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## Engaging the Community: Reflections on a STEAM Institute

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### Abstract

Staff at an elementary school working with artists from a non-profit arts integration professional development organization developed a highly engaging full day STEAM Institute to engage the community in experiential STEAM learning practices and to leverage the experience for systemic impact. This reflection considers the outcomes that went well beyond the original goals.

### Keywords

STEAM, Professional development, Art practice, project-based, Science learning, Mathematics learning

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### Cover Page Footnote

The authors wish to thank the staff, students and parents at Carson Elementary School and the artist educators at Collaborations: Teachers and Artists (CoTA) for their extraordinary work that forms the base of practice for this reflection.

## **Engaging the Community: Reflections on a STEAM Institute**

*Dennis Doyle and Yat-Long Sam Poon*

During the 2015-16 school year Collaborations: Teachers and Artists (CoTA) provided three, 2-hour-long, hands-on STEAM workshops for 19 classroom teachers at Carson Elementary School in the San Diego Unified School District. The grant-funded project extended work into every classroom through the development of 10-week, project-based STEAM units aligned with Next Generation Science Standards (NGSS).



As teachers grew more comfortable with their emerging skills, Carson Elementary staff and CoTA artists set to work designing a full day STEAM Institute that purposefully engaged external audiences from across San Diego County in the STEAM process employed by

Carson and CoTA. On May 9, 2016 forty-four participants took part in the STEAM Institute, completing activities similar to those that students and teachers had developed in their classrooms. The institute proved to be highly effective in giving all present the opportunity to personally experience hands-on learning.



Similar to other CoTA projects integrating science and art, STEAM Institute participants actively performed various roles within small groups. They were tasked with designing a simple scientific experiment testing basic materials in front of a fan. Each prediction and result was recorded in either a drawing or text description. Then, individuals in the groups were asked to discuss and record three things their students might learn by participating in the activity. Some examples participants stated were: collaborative work, learning vocabulary and scientific concepts, visual acuity, and active listening. STEAM Institute participants learned how art can help make thinking visible and help to process ideas while meeting many of the New Generation Science Standards (NGSS).|

“The CoTA workshop provided an excellent example of how the arts can be integral to developing understanding of the Common Core. My part in this culminating group demonstration of our understanding of the basic characteristics of the five layers of the Earth’s atmosphere was to represent a meteor hurtling through space, the Exosphere, and Thermosphere, and exploding when it reaches the cold Mesosphere,” noted Michael McQuary, President of the San Diego Unified School District Board of Education.



Attendees also visited classrooms where students showcased their work. They heard from panels of teachers, academics, parents and students who spoke to the advantages of a constructivist approach to pedagogy as “makers” while exploring the implications of STEAM at a systemic level.

*Reflecting Upon Engagement as a Mechanism for Broader Impact:*

This project went far beyond the initial scope envisioned at the beginning of the academic year. Starting with the teachers at one school, the project leveraged the initial outcomes to



disseminate the STEAM work to a broader audience through an engaging full-day STEAM Institute that brought together school board members, the dean of the college of education at San Diego State University, teams of principals and teachers, a group of primarily Spanish-speaking parents, academics, artists, and community leaders. As a result, it drew the interest of additional school districts. CoTA has subsequently begun developing a template to engage teachers and artists in STEAM activities that will support NGSS through additional forums similar to this one.

