FRAN DICKINSON: The clear next step for me though is to go back to what we did today and extend that into the T-chart and pull it off; to pull it apart tomorrow. So I think tomorrow what I'll do tomorrow is I'll focus solely on Learner B, not even worry about Learner A's strategy yet, since there was so much discussion around Learner B today.

STACY EMORY: Things that I think was very clear from this lesson was that the kids were really engaged in it. And to me it was the perfect example of the difference between a re-engagement lesson and a re-teaching. Because what you did with the re-engagement lesson, the focus was on the kids; there's where the primary source of action is, is the kids. But the re-teaching, it seems to be the primary source of action is the teacher going over something again. But this, the kids just kept digging and digging. They thought they had it figured out but they kept going and going, and they realized that "Oh, I didn't quite have this," and they really got into it. So I think they're going to be excited to take this on again; keep going with it.

MARGIE TRAINER: That's the...it speaks to the real power of re-engagement; it's student focused.

FRAN DICKINSON: One of the things that came up today that I heard a lot, especially in the reflection piece and looking through the cards as well was this notion that "Well, I see how that person is doing it, but I'm right." So that's like...philosophically a direction that I want to go with my class, is to kind of push that envelope a little bit. And really to see that there are multiple correct ways to see what's happening in this pattern, and in many different patterns. And that actually...I'm just thinking about Kelsey and Kylie, how they were feeling that way about their own strategies that they were both right. But getting them to both come to the conclusion that they are both right and they're equivalent, I guess is just kind of a global perspective.

MARGIE TRAINER: So a starting point for that might be, which you had said before, going ahead and finishing the in and out table for both ways of seeing it, then grabbing it, and seeing that the in and out table, the x and the y are the same in both cases, the rule is the same in both cases. Something that jumped out at me is what you refer to as well is their seeming inability to let go of how they were thinking about it, and really look at somebody else's work. Um, because when that group that I was talking to and I saw them referring to eleven groups of 3 plus the 4, they never had gone back and actually counted to see that there were really only ten initially. Because when they first were presenting, they referred constantly to eleven groups of 3. It didn't seem to bother them when they did realize that there were only ten groups of 3 and they still couldn't, didn't put that together. So I'd say probably a lot more work with exploring different ways of looking at it. And I'm going back to saying, I think they need to talk about it; I think they need to talk to somebody about how they are seeing and see if they can prove it. Maybe justifying and proving how they're seeing it might be a way to think of it.

STACY EMORY: What that group in particular, one of the things that came up that sort of surprised me around the mathematics today (...) reason why your graphing took longer or your number talk took longer is how they wanted...they thought that the correct way to represent the rule is it x3-3, is it 3x? I thought that was kind of a really interesting conversation; it's the part "Where did that come from?" But looking at it there was a discussion, I think it was Eric, he was

talking about "Well is it x groups of three or is it three groups of x?" So is it x3 times or 3x times? And then I saw that again with the 11 and the 3. Is it 11 three times or is it 3 eleven times? I think there's a little muddiness around that concept. And I think that they understand that the order in which you multiply things doesn't matter but it does matter when it's tied to some real situation. And a lot of mathematics we do here is tied to a real situation and that matters to them. Is it, you know, 3 eleven times or eleven 3 times because one represents the reality of the patterns we're seeing and one doesn't. So I think that's something that...

MARGIE TRAINER: Key point.

FRAN DICKINSON: Yesterday when I did the number talk, I did a number talk on graphing a line, it came up "Are we talking about three groups of x or x groups of 3?" That conversation started yesterday and there was a lot of confusion around "But what is the situation that we're describing?" And so it boils down to the learners looking at, for each iteration on that line that we were graphing, how far over x were we going, and how high on y were we going? So the idea of run over...or rise over run, the slope. So without talking slope, they were puzzling about it and wondering if that had a relationship to how they should write the rule. So I thought that was a really good direction for them to be heading and I agree with you that there is still some fuzziness around "How should I represent my rule?"

I was really fascinated by the whole notion of pattern zero. There are a few learners that were bringing pattern zero up. And then David said, "Well you can't go any further once you get to pattern zero." In a way he's right because he's thinking about the buttons, and we're not going to have negative buttons. But when we start talking about functions and we're graphing those functions, we definitely go into negative, we go into integers. So, I don't know, I kind of see that as another place to go with this. Nice thing is I've got a full years...

MARGIES TRAINER: I would say so. It was extremely well done and we thank you so much for letting us come into your classroom and view your work with your wonderful students.