POWERFULPRACTICES
The Instructional Leadership Experience

FIVE POWERFUL PRACTICES

for Science Professional Development

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In my time working with schools and districts from across the country, I have had the privilege of meeting and working with many inspiring science educators.

Their passion for teaching and developing the scientific literacy of today's learners is truly awesome! As I have worked with these educators, I have been struck by the question, "What sets the truly great science educator apart?" Combing through the all of the observations, discussions, and feedback that I have received, the answer lies in professional growth. Based upon that feedback, I can share with you below five key tips that should be incorporated into all science professional development in order to maximize its effectiveness.

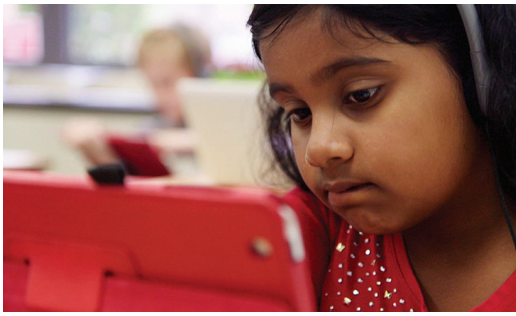
1. Lead with inquiry.

Science teachers are charged with helping students learn to think like scientists, deriving knowledge through inquiry and research. Students in the science classroom are encouraged to pose questions about natural phenomena, and engage in an inquiry-based process to find answers. When teachers are able to inquire, research, evaluate and draw conclusions about their own learning, they benefit two-fold. Not only are they more likely to own the knowledge they obtained through an inquiry-based approach, but they also have a deeper connection to the inquiry-based learning process itself. This is necessary if they are going to be able to teach students to think, act, and work like scientists and engage in scientific practices.

2. Model the classroom.

As adults, when we think back to those defining moments in our own education, were they sit-and-gets? Do we cherish scribbling notes as the teacher lectured from the front of the classroom? There are hundreds of ways to engage students in their knowledge about science by immersing them in the work of scientists. We facilitate the process of framing a question, collecting evidence, evaluating and drawing conclusions. Sometimes it involves experiments or other hands-on activities. Sometimes it involves conducting research and synthesizing





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knowledge from multiple sources. The common thread is that our defining moments as students were those in which we were active agents in our learning. We know as educators that students learn best when they are creators of knowledge, rather than consumers. Like our younger learners, teachers too learn best when they are able to construct knowledge. As professional developers, we should model the learning experience we want teachers to deliver to their students.

3. Encourage collaboration.

Teachers too often are on their own, standing in front of a classroom of students expected to know all of the answers. We know that we don't always have the answers, and that our learning is enhanced when we are able to connect with, share, and learn from one another. Professional development sessions are not only opportunities for teachers to enhance their content or pedagogical knowledge. They are also times for teachers to connect with colleagues in similar positions, share practices and gain insight from one another. Incorporate into your professional development the structure that will allow teachers to make these connections and learn together.

4. Make it coherent.

There are infinite possibilities for making a professional development session interesting, engaging, and insightful. However, if the session is disconnected from the context in which the attendees teach, then it has absolutely no impact on professional practice. Make it relevant, aligned to the standards and curriculum that the attendees are tasked with teaching. Also, be cognizant of the initiatives and culture in place in the district and how the content and tools used to deliver your professional development fit within that context.

5. Embed it in the culture.

Just like isolated lessons with our students, that half-day summer seminar is simply an introduction to new material. It will never be enough learning to impact professional practice or move the needle on results. Effective professional development is job-embedded, involving ongoing conversations and collaborative experiences throughout the school year. Embedded professional development does not necessarily require additional time or meetings; but it does require intentional structures to support ongoing collaboration and communication.

About the author

Mat has over 16 years educational experience, serving as a middle school science teacher, high school chemistry and physics teacher, K-12 lead teacher, and Director of Curriculum and Instruction. He was also a member of the Critical Stakeholder Review Team for the Next Generation Science Standards. In his roles as K-12 Science Lead Teacher and Director of Curriculum and Instruction he developed an implemented professional development plans for teachers across all disciplines for K-12 teachers. While at Discovery he has served as the Director of Science Content and currently the Senior Director of Learning Initiatives.