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Reflection on interview

Anahi

6th Grade

Age 11

At Tubman Village Elementary, Aaron and I conducted an interview of a 6th grader. The interview started off with basic number sense questions, and tested the student’s ability to add and subtract integers. As the interview progressed, the student was tested on their ability to recognize patterns and create a mathematical rule for the pattern. Aaron and I had the pleasure of interviewing Anahi twice. In our first interview, we discovered she had many math tools at her disposal. In our second interview, we developed her ability to identify patterns and create rules for patterns.

The first interview consisted of trying to find any ways of reasoning the student used, and which ways of reasoning we could build upon to support her understanding of mathematics. We were amazed to find that she had many ways of solving problems; as well as, she could explain those different ways, and reason about why she chose to do it her way. For instance, when I asked her to solve the problem 6 - - 2, she understood the double stick method, but was able to explain why it worked. She said, “If you take the opposite of a negative, then that would just mean a positive, so when we subtract a negative, that’s just like adding.” Anahi was very articulate, and had an advanced understanding of mathematics. Her reasoning went beyond algorithms and memorized procedures. She could tell me why the algorithm worked, as if she were laying out the proof for her method. There weren’t many things she struggled with, except for her understanding of patterns, and change of patterns.

The second interview was administered with a plan to build upon her strategies of modeling a problem with mathematics. When we gave her a patter in the first interview, she was able to develop a method for solving the pattern no matter what figure number, but it wasn’t very organized. Our professor, Randy, sat with her and helped her develop a simpler strategy for recognizing patters that could easily be transitioned to a mathematical rule. She caught on very quickly, and was able to explain how her rule (y = 4x + 3) worked, and what each number and variable represented. In order to develop these skills, we gave her a similar problem, except this time it was quadratic. She had easily mastered linear rules to model a pattern with mathematics, and we wanted to develop the conceptual methods she used to solve patterns, by differentiating the type of problem with a quadratic pattern. The interesting part about giving her the quadratic was that she instantly tried to use a linear model to represent the pattern. She was stumped, but she had 4x6 written down on her paper. I helped her develop a pattern that used her method of finding area to find the total squares in order to help her develop a quadratic rule. When she saw the pattern of 4x6, 3x5, and 2x4, she instantly caught on, and built an equation with little to no help from me. She wrote x\*(x+2) = y, and proceeded to explain that the y represented the total tiles, x represented the figure number, and where she developed the strategy to multiply x(x+2).

If I were going to plan a next step interview for Anahi, I would try a pattern that doesn’t use an area model. I think that she was able to develop an easy understanding of linear models, because she could easily identify where the pattern was changing. Similarly, with the quadratic pattern, she was able to identify an area strategy. By challenging her perspective of the way she modeled the quadratic, I think that we can help deepen her conceptual understanding of patterns.