Encouraging Student Voices in the Science Classroom

ANN HALEY MACKENZIE

When is this worksheet due? Can I do this assignment on my laptop? How many questions are on the test? If you hear your students' voices primarily when asking these sorts of procedural questions, then these are non-examples of what I mean by encouraging student voices in our science classrooms.

Invite a colleague or have yourself tally the kinds of "talk" students use in your science class. Is it primarily procedural, or is it indicative of curiosity and wonder? Sure, students will always ask questions like those listed above, but these should not be the essence of when they talk.

Instead, encourage them to pose questions about the natural world, offer ideas about the concepts you are uncovering, and voice their opinions on social issues facing the scientific community.

I am actually quite saddened when I visit classrooms or walk the halls of the science classrooms wing and all I hear are teacher voices. Voices that are directive, lack passion, and seem to be simply going through the motions of science teaching. Instead, I yearn to hear student voices engaged in arguments over a claim being made during a Claim, Evidence, Reasoning (CER) experience or discussing the attributes of a concept during the Explore phase of a 5 E learning cycle. These kinds of interactions liven the classroom in a way that enriches our students' lives as well as empower our teaching.

As a science teacher, these "wonderfull moments" of student engagement are what bring our profession alive and fill us with gratitude. It is during these times that we learn from our students. What are their interests? What are they naturally curious about with regard to science? When can they ask us a question that we don't know the answer to, affording us the opportunity to conduct research with our students to uncover a possible explanation.

Science classrooms are not meant to be fact-dumping environments. Instead, they need to be places where student exploration leads the way in support of the content being addressed. With so much information at our disposal, we must provide a climate where students' questions and wonder move our curriculum forward in a meaningful manner.

When you have students explain a concept to another class member, this is the epitome of learning. After all, "knowing is in the explaining." Think back to your early years of teaching: didn't you learn your scientific discipline the most when explaining the concepts to your students? Try affording your students the chance to use their voices in teaching their teammates during a cooperative learning exercise. When we can explain something, then we "know" it. Isn't having our students being able to demonstrate their prowess with the content and processes of science one of our primary goals as science teachers?

Some science classrooms use tools like Amazon's Alexa to help address students' rudimentary questions—but are these responses vetted in such a way to lead the students in the right direction of their scientific inquiry? We are all used to Googling our "I wonder" questions. But how many "I wonder" questions are your students posing each class period? If the answer is few, then what can you do to foster more questions, inquiries and curiosity? After all, aren't these attributes what drive the scientific process forward?

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