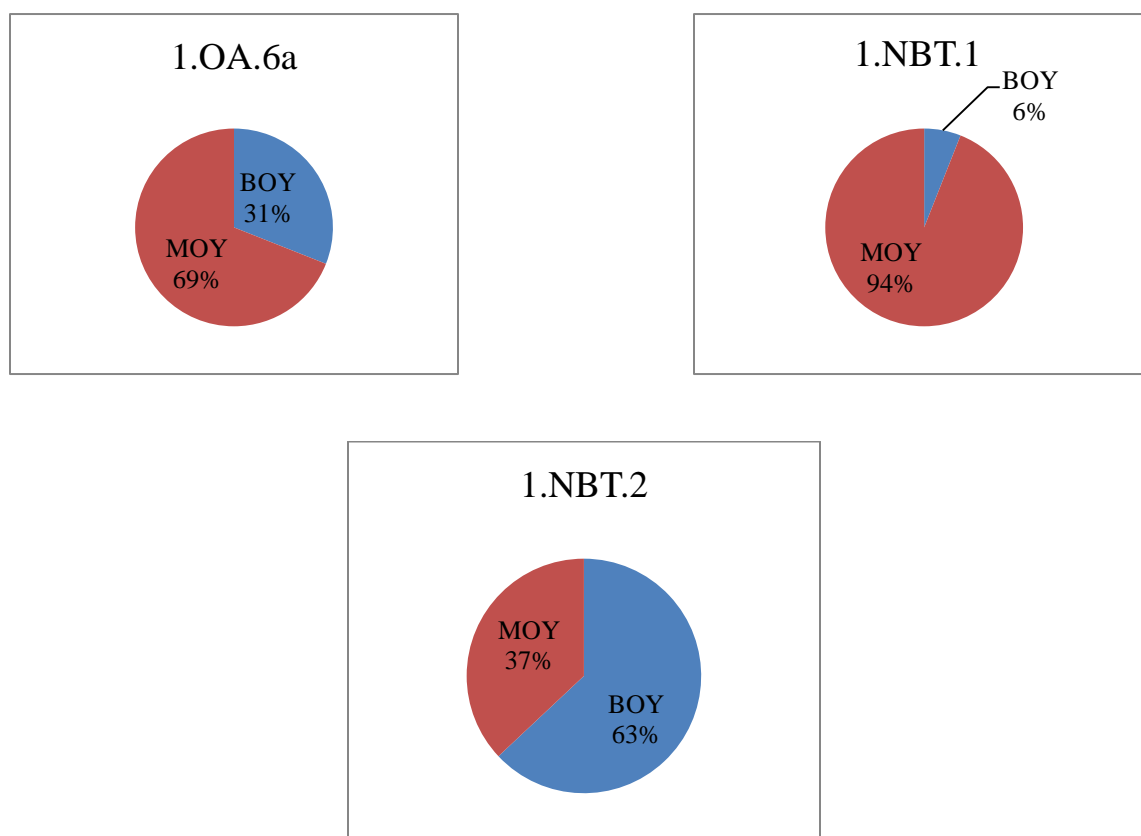


Figure 5. Students showing middle of the year (MOY) proficiency vs. those still showing beginning of the year (BOY) proficiency.

The graphs above show the percentages of students who are showing middle of the year proficiency and those still in the beginning of the year proficiency stages. The middle of the year is from December to January, so students are showing incredible growth at the end of September. From these graphs I can clearly see which standard will need some more instruction and practice. One of the standards being, 1.NBT.2, shows

that 63% of first graders are still at beginning of year proficiency, while 37% are at middle of year proficiency. Standards 1.NBT.1 and 1.OA.6a show significant growth since the first assessment during the first week of the study. Standard 1.OA.6a shows 69% of students have met middle of year proficiency while 31% are still at beginning of year proficiency. Lastly, standard 1.NBT.1 94% students are showing middle of the year proficiency, while 6% are still at beginning of the year proficiency. This improvement shows that the management system of Daily 5 math plays a huge factor in the success of student achievement on the standards based assessments. The graphs also speak true to the amount of effort and initiative put forth by the students while they are in their math groups. At the end of the assessing period during the fourth week of the study, students were shown the amount of progress that was made over the course of the month. The students' were so proud of their accomplishments and were excited to get started on how to improve further.

In conclusion, from the multiple sources of data presented in this analysis, I believe that the students benefited from the Daily 5 math management system. Most of the students showed tremendous growth in at least one standard to students who showed growth in all three standards assessed throughout the course of the study. The students were excited about math and had a great attitude toward all the different types of groups they went to on a daily basis to improve their math. To quote one of my students, "Math in 1st grade is fun, Mrs. Geloff!" In the next section of my paper, I will go over an action plan that I will implement in the near future. I will use what I learned from all of my research over this past semester and from this study to better my instruction, drive my

small groups, and to set up groups that will prove to be beneficial to my students learning.

Action Plan

My research demonstrated an improvement in student's standards based assessment scores and overall attitude toward math instruction. Students enjoy math and are excited to see their scores improve as well as the way they are learning the particular math standards. The students also expressed their liking toward the different choices they have when it comes to Daily 5 Math and how it feels to be in charge of that decision. The results of my action research indicate that students improved on their standards based assessment scores over the four week period. This research proved that students no longer want to learn in a whole group setting but thrive with directed small group instruction. This research also shows that by incorporating new management strategies into my everyday instruction, it can truly change the atmosphere of meaningful learning in the classroom.

I believe one of the reasons small group instruction works so well is because of all the different learning styles that are coming into the classroom. The level of needs mixed with different experiences students have had, makes small group instruction more beneficial and directive toward student's needs. My study proved this point as students overall knowledge increased over a four week period on the standards taught and practiced during this time. For this reason, I would continue this way of teaching math as a way to continue moving them along the proficiency scale toward what is expected by the end of first grade.

My Daily 5 Math setup played a huge factor in my students overall engagement and learning during this study. Going over the procedures in depth at the beginning of

the year similar to how we set up our Daily 5 in reading was the first major step in the process. It helped to lay the important framework needed in order to run a successful one hour block of math instruction. The students learned the procedures correctly without feeling rushed and gained a much needed level of independence in order to make this truly work. There were certainly trying days that happened during the four week period and that just gave us a time to step back and review procedures. It was a learning experience for both the students and I and I think that made this study even more successful, as the students got to see my struggles and how we could work together as a class family to better the group.

As I continue in the future with Daily 5 Math, there are a few things that I would like to change or alter to move forward. These changes will add to the effectiveness as I continue throughout the year with Daily 5 Math.

1. I would give more time at the beginning of the year to set up the procedures for Daily 5 Math.
2. I also realized that allowing more time to practice the correct procedures would have been more beneficial to our learning and overall classroom environment, before diving into the standards/curriculum.
3. Looking back, it would have been nice to have a partner teacher to bounce ideas off of throughout this time. In the future I would like to find someone in the district who is doing Daily 5 Math and work with them to make this management system even better.

4. Time is always a factor during the school day. I would like to find a larger chunk of time for math. It sometimes felt rushed or we ran out of time for important parts such as the 'wrap up.'
5. I would also like to spend more time putting together more individualized math book boxes for the students when they have their independent time.

My research was done over a four week period and showed wonderful gains in students assessment scores. In the future, I would like to have more time in between assessments to teach and go over the specific standards with the students before the next testing session. I think by adding this much needed time in between assessments, I would see even greater results than what was seen during this study. Overall, the Math Daily 5 management system improves assessment scores in math.

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Appendix A

1.NBT.1 I can write numbers to 120 beginning from any number less than 120.

Complete each number strip by filling in the missing numbers.

24
25
26

67
68
69

90
91
92

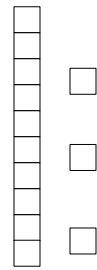
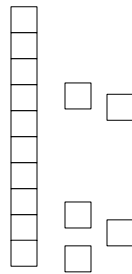
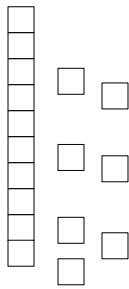
113
114
115

Appendix C

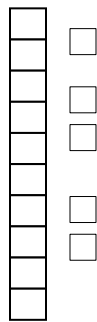
1.NBT.2 I can identify place value for tens and ones.

SKILL SET A

1. Circle the picture that shows 1 ten and 7 ones.



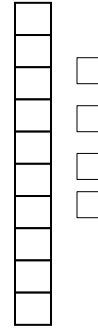
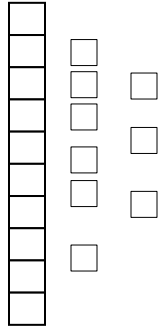
2. Write the number the base ten blocks show.



= _____

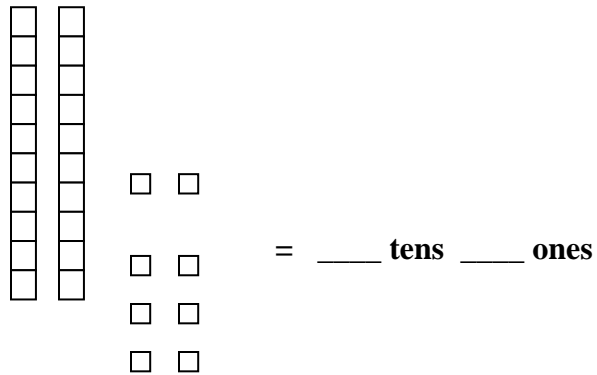
3. Circle the base ten blocks picture that shows the number.

19

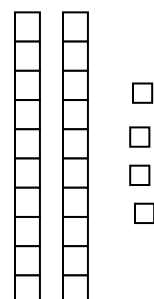
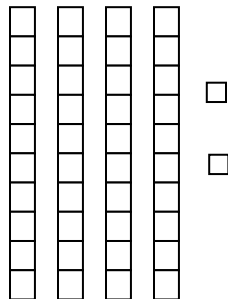
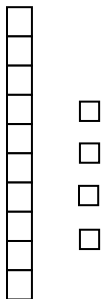


SKILL SET B

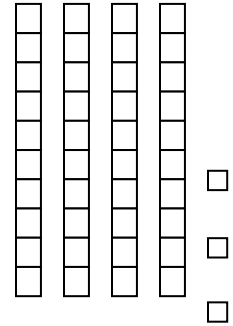
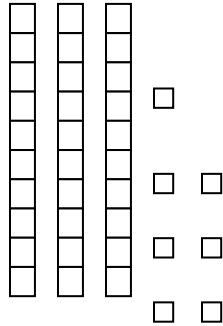
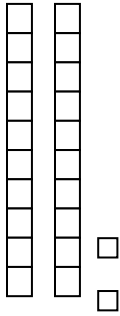
4. Write how many tens and ones the blocks show.



5. Circle the picture that shows 4 tens and 2 ones .



6. Circle the picture that shows 37 .



SKILL SET C

7. Look at the number. **49**

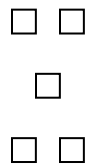
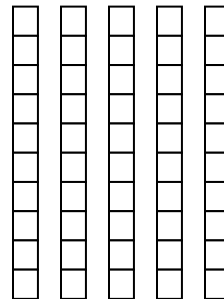
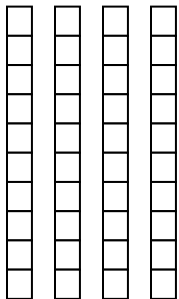
Which digit is in the tens' place? _____

Which digit is in the ones' place? _____

8. How many tens are in 62 ? _____

How many ones are in 62 ? _____

9. Circle the picture that shows what the 5 means in 54?



Appendix D

(1.OA.6 a) - Addition Facts Recording Sheet Student _____

BOY Trigger Assessment # 1 – Sums to 5

1 + 1	yes / no
4 + 1	yes / no
3 + 1	yes / no
1 + 2	yes / no
3 + 2	yes / no
2 + 2	yes / no
0 + 0	yes / no
5 + 0	yes / no

Score _____ / 8 Percent _____ %

Summative Assessment – Sums to 10
















Fact	Baseline	CFA	CFA	CFA	CFA	CFA	EOY
7+1							
9+1							
1+8							
6+1							
1+5							
7+2							
4+2							
2+5							
8+2							
6+2							
4+4							
3+3							
5+5							
6+0							
0+9							
0+8							
3+4							
7+3							
5+3							
3+6							
4+5							
6+4							

Appendix E



My Math Survey

My Name _____ My Grade _____

1. I like math!!
 -  YES!
 -  Just a little.
 -  Not at all.
2. I think I am good at math!
 -  Oh YES!
 -  Kind of.
 -  Not so much.
3. I practice math at home.
 -  Everyday
 -  Only sometimes
 -  Hardly ever
4. I like how I practice math in math groups!
 -  YES!
 -  Just a little bit.
 -  Not really.
5. What part of Daily 5 Math do you like best?
 -  Math by myself
 -  Math with Someone
 -  Math in Writing

Appendix F

Domain: Number and Operations in Base Ten		
Cluster: Extend the Counting Sequence		
1.NBT.1 Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.		
Grade 1		
Score 4.0	Count within 1000, skip-count by 5s, 10s, and 100s. (Aligns with 2.NBT.2)	
		Criteria for Proficiency
		Student is able to complete all counting strips without errors, including the Advanced strips.
	3.5	Count within 1000, skip-count by 5s, 10s and 100s. (Aligns with 2.NBT.2)
		Student is able to complete all counting strips without errors, and has 1 - 3 Advanced counting strips without errors.
3.0 EOY Trigger	Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number objects with a written numeral.	
		<ul style="list-style-type: none"> • Student correctly completes all counting sequences on the counting strips. and, • Student is able to write numbers 1 to 120 with no errors.
	2.5	No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content
		<ul style="list-style-type: none"> • Student correctly completes 3 out of 4 counting strips (written). and, • Student writes numbers to 120 with no errors occurring below 100.
2.0 MOY Trigger	Count numbers to 120, starting with any number less than 120. Write numbers to 120, starting with any number less than 120.	
		<ul style="list-style-type: none"> • Student correctly completes 2 out of 4 counting strips (written). and, • Student is able to write numbers 20 to 100 without error.
	1.5	Partial knowledge of the 2.0 and/or 3.0 content but no major errors or omissions regarding the 1.0 content
		<ul style="list-style-type: none"> • Student correctly completes 1 out of 4 counting strips (written). • Student is able to write numbers 20 to 100 with or without errors.
1.0 BOY Trigger	Count numbers to 120, starting with any number less than 120. Write numbers to 20.	
		<ul style="list-style-type: none"> • Student can complete all 3 oral counting strips on the BOY Trigger Assessment. (Sequences to 100) and, • Student is able to write numbers to 20 with no errors on the BOY Trigger Assessment.
	0.5	Even with help, no understanding or skill is demonstrated. Student is unable to write number to 20 without assistance.
		<ul style="list-style-type: none"> • Student cannot complete all 3 oral counting strips on the BOY Trigger Assessment. and, • Student is unable to write numbers to 20 with no errors on the BOY Trigger Assessment

Appendix G

Domain: Number and Operations in Base Ten			
1. NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones.			
Grade: First			
Score 4.0	<p>Understand that the digits of a three-digit number represent amounts of tens and ones. Understand 3.0 criteria and in addition:</p> <p style="margin-left: 40px;">a. 100 can be thought of as a bundle of 100 ones-called a “hundred.”</p> <p style="margin-left: 40px;">b. The numbers from 101 to 999 are composed of a hundred and one, two, three, four, five, six, seven, eight, or nine ones and one, two, three, four, five, six, seven, eight, or nine tens.</p> <p>In addition to the expectations from 3.0</p>	Student has completed all of the advanced questions correctly.	
	3.5	In addition to score 3.0 performance, in-depth inference and application with partial success.	
EOY Trigger	3.0	<p>Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases.</p> <p style="margin-left: 40px;">a. 10 can be thought of as a bundle of ten ones-called a “ten.”</p> <p style="margin-left: 40px;">b. The numbers from 11 to 19 are composed of a ten and one, two, three, four, five, six, seven, eight, or nine ones.</p> <p style="margin-left: 40px;">c. The numbers 10, 20, 30, 40, 50, 60, 70, 80, 90 refer to one, two, three, four, five, six, seven, eight, or nine tens (and 0 ones).</p> <p>No major errors or omissions.</p>	<p>Student is able to correctly identify place value concepts including</p> <ul style="list-style-type: none"> • identifying how many ones and tens a number has • identifying the value of digits • identifying the ones and ten’s place <p style="text-align: center;">Skill Set C</p>
	2.5	No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content	

MOY Trigger	2.0	<p>Partial understanding of base ten blocks and place value to 100.</p> <p>However, the student exhibits major errors or omissions regarding the more complex ideas and processes.</p>	<p>Student is able to correctly answer place value concepts using base ten models as representation to show tens and ones and/or identify a number to 100.</p> <p style="text-align: center;">Skill Set B</p>
	1.5	Partial knowledge of the 2.0 and/or 3.0 content but major errors or omissions regarding the 3.0 content	
BOY Trigger	1.0	<p>Compose and decompose numbers from 11 to 19 into ones and some further ones, e.g., by using objects or drawings and record each composition or decomposition by drawing an equation (such as $18 = 10 + 8$); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.</p>	<p>Student is able to correctly answer place value concepts for numbers 11 – 19 using base ten models as a representation.</p> <p style="text-align: center;">Skill Set A</p>
	0.5	Even with help, no understanding or skill demonstrated.	

Appendix H

Domain: Operations and Algebraic Thinking			
1.OA.6 Add numbers within 20, demonstrating fluency within 10 using strategies.			
Grade: First			
Score			
4.0	No advanced assessment available.		
	3.5	No advanced assessment available.	
EOY	3.0	Use addition within 10 to find sums of numbers.	At least 90% accuracy given 5 seconds per fact on the Summative Assessment
	2.5	Use addition within 10 to find sums of numbers.	At least 80% accuracy given 5 seconds per fact on the Summative Assessment
MOY	2.0	Use addition within 10 to find sums of numbers.	At least 70% accuracy given 5 seconds per fact on the Summative Assessment
	1.5	Use addition within 10 to find sums of numbers.	At least 50% accuracy given 5 seconds per fact on the Summative Assessment

	1. 0	Use addition within 10 to find sums of numbers.	Less than 50% accuracy given 5 seconds per fact on the Summative Assessment
BOY			85% or higher on the BOY Trigger Assessment (Sums to 5)
	0.5	Limited understanding or skill demonstrated.	Less than 85% on the BOY Trigger Assessment (Sums to 5)

BOY Trigger

7/8 87%

6/8 75%

Summative

20/22 90%

18/22 81%

16/22 72%

11/22 50%