Field notes

Date: 03/27/2012

Lesson duration: 9.50 – 11.00

Teacher's Name: Ms. "S"

Classroom: 3rd grade

Number of students: 22

- EIP: 3 students
- ESOL: 16 students
- Monitored: 3 students

Number of student present: 14

- 8 female: 7 Latino, 1 white
- 5 male: 5 Latino

Materials: Individual whiteboards, eraser, markers, Smart Board, worksheets.

School: -

Subject: Math

Class Type: General classroom

Overview of observed class: During the first phase of the class, students are going to work individually on a worksheet that is made up of eight mathematical problems and then they will correct these problems aloud with Ms. S (20 min). In the second phase of the class, students are going to work in centers. In the first center, students will put in practice their Math skills through the use of computer software to do calculus. In the second center, the classroom teacher will work with a small group of children on divisions and multiplication problems. In the third center, the student teacher will also work with a small group on mathematical problems. In the fourth center, the ESOL teacher will work with a several ESOL students on Math. In the third phase of the class, students will gather together (except Mrs. H group) on the carpet in front of the Smart Board (20 min). All together will solve Math problems related to multiplications, divisions, additions, and subtraction (20min).

Participants: This 3rd grade classroom is made up of one general teacher and one student teacher. The classroom consists of 22 students, although during this

period, only 14 students are present. They wear beige pants or jeans and t-shirts of different colors.

Classroom layout: The door is made of wood. On the top of the door there is a heading that says "Ms. S". The students' desks are situated in the middle of the classroom. There are four groups of desks. Three of the groups include five desks and one of them seven desks. There is an individual desk for one of the students at the back of the classroom. The chairs look at the Smart Board. There are also three extra tables; one on one corner of the classroom, close to the whiteboard; another one on the left side, close to the reading center and a smaller table, next to the reading center. Next to the door, on the wall, there are hangers for the kids' backpacks. On the walls there are also projects done by the kids, vocabulary, word walls, calendars, days of the week, boards related to Math, posters, numbers, standards they are currently working on, lists with the students' names, a whiteboard and a Smart Board, among others. The classroom also has a technology center with three computers next to the hangers. The teacher's desk is situated on the front, at one corner. It has all the necessary supplies for the classroom and bookcases. The classroom consists of a sink, too, which is situated at the back in one corner.

Language Features in Content Area (see Fang& Schleppegrell, 2008):

1. **What is the problem to be solved?**
    - Questions
    - Commands
    - Conjunctions
2. **Linguistic Features**
    - Technical vocabulary
    - References (demonstratives, pronouns)
    - Being processes
    - Conjunctions

PHASE 1: Working on learning centers (20min)

ST: Student Teacher
MS: Ms. "S" (General teacher)
S: Student

Event 1 (20 min)

During the first phase, students work individually on their desks. MS turns on the Smart Board and she shows a screen capture that includes 8 different mathematical problems that students will need to solve on their own. She gives out a sheet of paper folded in 8 sections to each student, so they can complete the task. Around 7 minutes later, MS is ready to share the procedures and results with the classroom. MS reads the first problem:

> **MS:** Identify the property shown: (4x2) x6=4x(2x6). *(There are 4 options: Commutative, Associative, Distributive and Identity)*. We haven't seen this type of problem since Christmas. What is identity? It is when we combine a number with another number and that number stays the same. So this is not the property we are looking for.

Next to the word Identity she writes an example that demonstrates the definition such as 4x1=4.

> **MS**: What is commutative?
>
> **S:** We change the parenthesis
>
> **MS:** Yes, for multiplications task we can switch the order to the parenthesis. Give me an example.
>
> S: 8= 4X2=2X4
>
> **MS:** Good *(she writes the example next the property).* So this is not the property either. What about distributive? Distributive would be: 4(2x6)= 4x2 ≠ 4x6. However this property does not work with this problem. In order to solve the problem shown, we first have to solve the parenthesis:
>
> (4x2) x6=4x(2x6)
>
> 8x6=4x12
>
> 48=48

So the property shown is the associative.

COMMENTS: Even when the answer they are looking for is only one property, MS revises all the properties with her students to make sure that they are able to identify them. She provides students with the definition of each property and an example of each of them as well. The strategies that MS uses are necessary to active students background knowledge about these properties and they are also a good procedure to scaffold students understanding.

One of the problems that students have to solve is a word problem. MS is the one who read it aloud for the class:

MS: Randy is buying roses. If she plans to place 6 roses on 7 desks, how many roses will she need?

We have 7 desks, right? (She draws 7 desks)

There are 6 roses in each desk. It is the same as:

S1, what is the solution?

S1 needs some time to think the solution for this problem. MS is patient and she gives her enough time to think. Since S1 is not responding, MS monitors her thinking:

MS: 6+6+6=

S1: 18

MS: 18+6=

S1: 24

MS: 24+6=

S1: 30

MS: 30+6=

S1: 36

MS gives S1 some time to reflect on the strategy they are using. Since the student still does not know the correct answer, teacher tries to scaffold student's understanding visually.

MS: 37, 38, 39, 40, 41, and 42 (Teacher counts with her fingers)

S1: 42

COMMENTS: The way the problem is formulated can hinder students' comprehension. I consider that it would have been more meaningful to clarify that Randy does not want to put 6 roses in 7 tables but 6 roses in each table. MS visually represents the word problem to help students understand the task and avoid confusion. She also gives S1 enough time to think the right answer, but when she realizes that that is not enough, MS uses her fingers to lead the student toward the right response.

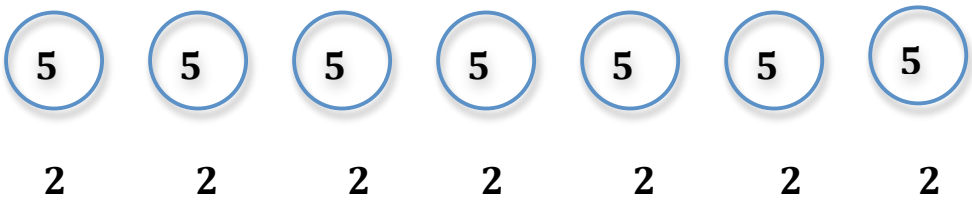
The next problem is: 49:7=

MS: S2, what is the answer to this problem? How many did you put in each group?

S2: 5

MS: OK, so we have to make 7 groups and each group will have a 5 in it, right? Let's represent this:

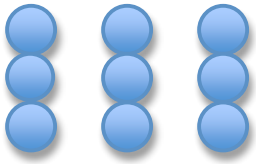
MS: Lets count together, 5, 10, 15,20, 25, 30, and 35. But we have 47. How many do we have left? She writes down: 47-35=14. What do we do with these 14 that we have left? We can divide these 14 in the 7 groups… So we can add 2 more to each group. This way we will have 7 in each group. 49 divided by 7 is 7. Good.



COMMENT: Although the response of 5 is not the right answer, MS illustrate what is missing in that answer and what is necessary to do in order to achieve the right one. Although the alternative is longer than just saying 7, students are able to put in practice some other reasoning practices that help them obtain the right result.

Student look at problem number 7: Which number sentence is shown?

TOM
KATE
KEVIN



A: 9:3= 3
B: 9X3=27
C: 9+3: 12
D: 3X2: 6

MS: What operation matches that picture?

MS gives enough time to think to the students

S3: B: 9x3=27

MS: 9 groups of 3 balls mean a total of 27 balls.

S4: A: 9:3=3

MS: Good, there are 9 balls in 3 rows. So, there are 3 balls in each row.

COMMENTS: I did not understand the question to this problem. The fact that MS translated it helped me and I guess, students, to understand what the question of the problem was asking.

Second Phase (20 min)

Event 1 (15 min)

During this second phase, I focus on the center led by the classroom teacher, Ms. "S" (MS). Three students participate in this center: one white girl, one Latino boy and one Latino girl. Each of them has a worksheet where they are working on some problems individually. At the same time, they are having a snack. Once students are done with the problems they call MS by saying her name or by raising their hand so she can check the solution.

This is how the worksheet looks like:

Fill in the missing spaces:

- **2, 4, 6, 8, 10, ____, ____.**
- **3, 6, 9, ____, ____.**
- **30, 25, 20, ____, ____, 5, 0.**
- **D, G, J, M, ____, ____.**
- **Red, orange, blue, red, ____, ____, ____.**
- **12, 24, 36, ____, ____, 72.**
- **32, 48, 64, ____, ____.**

MS explains to the students that these are some exercises that gave them some trouble yesterday, so they are going to revise them again. Students work individually. Most of them use their fingers to count. Once they finish all the tasks, the teacher will go to each problem to show the procedures to solve them.

MS: What is the rule for the first one?

S1: Add 2

MS: What is the rule for the second one?

S1: We are adding 3

MS: What is the rule for the third one?

S1: We are subtracting 5.

COMMENTS: Instead of spending time on the actual answers, MS focus on the reasoning to solve the task.

MS: We are going to skip the next one and go to the next one. How is it different from the rest?

S2: They are colors.

MS: They are colors, they are words. They are not adding or subtracting. But there is a pattern that is repeated. Good.

COMMENTS: MS asks students to compare different types of patterns. They look at how they are similar or different form each other.

MS: Let's go for the last one. If they are increasing up, what do we do?

S3: Add

MS: How much do I have to add to 12 to get 24?

S3: 12

MS: OK, How much do I have to multiply 12 to get 24?

S3: 2

MS: 12x2= 24, yes?

S3: Yes

MS: Is 24+12=36? Does it work?

S3: Yes

MS: How much is 36+12? (She counts with the fingers)

S3: 48

MS: Now, if I add 60+12= 72. So our calculus is correct.

COMMENTS: MS shows how to guide students towards the right answer.

Event 2 (5 min)

MS: Now we are going to revise some of the problems that were included in your homework last night.

$$\frac{48}{r} = 6$$

J9= 72

The teacher gives some directions before letting the students begin working.

MS: When there is a bar, the bar means "divided by". When they are next to each other, it means, "multiply by".

One of the students is having some difficulties solving the following problem:

63:  = 9

Students use shapes such as circles or triangles to represent the unknown factor. The focus student has realized that she has to find a number that multiplied by 9 results 63.

This is her procedure:

1x9=9

2x9=18

3x9=27

4x9=36

Once she gets to 36, she is stuck.

S1: Now what?

MS: You have to keep going, the number is too small.

The time for this event is over so they move to the next activity.

COMMENT: MS motivates the students to continue until reaching the right answer.

PHASE 3: Practice with the Smart Board (30 min)

All the students sit on the carpet in front of the Smart Board. In this phase, the teacher is going to lead the instruction. She is going to use the Smart Board to show some Math problems related to divisions, multiplications, and unknown factors that are going to be solved by the students. Again, students and teacher are going to look through the homework..

MS: The first problem is $\frac{45}{d} = 5$.

S1 gets up to write the solution on the Smart Board.

MS: Can you explain what you are doing?

S1: Divide

MS: Why? How did you do it? What was an easy way?

S1: 45:d= 5. You can take the other number… (S1 shows division: 45:5=9).

Students and teacher look at the next problem: 10 x Z = 100. One of the students goes to the Smart Board.

MS: What are you supposed to do here? *(Points at the x and the z)*

S4: Multiply

MS: It is my fault, I did not explain it, I did not clarify how to solve this type of problems. Raise your hand if you know the answer. 10 times something equals 100…

S: 10.

MS: Good, if you don't know it in your head you can divide 100:10 and you will obtain 10.

COMMENTS: In order to clarify the meaning of the expression proposed, MS reads the problem to the students aloud. Even if this mathematical operation is

very simple and most of the students know the solution by heart, MS explain how they could solve the problem using the division.

The next problem is: 20 - g = 6

MS: What number is g equal to?

S5: 15?

MS writes on the board 20 – 15 = 5.

MS: You are close!

S5: 14?

MS: Yes, g =14, what did you do?

S5: Subtract. I subtracted 20 - 6 = 14

COMMENTS: MS guides S5 until he gets the right solution. Then, she wants to make sure that all of the students understood the procedure to solve this problem. In order to do so, she asked S5 about the mathematical operation he used to figure out the value of g. The student was able to justify the procedure he followed.

Teacher and students move to the next exercise: 4+ f = 13 -2

MS: The information in both sides has to be equal. First we have to solve the side we know. So, 4 + f = 11. Therefore, f =7.

COMMENTS: MS shows how students have to look at the problem. Then she notes that both sides have the same value, however we don't know the value of one of the sides. Since we are able to calculate the right side, we also know that the other side must be 11. Knowing that we can deduce that 4 + f = 11. Students know that 4+7 =11

Students continue working on problems that are displayed in the Smart Board.

PROBLEM 1: There are 16 students in Mrs. Thompson's class. 8 of the students chose the pizza lunch menu and others chose the PBJ lunch menu, how many students chose the PBJ lunch menu?

MS: There are two different ways to make the equation.

One of the students goes to the Smart Board. She has to choose the symbol that represents the operation.

S6: ÷

MS: Division?

S: No…

S6: - subtract?

MS: So what do we subtract? We take 16 students; we are subtracting 8 of them because they eat pizza. The circle represents the people left or PGJ.

16 – 8 = 

MS: So, we solve it… 16 – 8 = 8 *(she writes it on the board).* What is another way to write this equation?

S: 8 times 2.

MS: So we take 8 people and each of them gets 2?

S: No

MS: So: 8 +  = 16

COMMENTS: When one of students say "8 times 2", MS tries to explain the meaning of that multiplication in the problem to show that it is not the right answer. S understands that it is not what the problem is looking for, even when the result is the same.

PROBLEM 2: Ms F has 25 students in her 1st grade classroom. She decides she is going to give 6 pieces of candy to each of her students for their hard work. How many pieces of candy will she give out in total?

One of the students goes to the Smart Board and writes the following: 25÷6 = 

MS: So if I am reading this correctly… we get 25 students and divide them in 6 pieces of candy…?

S: No

The student erases what she just wrote and tries again. This time she writes:

25 x 6 = 

MS: So I am going to get 25 students and give each (she stresses the word) of them 6 pieces of candy.

Another kid goes to the Smart Board and solves it.

COMMENTS: The student got confused because of the word "give out" in the problem and decided that she had to divide. This is an example where the key word approach does not work. After the teacher rephrases what dividing would mean in the problem, the student realizes that the number of candy has to be big. With the help of the hint that the teacher provides using stress, the student understands that giving 6 candies to each student would mean multiplying.