PPAT® Assessment

Library of Examples – Mathematics

Task 1, Step 1, Textbox 1.1.1: Understanding the Contextual Factors Influencing Instruction and Student Learning

Below are two examples of written responses to Textbox 1.1.1 as excerpted from the portfolios of two different candidates. The candidate responses were not corrected or changed from what was submitted. One response was scored at the Met/Exceeded Standards Level and the other response was scored at the Does Not Meet/Partially Met Standards Level. This information is being provided for illustrative purposes only. These excerpts are not templates for you to use to guarantee a successful score. Rather, they are examples that you can use for comparison purposes to see the kinds of evidence that you may need to add to your own work.

The work you submit as part of your response to each task must be yours and yours alone. Your written commentaries, the student work and other artifacts you submit, and your video recordings must all feature teaching that you did and work that you supervised.

Guiding Prompt for Task 1, Textbox 1.1.1

a. Identify your chosen community factor. Based on your chosen community factor, identify and describe one possible instructional strategy **and** one learning activity that you could use in your classroom to further student learning. Provide a rationale that explains how the identified strategy and activity connect to the chosen factor.

b. Identify your chosen school/district factor. Based on your chosen school/district factor, identify and describe one possible instructional strategy **and** one learning activity that you could use in your classroom to further student learning. Provide a rationale that explains how the identified strategy and activity connect to the chosen factor.

Example 1: Met/Exceeded Standards Level

a. My chosen community factor is the rapidly growing population within the community. The population has grown 10% over the past 9 years, which is a significant increase. In the material covered by Secondary Math II, one of the suggested topics covered is an introduction to exponential equations (i.e. functions of the form y=16*2^x). This type of function is often seen in real-life scenarios such as compound interest, depreciating value of goods (like cars), and population growth. Using the strategy of applying real-life context that is directly, namely it being applicable to students as the population growth in their own city expands, will really help them see the usefulness and application of the material being learned. Hopefully, using a context close to home will keep students engaged and make them want to find the solution instead of just going through the motions. We could extend the activity by asking them to make predictions about the

future population and to think about what factors city planners and civil engineers might have to consider when thinking about a booming population (e.g. things like parking lots, road widths, sufficient housing, water supply, grocery stores, etc.).

An instructional strategy that would support this learning activity would be having students search online individually and find their own census/other data to help them compile the necessary information to create a function that would model local population growth. Our math department has a class set of Laptops that students could use to do this research. Most high school students thrive online and are very "internet-fluent." Finding population data themselves would be a very attainable request to make of students. In addition, having students look online individually and share their findings with their neighbors encourages participation and engagement. It makes the context interesting and can help them see the real-life applications of the function we create together. It makes population growth into a legitimate "problem" that they can help consider the solutions to.

b. My chosen school factor is the high population of students who speak Spanish at home (nearly 20% of the school population). I have a high number of these students in my classes, particularly in the Secondary Math II Lite classes. Across the three class periods, I have three ELL students who speak little to no English who attend class with their full-time translator. Two of them (who speak the least amount of English) attend the same class period, and it so happens that everyone in that class speaks Spanish fluently, myself included. The third ELL student attends a separate class, but she rarely depends on her translator anymore because she has improved her English so much. In class, I often feel bad because the ELL students don't get as much interaction with their peers as their classmates do. An instructional strategy that I can use based on this information is to have students work in groups on assignments. Group work would be method to motivate students, encourage active learning, and develop key critical-thinking, communication, and decision-making skills. This will be beneficial to all three of my ELL students, who can either be exposed to hearing/using more conversational English (as in the case of the girl who rarely needs her translator) or can simply hear other students' thought processes and hear explanations of these thought processes.

A learning activity that connects to this same idea is related to the idea of simplifying algebraic expressions (i.e. simplifying expressions such as .5(6x+18)-13x to be -10x+9). I could write word problems that talk about a specific group of people at our high school. The instructions might say, "There are 1200 students in our school, which is approximately 400 in each grade. 20% of students here are bilingual or nearly bilingual (they speak two languages fluently). Let's assume that this is true of any random group of students that we talk to. Use s to describe the total number of students, and use x, y, and z to describe the total number of sophomores, juniors, and seniors, respectively." I could write situations like this: "In our school, 3/10 of the seniors, 4/15 of the juniors, and 86 sophomores play at least one sport. How many student athletes speak two languages?" Students could work together to create expressions that represent each scenario, and then they would simplify and solve them together. The way the base information is presented hopefully presents the statistic in a positive light (i.e. I talk about students being bilingual, not as "students who don't speak English as well"), making this ability into an asset offered by students and not a weakness. It uses real, concrete numbers that all have meaning, and it offers a great deal of exposure to variables. I feel that such a

learning activity allows students to learn more about their school/peers and allows them to explore a real-life context that highlights a skill found all around them.

Refer to the Task 1 Rubric for Textbox 1.1.1 and ask yourself:

In the candidate's response, where is there evidence of the following?

- Does the candidate connect one chosen community factor to an instructional strategy and a learning strategy in order to further student learning?
- Does the candidate connect one chosen school/district factor to an instructional strategy and a learning strategy in order to further student learning?
- Where does the candidate explain how each instructional strategy furthers student learning?
- Where does the candidate explain how each learning activity furthers student learning?

Example 2: Did Not Meet/Partially Met Standards Level

a. My chosen community factor is 13.1% of the population living in poverty. My instructional strategy is using mathematics in real-world contexts. People living in poverty or who are low-income are more likely to be concerned with the applicability of mathematics because they want more tools that can help them in their lives, especially relating to money. The learning activity is posing problems about having a certain amount of money buy one or two items at the store. This will allow students to use intuition that they have already developed about money and saving money to solve one and two step equations.

b. My chosen school/district factor is that students are issued a laptop at the beginning of each day. My instructional strategy is technology-assisted exploration. This allows them to take advantage of this opportunity with educational technology because issuing laptops at the beginning of the day alleviates the time cost of using technology in the classroom. The learning activity I would do is experimenting with the slope-intercept form on . I would give students the form y = mx + b and have them examine the role of m and b in determining the slope and y-intercept through testing different values.

Refer to the Task 1 Rubric for Textbox 1.1.1 and ask yourself:

In the candidate's response, where is there evidence of the following?

- Does the candidate connect one chosen community factor to an instructional strategy and a learning strategy in order to further student learning?
- Does the candidate connect one chosen school/district factor to an instructional strategy and a learning strategy in order to further student learning?
- Where does the candidate explain how each instructional strategy furthers student learning?
- Where does the candidate explain how each learning activity furthers student learning?

Suggestions for Using These Examples

After writing your own rough draft response to the guiding prompts, ask the question, "Which parts of these examples are closest to what I have written?" Then read the 4 levels of the matching rubric (labeled with the textbox number) and decide which best matches your response. Use this information as you revise your own written commentary.

Lastly, using your work and/or these examples as reference, consider what you believe would be appropriate artifacts for this textbox.