STEM Is Missing This……

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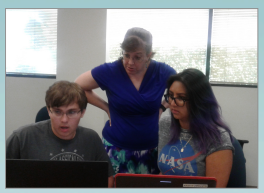
Abstract

STEM education gets a lot of attention in schools, media, politics, and funding. But while the acronym grows from STEM to STEAM to STREAM, we still see a lack of student participation in real science, using big data and building partnerships with professionals in the field, and real student growth in science achievement. After the NITARP experience, we believe that NITARP is a rich, demanding, and authentic experience for dedicated teachers and students that provides a caliber of learning that is hard, if not impossible, to achieve in the traditional classroom.

This poster looks at what STEM still needs to be and become for it to be the driving force behind greater student involvement, interest, and increased academic performance in the sciences.

Problem

We propose that traditional and current standards for STEM education are falling short of what is needed for students to truly experience, understand, and gain the skills to accurately apply and advance in science. Incoming and current science teachers at all levels are not provided with quality, realistic, or applicable preparation.



"The most important…was the growth in the students – not just in understanding the subject but in level of confidence and skill in the scientific process" – NITARP teacher

"…I was expecting a "cookbook" experience and instead we were given the tools and then figured it out ourselves. I really liked that and I think I understood everything better because of it…." - NITARP student

"…getting to solve the problem – not just be told how to do it or follow some set of instructions – but to really figure it out is great." - NITARP student

Solution

Exposure to programs and experiences like NITARP are needed to help drive and support STEM education to meet its goals and intentions.

Students NEED:

- The deep, long term exposure to authentic research and technology as well as opportunity to talk with working scientists in a variety of fields
- The opportunity to experience and participate in research that requires sustained effort. Most research is done over months or years, not in a 55 minute class period.
- Exposure to technology they manipulate to solve a problem, not a gadget to play with.

Teachers NEED:

- Training and exposure to authentic scientific research. Pre-professional teachers need to experience and participate in research so they have the knowledge to guide and share with students preparing to enter the sciences.
- Support from industry, working science professionals, and the secondary education community to participate and continue learning in research-based environments.

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