Creating a Math Lab for the Benefit of Teachers and Students

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Abstract

The purpose of this study was to determine whether setting up a math lab would help to improve mathematical teaching practices and improve student performance among two different student populations. One control group where the only change in the math program was the math lab (RDE) and an experimental group where other changes in the math program occurred (AFE). Surveys, Observations, and TAKS data provided empirical evidence that the model lessons and the resource library in the math lab were, indeed, an influence on teaching practices and academically beneficial for students. The activities provided by the model lessons were developmentally appropriate and perceived by the students as fun. In this situation, academic skills were practiced and a deeper understanding of mathematical objectives occurred.

Background/Content

Modeling lessons for teachers is one of the many techniques math instructional specialist use to improve teaching practices. According to Stephanie Sheffield (2006) in The Math Coach Field Guide, “Watching their own class with someone else teaching can give teachers a new perspective on the students through the opportunity to observe the student’s reactions as learners as well as how another teacher implements a lesson.”

I set up a bi-weekly math lab for this reason, to model lessons for primary and intermediate teachers and students. The goal of this study is to determine if my math lab affects teaching practices and raises the performance of students in mathematics. I developed the idea of the math lab when I was hired as a math specialist. I wanted to model lessons to teachers and their classes on various objectives throughout the year to support and enrich the classroom experience. Creating lessons that would engage the students and provide hands-on learning opportunities was a priority. Having an environment that promoted cooperative learning and students sharing their thinking were also key factors that influenced the math lab. Using the districts guidelines for a math
workshop and incorporating math talks, I hoped to influence the teaching practices across the entire campus. By setting up mathematical experiences and guiding investigations, I hoped to motivate students to learn and gain a better understanding of mathematics.

I began my math lab in 2007-2008 at Rita Drabek Elementary (RDE) while I worked at two campuses. Transferring to a full-time position at Arizona Fleming Elementary (AFE) in 2008-2009 I decided to continue the bi-weekly math lab at that campus as well.

The purpose of this article is to describe an action research study conducted by myself, a math specialist. I wanted to invite teachers to observe lessons that would enrich the students’ classroom experience and motivate the students to learn mathematics. I also wanted to inspire the teachers to be the best math facilitators they can be and help improve their classroom practices. For these reasons I decided to conduct an action research project.

Action research is defined as a systematic, reflective, collaborative process that examines school environments for the purpose of planning, implementing, and evaluating change (Mills, 2007). A good action research study integrates theory, practice, and meaningful data to modify and improve the objective, or change they are implementing. Action research is a way to continuously reflect upon and improve the practices that are being implemented.

My math lab was designed to model lessons for teachers and students in all grade levels one through five. I also consolidated all of the campus resources, displayed them, and implemented a library check-out system for teachers to have access to everything they need to improve the classroom experience. The model lessons include the use of a variety of manipulatives for a hands-on learning experience.
Conducting the Math Lab and this action research study will be informed by the following questions:

- What are the advantages and disadvantages of a math lab for teachers?
- How does a hands-on math lab using research based Tier 1 and Tier 2 activities affect the academic performance of primary and intermediate elementary students?
- How does attendance to a math lab with access to resources reinforcing the curriculum and mathematical objectives help teachers improve teaching practices?

Motivating students to master math skills and problem solving is a challenge for all teachers. My goal is to provide exciting lessons, which address the district’s power standards, using math manipulatives in a cooperative group setting to engage all learners. If the math lab is effective, then the other math specialists may chose to conduct math labs throughout the district to improve teaching practices and increase student’s mastery of math knowledge and skills.

**Literature Review**

My math lab was designed to meet the needs of all teachers as well as all students. By supporting teachers and working to improve classroom practices the math lab should improve the students’ natural ability to learn mathematics. This goal is consistent with what Burns (2006) stated “A common goal of math coaches is to support the mathematics learning of all students by supporting teachers to improve their teaching of mathematics.”

Teachers who attend the math lab consistently will become more confident math facilitators who will guide the students’ exploration and understanding of math objectives. Observing lessons in the math lab will boast teachers’ confidence and help them strengthen their instruction in the classroom. As Sheffield (2006) explained
“Teachers need reassurance that what they are trying with their students is going to pay off in terms of both understanding concepts and acquiring skills. They often benefit from seeing examples of such lessons.”

In creating the math lab I have researched several important features of a lab that warrants attention: (a) characteristics of a good model lesson, (b) current research on model lessons and (c) building a partnership with teachers.

**Characteristics of a good model lesson**

When I design lessons for the math lab I incorporate aspects the district has planned in the “Establish a Math Workshop” (Appendix A). Planning lessons that will encourage discovery, exploration and understanding of mathematical concepts using research based activities is my goal. I have acquired the following researched guidelines from Sheffield (2006), while preparing math lab model lessons:

- Lessons with easy preparation.
- Lessons that address more than one of our state objectives.
- Lessons that require students to interact with each other.
- Lessons that call for students to share their thinking.
- Lessons that are accessible to all students in the class and also of interest to those who need challenges.

Knight (2007) said, “One reason why Instructional Coaches (IC) should consider including model lessons in their repertoire of coaching practices is that they provide a chance for teachers to learn many teaching techniques that are not written in teacher’s manuals.” By observing model lessons in the math lab teachers see how I ask the questions to provoke mathematical thinking. They also see techniques I use to excite and involve all students in the discovery of the concepts covered. This view is expressed by
Knight (2007). He mentioned, “The art of teaching may involve a tone of voice, certain facial expressions, certain ways of moving about the classroom, and any number of ways of encouraging students that great teachers do without even knowing they do them. And that is one reason why ICs need to model teaching practices.”

**Research on Model Lessons**

According to Knight (2007), at the Center for Research on Learning, two studies were conducted to capture teachers’ perceptions of the value of model lessons:

(a) A 10-item survey that was completed by all 107 teachers who observed model lessons in Topeka, Kansas, in the academic year 2003-2004.

(b) A qualitative study that involved interviews with 13 teachers who observed Instructional Coach (IC) Lynn Barnes provide model lessons when she was an IC at Chase Middle School.

The results of this study yielded positive results showing that teachers perceived that model lessons provided by Instructional Coaches (ICs) have improved their teaching ability and research-based teaching practices. Model lessons increased teachers’ confidence with respect to implementing teaching practices and made it easier for them to implement teaching practices in their classroom. They also reported that model lessons provided by ICs have enabled them to learn additional teaching practices.

**Building a partnership with Teachers**

Conducting my math lab provides me continuous contact with all teachers. This allows us to create an emotional connection which is necessary to build a partnership. One of my goals as a math specialist is to create a partnership with my teachers in order to support them and improve their teaching practices. This is an important role of a math specialist and is vital especially for new teachers.
The National Council of Teachers of Mathematics (NCTM 2007) online article on *Mentoring New Teachers* states: “In far too many schools, new mathematics teachers receive challenging teaching assignments for which they are unprepared. These teachers, some of whom do not have strong backgrounds in mathematics content, are often isolated from professional involvement with colleagues. Frequently, they receive little content-specific professional development to support them in meeting the challenges they face. As a result, their students may not be afforded the learning opportunities and quality instruction that the Council advocates as essential preparation for high-functioning adults in the workplace and everyday life.”

The recommendation from NCTM says that school districts should provide professional development for new teachers by creating partnerships between experienced and novice teachers.

The potential benefits of the math lab to teachers are:

- To provide model lessons.
- To build a partnership between teachers and the math specialist.
- To provide resources and manipulatives for hands-on classroom lessons and activities.

The potential benefits for the students are:

- Experiences to enrich mathematical learning.
- Better understanding of math objectives and power standards.
- Higher test scores on the TAKS tests.

My math lab has the potential to improve teaching practices through model lessons. The model lessons should provide teachers with ideas and activities that could be used in the classroom and ultimately influence instructional strategies as well as
student performance. The regular contact with the math specialist should create a partnership between the teachers and the math specialist which would provide the opportunity for teachers to gain assistance as needed. The resources that are available should help teachers to plan hands-on activities and have the potential to improve the teachers’ ability to provide quality instruction. As my research has indicated the benefits from model lessons include the improvement of teaching techniques, instructional practices and it should build teachers confidence to provide the best experiences in the classroom which will ultimately lead to the improvement of student performance.

Method

Participants

The math lab was designed to provide model lessons for primary and intermediate elementary grade levels. I designed lessons to form a solid foundation in mathematics for the primary grade levels and enrichment lessons to aid in deeper understanding and conceptual learning in intermediate levels.

In 2007-2008 the students who participated in the math lab at Rita Drabek Elementary (RDE) were 62% Asian, 20% African American, 9% Caucasian and 8% Hispanic. RDE had 18.8% economically disadvantaged, 33.9% Limited English Proficient (LEP), and 45.2% at-risk students. Twenty-two teachers with thirty-one classes participated in the math lab.

At Arizona Fleming Elementary in 2008-2009 the students are on a Title One campus with over 50% economically disadvantaged. The population is 43% Hispanic, 24% African American, 24% Asian and 8% Caucasian. AFE also has 45.4% LEP, and 59.5% at-risk students. Twenty-seven teachers with thirty-two classes participated in the math lab.
On each campus every class from grades one through five had a scheduled time to attend the Math Lab every other week. All classes attended in September through November. When intervention groups were started the intermediate grades stopped attending until after the TAKS testing was complete.

I was interested to learn how the math lab will affect the different populations and if it would be as beneficial for an economically disadvantaged campus with a large LEP population.

**Materials**

The lessons modeled in the math lab were research based using Response to Intervention Tier 1 and Tier 2 resources outlined by the district. I used a variety of manipulatives such as: pattern blocks, base ten blocks, Origos’ The Box of Facts, fraction circles and fraction bars as well as tangrams to create a hands-on learning environment. The students had the opportunity to use these manipulatives and others in the math lab. They used these math tools to explore and were guided to make various discoveries to strengthen their knowledge of math objectives.

I also used various literature books related to the topic of the math lab to enhance the lessons. I would read the books out loud and the students would use manipulatives to follow the story. For example, *Alexander Who used to be Rich Last Sunday* by Judith Viorst, was used for our money lesson and the students would use play money to make the correct exchanges that took place in the story. *Three Pigs, a Wolf and Seven Magic Shapes* by Grace Maccarone, was used to introduce Tangrams and how to use them by creating various puzzles.

I provided a library of resources and manipulatives in the math lab. I was able to answer questions or guide the teachers to the resource to find the answer. Showing the
teachers what resources we had available became an important aspect of the math lab. Many of the campus resources were spread out and hidden in closets and storage rooms. Having resources on display where the teachers could review them and check any out each time they visited the lab led them to use them in planning lessons for their classrooms.

Finally, I created original math games and reproduced games from various resources. I introduced these games in the math lab and then allowed teachers to check them out for classroom use.

**Data Sources**

To ensure the validity and reliability of my findings, I used a triangulation process, which means the use of multiple independent data sources to corroborate findings. The more data sources used to support an action research hypothesis, the more credible the conclusion will be.

To answer my first question, “What are the advantages and disadvantages of a math lab for teachers?” I created a teacher survey (Appendix B) using the Likert scale. This survey was distributed to all of the teachers who attended the Math Lab on both campuses in the spring of 2009. I tracked the resources that were checked out from the math lab and attended team planning meetings to see how these resources affected teaching practices. I also monitored lesson plans from several teachers to determine the advantages of the math lab on classroom lessons.

For my second question, “How does a hands-on Math Lab using Tier 1 and Tier 2 activities affect the academic performance of primary and intermediate elementary students?” I attended Data Teams meetings. I used grade levels data teams meetings to guide my topics for lessons in the math lab. I analyzed the grade level pre-test and post-
test data for the topics dealing with the districts’ Power Standards and would implement intervention strategies in the Math Lab for the grade levels weak areas (Appendix C). I conducted walkthroughs in several classrooms and used the teacher survey to collect data on the students’ performance. I compared the grade level TAKS scores from the year without a Math Lab to the year with a Math Lab to see if there had been any changes in student performance.

The third research question, “How does attendance to a Math Lab with access to resources reinforcing mathematical objectives help teachers?” I relied on the results from the teacher survey (Appendix B), and I tracked resources that the teachers used from the Math Lab.

**Procedures**

First, I created a schedule for every class in each grade level to have a 40 minute lab time. (Appendix D) I considered their lunch, recess, and outclass schedules when making this schedule. I also planned the lab schedule on the weeks the Instructional Technology Specialist was not on campus so it did not interfere with computer lab times.

Second, I analyzed the previous years TAKS tests by objectives to see where the greatest area of need was. I continuously gathered feedback from the teachers through data teams’ collaboration about the weaknesses for the primary and intermediate grade levels. (Appendix D) I used this information to plan the lab lessons to address the areas of need.

Third, I designed model lessons to demonstrate good teaching practices and the use of manipulatives for hands-on learning. I designed each lesson for the students to make discoveries and work together in cooperative groups. I allowed for time after the lesson for students to discuss their learning and answer any questions they may have.
Fourth, I offered a library of resources and manipulatives for check-out. I reproduced Tier 2 intervention games and created games myself that I displayed for each teacher. I would have several resources and activities out that addressed the objective covered during that week’s lab. The Math Lab time was for the teachers to browse through the resources and it also gave them the time to ask me for anything they may have needed.

**Analysis**

The results for my research questions came from the qualitative data collected through the teacher survey I created. In May of 2009 I sent the survey to the teachers at RDE and AFE, who participated in the math lab. The teachers were asked to identify themselves only by grade levels: Primary grades: one and two or Intermediate grades: three through five. At RDE there were only fifteen teachers currently teaching math that taught the previous year. I received eight completed surveys, five from the primary level, grades one and two, and three from the intermediate level, grades three through five. At AFE I sent the surveys to the twenty-seven teachers that participated in the math lab. I received fifteen completed surveys, nine from the primary grade levels and six from the intermediate grade levels. I used the Likert model of surveys to analyze the results using a five point scale: one point for strongly disagree and five points for strongly agree. I tallied the results of each question and divided by the number of teachers answering the survey to calculate the mean score. The survey consisted of ten items addressing three questions.

The first set of questions addressed the teachers’ perception of the students’ experience in the Math Lab (“The lessons modeled in the Math Lab enhanced the students’ understanding of the districts’ math objectives”, The lessons modeled in the
Math Lab promoted students’ interaction in cooperative learning groups”, The lessons modeled in the Math Lab were interesting, challenging and motivating for students”). The combined mean score was 4.20, with 1 standing for “strongly disagree and 5 for “strongly agree”.

The second set of questions addressed the use of manipulatives, hands-on activities and if they carried over into the classroom (“The lessons modeled in the Math Lab used various manipulatives for hands-on activities”, Attending the Math Lab increased the use of manipulatives in the classroom”, Ideas presented in the Math Lab carried over into the classroom”, “The lessons modeled in the Math Lab were easily reproduced in the classroom”). The combined mean score was 4.21. The last set of questions addressed how the Math Lab activities improved teaching practices (“Attending the Math Lab helped to improve classroom teaching practices”, “Having access to math resources and manipulatives helped in planning lessons for the classroom”, Attending the Math Lab enhanced teachers’ abilities for teaching math”), the combined mean score was 4.10. I calculated the results by Primary, Intermediate and the combined mean score of Primary and Intermediate together. The results were as follows with 5.0 being the highest possible score:

Table 3  Survey Results

<table>
<thead>
<tr>
<th>Question</th>
<th>Primary Mean Score</th>
<th>Intermediate Mean Score</th>
<th>Combined Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do teachers perceive that the Math Lab provided interesting, challenging, and motivating lessons that allowed students to work in cooperative groups and enhanced understanding of objectives?</td>
<td>4.28</td>
<td>4.12</td>
<td>4.20</td>
</tr>
<tr>
<td>Do teachers perceive that the Math Lab’s lessons and activities with the use of manipulatives increased use of manipulatives in the classroom and the ideas carried over to classroom instruction?</td>
<td>4.19</td>
<td>4.22</td>
<td>4.21</td>
</tr>
<tr>
<td>Do the teachers perceive that the Math Lab helped in planning lessons, improved teaching practices and enhanced the teachers ability to teach math?</td>
<td>4.19</td>
<td>4.00</td>
<td>4.10</td>
</tr>
</tbody>
</table>
The overall results of the survey were very positive with the majority of the teachers answering either “strongly agree” or “agree” with the questions presented. The teachers also had the opportunity to leave comments on the survey. These were very positive as well. Many expressed that the Math Lab was a positive experience for them and the students as well. Some stated that they had always used manipulatives so the math lab did not influence them in this area. Several stated that the lessons should be aligned with the pacing guide better and more collaboration was needed before the lab plans were made to address this point.

To answer my first research question “What are the advantages and disadvantages of a math lab for teachers?” and my third research question “How does attendance to a math lab with access to resources reinforcing the curriculum and mathematical objectives help teachers improve teaching practices?” I also tracked the resources checked out from the math lab and how they influenced lesson plans. I found that twenty out of the twenty-seven teachers at AFE checked out materials from the math lab. This is 74% of the teachers. The lesson plans I monitored reflected the use of the resources checked out from the lab.

To answer my second research question I used the quantitative TAKS data. I compared the scores from the year before the math lab to the year of the math lab to see if any changes occurred. The math TAKS scores at Rita Drabek Elementary (Figure 1) show an increase from 2007 to 2008 in the 3rd and 5th grade levels while the 4th grade scores show a decline. The Math Lab was conducted on this campus in 2008. I believe the Math Lab was a success on this campus and attributed to the rise in the students’ math TAKS scores.
The reason for the decrease in scores for the 4th grade may be attributed to the change in math teachers in that grade level. The 3rd and 5th grade teachers remained the same over the 2 years where the 4th grade teachers have changed.

The percentage of students who met the minimum standard in math at Arizona Fleming Elementary (Figure 2) shows an increase in scores. The Math Lab was conducted on this campus in 2009 and I believe the math scores will continue to rise in future years. There is a significant increase of 6% in the 3rd grade performance level from 91% to 97% from 2008 to 2009. The 4th grade scores had an increase of 8% from 84% to 92%. The fifth grade scores are from the first test administration and did not reflect an increase.

Figure 1. Rita Drabek Elementary math TAKS.
In Table 1, I report the percentage of students Passing the TAKS test during the year of the math lab, that had failed the previous year.

Table 1

*Percentage of Students Passing TAKS with Math Lab*

- Progress of Prior Year TAKS Failers (sum of 4th and 5th grades)
- Percent of Failers Passing TAKS in 2008 At Rita Drabek Elementary 67%

At RDE there were 67% of the students who failed the math TAKS, pass during the year with the math lab. This information was not yet available for AFE.

Figure 3 represents the percent of students who reached commended performance on the math TAKS. I compared the data from 2007, the year without a math lab, to 2008, the year with the math lab. This included the percentages of all students who took the math TAKS test from grades three through five.
As you can see from the graph the percent of students who reached commended performance had an increase of 5%. I believe these results show an increase in academic performance due to the math lab experience and how it affected teaching practices.

I also used classroom walk-through observations to answer my second and third research questions. The data collected through observations of teachers in the classroom was compared to that teachers’ students’ performance on the TAKS. The teachers that I observed consistently using math manipulatives and using hands-on activities, had a better pass rate than the teachers who did not use this approach consistently. Several teachers that I observed had 100% of their students meet the minimum standard with a higher percentage of commended performance due to their hands-on instructional practices.

**Conclusions**

The qualitative results collected from the teacher survey, classroom walk-throughs and monitoring lesson plans, indicate a positive influence from the math lab on teaching practices. The teachers surveyed reported that they perceived the math lab
influenced teaching practices as well as aided students understanding of math objectives. The observations in the classrooms indicated that teachers using the same instructional strategies as the math lab had higher student performance of the TAKS tests.

The quantitative results from the TAKS data showed an improvement of the percentage of students reaching the minimum standard. The data also showed an increase of commended performance as well as an improvement from the prior years failers.

These results show improvement in teaching practices and student performance. In 2009 there where other changes is the math program that could have affected these results as well. The district adopted a new math textbook, implemented power standards, as well as the beginning of the data teams process. I believe these changes also had a positive affect on the teachers as well as students. For this reason the data from 2008 from RDE was used as my control group.

If future studies on math labs are conducted I would try to collect more quantitative data. Perhaps comparing the difference in students’ average scores on the TAKS test from one year to the next would be indicative of the math labs influence. I would also survey the students to discover their opinions of the math lab experience. Another thing I would do would be to have a teacher response log to indicate how the resources they checked out from the math lab were utilized.

I believe my action research supported the views of Sheffield (2006) that teachers gain a new perspective while watching someone else teach their class. I achieved the goal of supporting teachers to improve their teaching of mathematics which was outlined by Burns (2006). My math lab allowed me to form partnerships with the teachers which had a strong focus on mathematics content knowledge and its application to the classroom as recommended by the NCTM (2007). Providing model lessons and the
library of resources in the math lab helped to improve teaching practices as well as student performance.

In conclusion, it is evident that this action research on my math lab has shown its positive influence on teaching practices as well as improving student performance. I encourage all elementary campuses to make it a common practice to model lessons for teachers in a math lab or in the classroom. I also recommend the math specialists to gather all of the resources and have them available for the teachers to review and check out.

References


### Establishing a Math Workshop

#### Whole Group Opening (20-30 Minutes)
One or more of the following should happen each day:

<table>
<thead>
<tr>
<th>Every Day Counts:</th>
<th>Math Talk:</th>
<th>Problem of the Day:</th>
</tr>
</thead>
<tbody>
<tr>
<td>This program offers daily review and practice of key math concepts. The strength of this program is in the discussion. It is better to spend time on a few components and allow time for discussion than to superficially “cover” all of them.</td>
<td>This is an opportunity for students to build fluency with numbers. In the primary grades, it involves graphic representations such as ten frames and dot cards to help students develop visual models for numbers, subitize, and see the relationships between numbers. As students begin to think about computation, Math Talk reinforces the movement of student thinking from counting, through derived strategies and ultimately to automaticity. In the intermediate grades, it continues to be important to give students opportunities to calculate mentally and to share solutions strategies.</td>
<td>A good math problem is one in which the solution is not immediately obvious and that can be solved in multiple ways. Be sure this time includes sharing of students’ solutions strategies.</td>
</tr>
</tbody>
</table>

| Resources: enVision, Problem Solving Experiences in Mathematics (Randall Charles), The Problem Solver (Creative Publications), Paths to Problem Solving (ETA) |

#### Whole-Class (15-45 minutes)
One of the following happens at this time:

**Mini-lesson (15-20 minutes)**
- Introduce a new workstation
- Pose an investigation
- Introduce a new skill or concept

**Shared Experience (45 minutes):**
- Whole class instruction
- Teacher modeling
- Hands-on materials
- Class discussion

#### Work Time (15-45 minutes)
The following are happening simultaneously:

**Teacher facilitated small group instruction:**
- Focused, differentiated instruction
- Intervention or remediation
- Enrichment

**Independent small group/partner work or workstations:**
- Partners or groups work on the same investigation.
- Individuals, partners, or small groups move through workstations. Make sure your workstations represent a balance of procedural practice and conceptual development [Resources: Fundamentals (Origo), Developing Number Concepts (Kathy Richardson), Marcy Cook, Cheryl Cox, About Teaching Mathematics (Marilyn Burns)]

#### Math Congress (Sharing and reflecting) (10 minutes)
This is more than a summary of the day’s activities. It is an opportunity for students to communicate their mathematical ideas and justify their thinking. It is part of the learning experience. As such, the teacher should make purposeful choices, based on her/his observations during the work time, about who shares.

*For an excellent explanation of Math Workshop, see Developing Number Concepts Planning Guide (Kathy Richardson) pgs xiv-xv.
Appendix B Math Lab Teacher Survey

**Circle one:**  Primary K-2  Intermediate 3-5

**Check one:**

1. The lessons modeled in the math lab enhanced the students’ understanding of the districts’ math objectives.

2. The lessons modeled in the math lab promoted students’ interaction in cooperative learning groups.

3. The lessons modeled in the math lab were interesting, challenging and motivating for students.

4. The lessons modeled in the math lab used various manipulatives for hands-on activities.

5. Attending the math lab increased the use of manipulatives in the classroom.

6. Ideas presented in the math lab carried over into the classroom.
7. The lessons modeled in the math lab were easily reproduced in the classroom.

8. Attending the math lab helped to improve classroom teaching practices.

9. Having access to math resources and manipulatives helped in planning lessons for the classroom.

10. Attending the math lab enhanced teachers’ abilities for teaching math.

Check one:

( ) Strongly Agree
( ) Agree
( ) Neutral
( ) Disagree
( ) Strongly Disagree

Comments
### Appendix C

#### Step 1: Before Instruction Collaboration Math

**Data Team:** Topic 17 pre test Measurement: length and area

<table>
<thead>
<tr>
<th>Teachers’ Names</th>
<th># students Who took Assessment</th>
<th># students Proficient And higher</th>
<th>% students Proficient and higher</th>
<th># of students likely to be proficient at end of instructional time-students already close</th>
<th># and names of students likely to be proficient at end of instructional time-students who have far to go</th>
<th># and names of students not likely to be proficient-intervention group is need of extensive support</th>
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</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>17</td>
<td>1</td>
<td>6%</td>
<td>16/20 2</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>18</td>
<td>0</td>
<td>0%</td>
<td>18 2</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>16</td>
<td>1</td>
<td>6%</td>
<td>15 2</td>
<td>15</td>
<td>7</td>
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<tr>
<td>Teacher 4</td>
<td>15</td>
<td>13</td>
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<td>16 2</td>
<td>15</td>
<td>7</td>
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<tr>
<td>Teacher 5</td>
<td>19</td>
<td>3</td>
<td>16%</td>
<td>16 5</td>
<td>16</td>
<td>3</td>
</tr>
<tr>
<td>Teacher 6</td>
<td>15</td>
<td>1</td>
<td>7%</td>
<td>14 6</td>
<td>14</td>
<td>4</td>
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<tr>
<td>Totals</td>
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<td>19</td>
<td>19%</td>
<td>81 17</td>
<td>81</td>
<td>32</td>
</tr>
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</table>

### Step 2: After Instruction Collaboration Math

**Data Team:** Topic 17 post test Measurement: length and area

<table>
<thead>
<tr>
<th>Teachers’ Names</th>
<th># students Who took Assessment</th>
<th># students Proficient And higher</th>
<th>% students Proficient and higher</th>
<th>Growth (gain in % proficient)</th>
<th># of “students already close” who are now proficient</th>
<th># of “students who have far to go” who are now proficient</th>
<th># and names of students “not likely to be proficient” Status report for this group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher 1</td>
<td>17</td>
<td>16</td>
<td>94%</td>
<td>88%</td>
<td>2</td>
<td>13</td>
<td>1 J</td>
</tr>
<tr>
<td>Teacher 2</td>
<td>16</td>
<td>15</td>
<td>94%</td>
<td>7%</td>
<td>1</td>
<td>1</td>
<td>1 A</td>
</tr>
<tr>
<td>Teacher 3</td>
<td>16</td>
<td>16</td>
<td>100%</td>
<td>94%</td>
<td>2</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Teacher 4</td>
<td>18</td>
<td>17</td>
<td>94%</td>
<td>94%</td>
<td>9</td>
<td>8</td>
<td>1 J</td>
</tr>
<tr>
<td>Teacher 5</td>
<td>15</td>
<td>15</td>
<td>100%</td>
<td>93%</td>
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