

MARGIE TRAINER: Fran, would you like to reflect on the lesson for us today?

FRAN DICKINSON: Sure. Right away I noticed in the number talk that I had over planned for this lesson; that I had bitten off a little bit more than I can chew, so to speak. The number talk itself led to the learners discussing the different ways to kind of identify the rule, for my rule that they were guessing. So I thought that was a really great conversation to engage in and I ended up probably spending about twenty minutes on that, where I really only wanted to spend maybe eight tops. And then shifting gears into the lesson itself, just watching the learners kind of puzzle through the different ways that Learner A and Learner B saw the pattern growing, and then trying to translate that into a pictorial representation was a lot more challenging than I thought it would be. And it just shows you that they need more exposure and more experience, kind of modeling this type of thing; modeling numeric patterns and building things with their hands and getting their hands on those integer tiles, or on the square tiles.

STACY EMORY: That's one of the things I saw them really struggling with was trying to come up with the language. First of all when they were trying to describe what they were seeing, either they were talking about Learner A or Learner B, just coming up with the verbal description was difficult. They could all see how it was growing but they had a really hard time describing it. What surprised me is that they had a really difficult time representing it with the tiles or with color pens as well. I didn't expect them to struggle so much with the pictorial representation. I thought that would be a really good access point for a lot of them. Some had a really tough time trying to represent how it changed from pattern 1 to pattern 2 and then pattern 2 to pattern 3. And there was quite a bit of heated discussions between the pairs about what was the best way to do that. And when I was questioning Kylie at the end there...I had listened to a conversation between her and her partner and that was sort of it about "That's not the right way to show it in the picture. That's not really what's going on. They're not showing it correctly." So it wasn't that her way was more right but she felt very strongly about the way she had represented it pictorially.

FRAN DICKINSON: I think the lines got blurred for kids too as far as "Was it my strategy that I'm thinking about or is it this learner's strategy?" And I think that that was evident in some of the things Eric was saying and he was kind of pushing the class to kind of understand his way of interpreting Learner B. But really, he started shifting towards more of how Eric saw the pattern growing, and I thought Robbie pointed that out at the end of the lesson there. But he also gave some food for thought to Robbie as Robbie mentioned at the end there. He's wondering about that now so, I don't know, I thought that was interesting, how the line got blurred as far as "Am I really focusing on Learner B or am I focusing on myself?"

STACY EMORY: And Robbie did do that at the beginning. He was looking at...when he was looking at Learner B where the one who had the 4 is the base pattern, the thing that was staying the same. And he had drawn it just as it was represented in the original task, with the one dark button in the center, yet he was trying to analyze Learner B. So with a little bit of questioning he was able to "Oh, wait a minute. Oh! I'm not looking at this...the 4 had to stay the same." And then he was able to sort of get back on that, but I think that was his original confusion, "Well,

this was how it was in the task, and this was how it was done," and not really tying it to the explanation that was in front of him.

FRAN DICKINSON: Also just reflecting on how I set things up, I felt like I didn't give enough...maybe this was okay and sometimes we over-scaffold, but I felt like there wasn't enough scaffolding as far as how to use the manipulatives along with the task. I mean I assumed that they would try to color code it and they would look at okay, Learner B for example, has 4 plus 3, 3, 3, 3 repeated addition. So I was assuming that a learner would build that as four solid staying one color over and over again, but that's not what a lot of them did. A lot of them saw that as...so they use this idea of one color is what stayed the same, and one color is what changed. So each pattern...so they start with four in that first stage but as you go to the second stage they had four of that same color and the new ones for the new color. And then the next stage, everything that was in that previous stage was all of that one color of the things that were staying the same. So I thought that that was something that was...

STACY EMORY: They were reluctant to change bags. They started with one bag and then they thought "Well, Learner A must have the green and yellow bag and Learner B has the red and blue bag." They didn't want to branch out and try different color tiles. I even gave permission to one of the pairs to do that. "No, no. We can't do that." So in that sense maybe it would've been helpful.

MARGIE TRAINER: So Fran, my question would be what might you do differently just to make them more comfortable with the color coding? What...would you see maybe starting with their own work, the way they saw it originally to use the color tiles?

FRAN DICKINSON: I think one thing that I...if I were to teach this lesson again to another set of group, set of 6th grade learners, I wouldn't confuse them with two different learners. I think I would focus on one learner first. Let them come to all those different conclusions about how to color code it and to kind of share that as a class, and to talk about that. I think that was an experience that was missing with this 6th grade class in particular. Coming into this lesson that they weren't able to agree or...I mean it's not necessarily that they have to agree on how to color code them but something that really tie to the rule. I don't feel like some of the color coding tied to the relationship that Learner B was defining. I think it was too much, there were too many variables going on.

MARGIE TRAINER: So it sounds like it takes you back to one of the steps you had mentioned earlier about representing the growth pattern in multiple ways. Maybe they needed to start with the verbal explanation of how they were seeing it and then tie that to the visual model. Maybe that's where you would go back and...

FRAN DICKINSON: Yeah. And reflecting too on the goal on my lesson was really to get to the in and out table. Maybe that's where we should've started, was looking at the stage number and the pattern...or the stage number and the total number of buttons, since that was my objective to get there but I never got there. However...not that there wasn't tons of mathematics happening in the classroom. Just the idea of...I don't know, I think the numeric relationship would lend itself well to the model, to tie a model, more so than the verbal.

STACY EMORY: I think they would've been able to do...I tend to agree with you because I was thinking of the kids that ended up getting the most clarity, the ones that that could tie it back to that symbolic or computational representation of what was going on. And if they had more practice going from the pattern number 1, number of tiles, what happen there, and if they could represent that computationally, I think they would have a better sense than...actually they could have done the pictorial representation more clearly after doing the computational representation of it because they would've extracted it to a certain stage at that point. Because they would've noticed the same thing they were doing over, and over, and over, and over.

FRAN DICKINSON: Yes. I agree.

STACY EMORY: And then they could've represented it pictorially.

MARGIE TRAINER: Something that you might try is doing it both ways and seeing what seems to make sense. Because I don't think that it's necessarily going to make sense the same way to every student. They might, some might need the hands on color coding kind of thing to see it and describe it versus the others might back into it by starting with the in and out table and the graphing and so on. So there's a lot of direction to go in this, with this lesson. So what do you think might be your next steps at this point?