MIA BULJAN: So tell me about some of the models, because for this particular lesson, when you were talking to me about how you were going to plan it, which I want to ask you about in a minute, um, you...we originally kind of talked about these ideas of area models and bar model diagrams to make sense of these relationships in terms of, like, multiplying fractions. And so can you...you originally started thinking about area models and switched over?

ERIKA ISOMURA: Yes.

MIA BULJAN: So can you talk about that process and how you decided?

ERIKA ISOMURA: Yeah. So I...I do a lot of work with area models for multiplication and division of whole numbers, and the kids, most years for some reason haven't done much of it, and when they see it they were super excited because it makes so much sense. And we usually do it after our geometry unit where we've done areas of rectangles and they go, "Wait. Wow, it's the same thing. Look at that!"

MIA BULJAN: Like they invented it?

ERIKA ISOMURA: Right. So my original thought was the area model for fractions is really, really nice, and it's really interesting. And it draws on something that they're really familiar with, and so I was all about, "let's do it that way." But then I started thinking about, again the multiplication as...as you call it, as iteration and I think of it as repeated addition versus the "of" something.

MIA BULJAN: Okay.

ERIKA ISOMURA: Which we haven't with fractions--that's not really present, at least I don't see it in whole numbers. Um...and how that tends to be where the fifth graders fall down. Like, they can do all the multiplications that involve fractions where it's just the idea of replicating something, but as soon as they hit the "of" and that's where...

MIA BULJAN: Like an equal group almost, like, yeah.

ERIKA ISOMURA: Yeah and that's where, um, I often see people talking about...I just teach that key word "of" and so whenever they see it, they multiply, which has lots of inherent problems with choosing one word to represent an entire operation.

MIA BULJAN: Right.

ERIKA ISOMURA: So I wanted to really get them deeper into why is that...

MIA BULJAN: Sense making, right?

ERIKA ISOMURA: Why does that happen? Why is, you know, when I'm taking two thirds of this, why is it a multiplication and how does that work? So that was my quandary because I don't see the "of" represented as well, and it's visually in the area model, and so that's the one...

MIA BULJAN: So did you, like, draw that out when you...

ERIKA ISOMURA: Yeah.

MIA BULJAN: ...when you're planning and trying to make it...? Yeah.

ERIKA ISOMURA: And I couldn't see how the area model really showed you taking blah, blah "of." It didn't fit as nicely as a nice linear bar model.

MIA BULJAN: Mm.

ERIKA ISOMURA: So with a linear bar model, it was really clear that "here's how much my whole amount is, and I'm taking this portion of it."

MIA BULJAN: Okay.

ERIKA ISOMURA: And, um, for me that was a more clear visual. So I don't know bar models very well, so I had to go to you to get some training on what exactly...

MIA BULJAN: I mean that's not true. It's not true.

ERIKA ISOMURA: But I don't use them very often.

MIA BULJAN: But we did talk about it.

ERIKA ISOMURA: Yeah. The last time I used it was back when I taught second grade for addition and subtraction.

MIA BULJAN: Yeah, that part-part-whole.

ERIKA ISOMURA: But I haven't really used it for multiplication, and I really haven't used it for fraction work at all, unless you want to count the connection to, you know...

MIA BULJAN: So you played around with it yourself?

ERIKA ISOMURA: Yeah.

MIA BULJAN: And, and you...

ERIKA ISOMURA: And then I thought, "Oh, this is visually much more clear to me, so hopefully it'll be more clear for the kids."

MIA BULJAN: Exactly, yeah.

ERIKA ISOMURA: So after about maybe two or more days with working the Jesus and Camila problem, I came in and said, "So girls and boys, I was just talking to Ms. B, and we were talking about this thing called a bar model and I thought, I wonder if this would be helpful." So we put a couple of problems we've done a day before into it.

MIA BULJAN: Fraction or whole number?

ERIKA ISOMURA: Fraction.

MIA BULJAN: Okay.

ERIKA ISOMURA: And we're like, hm. And we're all really puzzled about whether or not it would work. So the agreement was, "I'm not sure if we like this so we'll set it aside. Let's step back to whole numbers." So we're so good with whole numbers, let's look if whole numbers work well. And so we did...

MIA BULJAN: Well, that's nice. That's that practice, what, seven, right? Looking at structures, like...

ERIKA ISOMURA: Yeah.

MIA BULJAN: The relationships between parts and wholes for whole numbers will still hold for fractions. So that's good.

ERIKA ISOMURA: Right. So we went back and we did a few problems with, you know, relatively easy one-digit, two-digit multiplication problems where they could see, "Oh look, I could do, you know, five-tenths or whatever it was." And...okay, this does seem to be an effective strategy that works for whole numbers, so can we make an agreement that this probably will work if I wanted to do seven one-fourths or, you know, however many? And we agree that, yeah, it seems like a reasonable thing to do. And so we did it a couple of times with Jesus's problem, because he was the one that repeated...

MIA BULJAN: And you were modeling that? You drew it out or--?

ERIKA ISOMURA: Um, no. I asked them to tell me what...I drew. I controlled the pen but...

MIA BULJAN: They did the thinking and you wrote it?

ERIKA ISOMURA: Yeah. And then we tried to see if it would work for Camila's [problem], and that was much harder, because that portioning idea that happens with the "of."

MIA BULJAN: Yeah.

ERIKA ISOMURA: But yeah, they were able to work that out. So then, um, we did that for maybe a couple of days, still working with the same basic problems.

MIA BULJAN: Mm-hm.

ERIKA ISOMURA: And then the last thing that we did earlier this week was they...I had the problems, they had the numbers and I said, "Draw some pictures that you think would help us to process what's happening." And then they put the pictures on the board and we chose the pictures. So we talked about, um, how would this one be valuable? What part of the problem is represented in this picture? What part...and typically what was happening was, I might have four pictures up there from four different students, three of them really did represent the values in the problem.

MIA BULJAN: Yeah.

ERIKA ISOMURA: One or two might be really, really helpful but the other one was still not wrong, and then one was just completely off the wall.