**Assessment Case Study**

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My assessment consisted of matching quadratic equations to their proper graph and explaining their reasoning as to why they thought the graph matched the equation. There were three questions and I graded my students on the number of correct matched pairs out of the total possible questions.

After giving my pre-assessment, I found that 25% of my 24 students that were present in the class received a passing score of 3/3 total points. This value changed to 22.7% out of 22 students in the post-assessment. 45% of 20 students who both took the pre and post-assessment saw an increase of 1-3 points. There was no change in 35% of students and there was a decrease in pre to post-assessment scores in 20% of students.

1. Were the assessment prompts stated clearly—Did it seem like the students understood the assessment task(s) and knew what to do? What is your evidence for this?

 I believe that the students were able to properly follow the prompts and directions that were asked of them. All students correctly followed the directions listed at the top of the assessment of “Match the equations below to the corresponding graph.” A few students had questions about whether they could use notes on the assessment, but there were no questions asking to clarify the directions. However, some students did not follow the directions of filling in their reasoning as to why they thought the graphs matched.

2. Was the assessment appropriate for grade-level—Do the concept(s) and/or practice(s) seem like something students should be able to understand or do at this grade level? What is your evidence for this?

 This assessment was appropriate for grade level (9th-grade Algebra 1). I aligned my assessment with my Common Core standards chosen. The standards that I focused on worked on solving and graphing quadratic equations. My lesson focused on building the skills necessary to graph quadratic equations by determining the a-coefficient. My assessment tested this skill by making the students identify the a-coefficient and recalling how the different values affect the graph. Since 45% of students saw an increase in assessment scores, this could be an indicator that some students understand my concept at the 9th grade level.

3. Important to assess—Were the concept(s) and/or practices assessed central to understanding or to doing the science or mathematics addressed in the unit they have been experiencing? What is your evidence for this?

 This lesson was a building block for understanding transformations in quadratic equations. In previous observations, the teacher and students have been working on graphing quadratic equations from tables. This lesson introduced them to the beginning stages of understanding the different parts of a quadratic equation and how they affect the graph. The students already had some knowledge on how a negative leading coefficient affects the shape of the graph. My lesson was the next step in understanding graphing.

4. What learning gains do you see in the students and what gaps remain? That is, do they have mastery of the content or do they need additional instruction? How do you know? Based on your answer to this question, what learning needs do you see that the students have? Is there formative assessment information from your video that can add to your analysis of their learning needs? What does it tell you?

Based on my results, most students had a better understanding of how having a “one” for the leading coefficient in a quadratic equation created a standard parabola. This question was answered more correctly during the post-assessment. Students seemed to confuse the different coefficient values on the post-assessment. During my lesson, I led the class discussion as to how the coefficient affected the graph after having the students present out what they thought their predictions would be. By allowing the students to be more involved in the sense-making, there may be an increase in scores and mastery of the content.

5. Does your assessment elicit *understanding*? In other words, do the student responses provide information about their *conceptual* understanding or just about what they *know* (i.e., knowing vs understanding)? Can you identify any patterns of understanding or misunderstanding in the range of student responses? That is, are there different aspects of understanding that are expressed by different groups of student responses on the assessment?

By allowing the students to have a space to explain why they thought the equation matched the graph, this allowed me to see if they understand what the a-coefficient does. If they aren’t held responsible for knowing what to look for in the equation when transforming a graph, students may rely on just memorization. Based on my post-assessment, some students had a misunderstanding still in how the a-coefficient transforms the graph. When the coefficient is greater than one, it creates a narrower graph. When the coefficient is less than one, it creates a wider graph. All students seem to understand that having a coefficient changes the look of the graph, there is just a misunderstanding as to how the coefficient changes the graph.

6. Compare what you noticed formatively (formative assessment) during the lesson while viewing the video with what you see in your summative assessment. Are there areas of struggle on the summative assessment that you also see formatively? What do you think is causing difficulty?

In my video, I noticed that the students who struggled on the post-assessment were with group members who were off task or needed extra guidance. The groups that were involved in the class discussion seemed to perform better on the assessment, than the students who sat quietly. Students who did not fill out there in class worksheets also did not perform as well on the assessment.

7. Informs instruction—Is there information in the student responses (both formative and summative) that informs the teacher (you) about how the lesson went and possibly how to improve it? How would you modify your instruction based on the results of these assessments?

 Some improvements that I want to make in my lesson are allowing my students to make more of the sense-making. I would want to add in another component of working in-class practice problems as a group to make sure that students have a better understanding of the concepts before leaving my lesson. I feel that by having more examples for them to see how the coefficients can change the graph will allow them to have a better understanding. Based on the results of my post-assessment, I feel that allowing for more in-class discussion during the lesson and focusing less on rushing through to get to each part of my lesson plan, I could have allowed the students to get a better understanding of the concept.

8. How did you communicate the outcomes of the assessment with the student and their parents? That is, what kind of feedback did you give on the assessment(s)? How could you improve on this feedback if this were your class (and not just a class borrowed for the lesson)?

I corrected the student responses and marked what the answers should have been if the student did not answer the question correctly. In my classroom, I would want to post an answer key with the anticipated correct response and reasoning on my class website. This will allow students and parents to have access to the solutions and can discuss any questions they have at a later date.

9. Problems—Were there any issues or problems with the assessments? How could the assessment tasks be improved?

I don’t believe that the students felt the assessment was important. In the free-response spaces, most students did not fill in response as to why they thought the graph matched their equation. When giving directions, I should make more of an effort to emphasize the explanation being important. The assessment could be improved by allowing more students to have access to answering the questions. There are limited means for solving the problems to produce the correct answer.

My pre and post-assessments were the same, altering the numbers slightly.

A screenshot of a social media post

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