

Alameda Unified School District and BaySci: Partnering to Improve Science Teaching, Leading to Strengthen Science Planning

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9 November 2015**

An Institutional Entrepreneurship Project

- AUSD partnered with BaySci to cultivate the teacher leadership required to help us strengthen science teaching in early grades.
- First cohort: our union president; a science coach in a school that was working at integrating music, science, and math; and an originating teacher leader of AUSD's Go Green campaign.
- Institutional entrepreneurship: goal setting, translating goals to collective action, and harnessing resources to reach the goals.
- AUSD's success depends upon enrolling teachers, developing leadership, and building a bandwagon

The Big Hairy Audacious Goal

- AUSD chose BaySci to help support district and teacher leaders who could train colleagues in distributed school settings while working in a network structure to help us focus our work, strengthen the instructional core, and build system capacity.
- In a divisive time in AUSD's history, BaySci helped us include more teacher participation in instructional leadership.
- It has been an economical, efficient, and effective way to leverage human capital, distribute leadership, and democratize AUSD professional development planning and decision-making.
- It has been a platform to renew a focus on science instruction, first in every K-5 classroom and then in our 6-12 schools.

Partnership, Leadership, and Followership: Collective Action Helps AUSD Realize Our Goals

- With increased levels of teacher leadership and planning, now there is more science instruction in our elementary classrooms.
- AUSD students have benefitted from increased use of hands-on experimentation supported by FOSS kits and teacher training.
- AUSD teachers have benefitted from a “train the trainer” model that has resulted in locally situated professional development that is coherent in district-wide enactment of NGSS standards.
- AUSD as a district has benefitted because BaySci has guided a district leadership team to plan with our teachers in order to implement in schools and institutionalize collective efforts with a Board of Education proclamation asserting primacy of science.

Proclamation – AUSD Vision for Science Education

The Alameda Board of Education unanimously passed a proclamation for AUSD's Vision for Science Education on April 28, 2015, institutionalizing our partnership.

WHEREAS, Bay Science, a group of teacher leaders in science, worked in collaboration with the Lawrence Hall of Science to increase teacher expertise; and

WHEREAS, we know that students need a high level of scientific understanding to succeed in school and to be prepared for the demands of the 21st Century; and

WHEREAS, scientific literacy is critical for college and work readiness in the emerging knowledge economy; and

WHEREAS, a broad foundation of science learning is critical for the nation's capacity to innovate for economic growth and a modern workforce; and

WHEREAS, the National Research Council (NRC), the National Science Teachers Association (NSTA), the American Association for the Advancement of Science (AAAS), and stakeholders at the state level and nationwide have collaborated to develop the Next Generation Science Standards (NGSS) to reflect major advances in science and our expanded understanding of how students learn science; and

WHEREAS, AUSD desires to provide a comprehensive and high quality science program that prepares all students for success in rigorous post-secondary science courses and subsequent careers; and

Proclamation – Vision for Science Education (cont.)

WHEREAS, AUSD desires to teach students to use their understanding of the natural world to solve important problems, improve their lives, and make their world a better place; and

WHEREAS, AUSD teachers and administrators must plan together to realize this vision; and

WHEREAS, AUSD students should engage in exploration and discovery throughout their daily curriculum, relate science topics to their daily lives and in solving real world problems, and demonstrate evidence of deep learning and critical thinking in the ways they engage with the content and apply their science knowledge at higher levels; and

WHEREAS, AUSD teachers should foster a science rich environment in every classroom, increase instructional time spent on science to be roughly equivalent to time devoted to other core disciplines, use high-quality science curriculum at every grade level, and use pedagogy that engages and inspires students to high achievement in scientific studies and to consider careers in science; and

WHEREAS, AUSD teachers should also deepen and expand the foundation of scientific learning developed in previous grades, direct students towards the application of scientific principles and use of scientific language and literacy skills, take advantage of the convergences among Common Core math and literacy standards and Next Generation Science Standards when planning instruction, and provide multiple opportunities for students to develop speaking and listening skills in order to make meaning from science experiences and to engage in the practices of science and engineering; and

Proclamation – Vision for Science Education (cont.)

WHEREAS, AUSD schools must have access to adequate resources for teaching science, support for teachers through access to adopted science instructional materials, a system for maintaining and updating these materials, and adequate time for planning and improving science instruction; and

WHEREAS, AUSD must establish and deploy science leadership teams to share lessons learned from innovative programs and to provide professional development and support teachers as needed; and

WHEREAS, AUSD must provide new teachers training in implementing the adopted science curriculum, support all teachers in planning cross-disciplinary instruction and meeting current standards for both science and literacy, and structure meaningful opportunities for collaboration to improve student learning in science that includes observation, reflection, and feedback on teacher practice; and

WHEREAS, all stakeholders - students, teachers, administrators, school board, parents, and community - understand the rationale for the district emphasis on science so the vision for science is communicated widely at both the district and site levels.

NOW, THEREFORE, BE IT PROCLAIMED, that the Alameda Unified School District Board of Education proclaims April 28th as AUSD Vision for Science Education Day.

Superintendent's Goals, Priorities, and Vision

1. Strengthen our focus on literacy and English Language Learner services
2. Prepare more students with increased early childhood education services
3. Focus on equity through ensuring opportunities for all Alameda students
4. Build public awareness to renew a parcel tax for existing AUSD programs
5. Restore Career Technical Education (CTE) to transform AUSD high schools

6. Build STEAM (science, technology, engineering, arts, and math) in Alameda Unified School District

7. Rebuild district facilities to adequacy to maximize resources for students
8. Maintain our focus on family engagement and community partnerships
9. Adapt to new conditions but stay focused on AUSD's vision and mission
10. Stay focused on our commitment to equity and excellence for all students

The Research on Professional Development Best Practices

- It models good practice throughout the program
- It models methods of constructivist teaching or inquiry based methods
- It provides active learning opportunities for teachers (practice, feedback, and reflection)
- It is transparent about the limitations of the evidence supporting the desired practice
- It is intensive and includes follow-up and on-site support for teachers
- It is sustained over time
- It allows teachers to integrate new knowledge and strategies into their practice
- It focuses on building pedagogical skills and content knowledge in teachers' subject areas
- It utilizes expertise of teachers, cultivates leaders, and involves teachers in planning
- It provides structures to facilitate collaboration among teachers both within and across schools
- It respects teachers as professional, adult lifelong learners

Cohen & Hill, 2001; Corcoran, 1995; Desimone et al., 2002; Elmore, 2002; Lieberman & Wood, 2002; Loucks-Horsley et al., 2003; National Research Council, 1996; National Staff Development Council, 2001; Supovitz, 2003)

(Excerpted from *Getting It Right: The MISE Approach to Professional Development*: Corcoran, McVay and Riordan (2003)).

Our Next Steps

- AUSD is committed to our partnership with BaySci as a science-rich educational organization providing us with a platform to help us build teacher leadership to achieve our goal of strengthening science instruction.
- Ultimately instructional improvement through the implementation of Common Core and NGSS standards is a collective action problem, and BaySci provides us a means to achieve our goal of enrolling teacher leaders and district leaders on whom all our work depends.