



EDUCATOR PROJECTS AND IDEAS

A Hybrid Teaching Model Exploring Real-World Problems

Three teachers in one classroom, teaching multiple subjects at the same time? How can standards be addressed if everything is combined together? How do students even know what they are learning? This summer, PAST piloted a hybrid teaching program called *Sprouts*, and began collecting answers to these questions.

S-Series and Sprouts

The S-Series is an educational model developed by PAST to help students and teachers transition to fully-integrated transdisciplinary problem-based learning (TPBL). Each bundled set of courses in the S-Series pivots on a particular topic, such as environmental science and horticulture (*Sprouts*) and seeks solutions around issues of fresh produce access for local urban restaurants. The S-Series educational model is also part of ongoing research to fully develop TPBL hybrid teaching teams. PAST was fortunate to receive a grant from the Martha Holden Jennings Foundation (MHJF) to create and research systematic professional development for Hybrid Teaching. *Sprouts* includes a partnership with Metro Early College High School, which complements MHJF's effort in striving to deepen student learning. *Sprouts* was specifically designed to assist students seeking high school remediation in core content areas to prepare them for early college learning lab programs.

Sprouts, the course featured in this summer's S-Series

teacher professional development pilot, focused on the wicked problem, *How can we feed a growing human population?* Sub-problems included topics of agriculture, nutrition, and food security, while incorporating mathematics, science, and humanities. Students enrolled in the program remediated various combinations of these content areas as three teachers in one classroom aimed to “un-silo” the subject matter through integrated problem solving.

Teachers' Planning and Implementation

PAST began developing the Hybrid Teaching model in 2010 with a goal of harnessing greater student engagement by presenting problems to solve that are relevant and meaningful. As the students move through the problem-solving process, they acquire skills in communication, critical thinking, and through teacher facilitation, synthesize core content and standards with the problem's topics. Students



Sprouts teachers work virtually with PAST hybrid-teacher experts from previous iterations of the model in South Dakota. Source: PAST Foundation





begin to see beyond the abstract “silo-ed” disciplines, and explore applying integrated concepts to solve problems. In short, students own the learning and teachers can facilitate deeper exploration of knowledge and understanding.

In developing content for Sprouts, three teachers (English Language Arts (ELA), math, and science) met in spring to carefully select the overarching problem, as well as the weekly sub-problems that students would explore in class. Ideas for student activities and products were brainstormed, such creating a student-designed community garden.

A few examples of how content and standards might connect to the community garden product include:

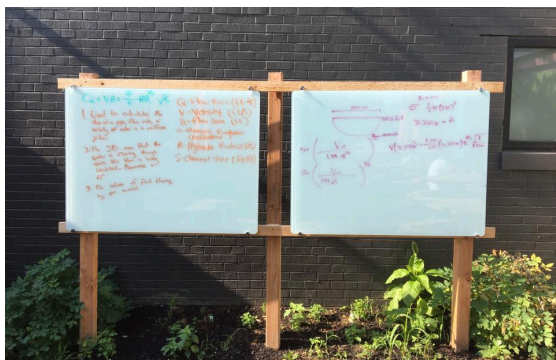
- mathematics in dimension constraints, plant growth analysis, and water pressure calculations
- science in water pressure behavior, soil content, and plant growth, and
- ELA in research, communication, and presentation

This process caused students to notice how water pressure relates to both math and science—it also intertwined with ELA as students researched and wrote about ways to apply acquired knowledge to the garden. Many topics such as plant growth related to standards in all three areas.

Constant Evaluation and Modification

Throughout the six-week course, Sprouts teachers met with the PAST team to reflect upon the activities in class. Design cycle phases of evaluation and modification were constant as teachers discussed their facilitation and student engagement to evolve their delivery practices.

For example, teachers experienced *aha* moments as they shifted to holding students accountable for synthesizing



Sprouts students’ work calculating slopes of pipes and flow rates for irrigation in the garden. Source: PAST Foundation



The Sprouts community garden in front of PAST during week 1 (top) and week 6 (bottom) of the program. Source: PAST Foundation

the problems’ topics with academic content standards. The application of standards to real life created transparent connections for students as they articulated their learning.

Both teachers and students experienced a *wobble* in transitioning from silo-ed content delivery to intertwined content. Teachers moved from seeing themselves as experts in a specific field, to thinking more broadly about their expertise as they connected it to other disciplines and real-world applications. Students moved from viewing the teachers as experts to recognizing teachers’ differing perspectives in facilitating problem solving. Neither group transitioned overnight. The struggle to transition (or the wobble) was observed in self-reflection as well as observation of the others created the sense of a shared journey. “I found myself researching things at night, because a student had mentioned something I hadn’t thought of, and I wanted to learn more,” one teacher expressed.

After this summer’s Ohio pilot, PAST is already evaluating and modifying the S-Series professional development for future iterations in Summer and Autumn 2018. PAST plans to continue developing effective and efficient ways to prepare teachers for hybrid teaching that supports TPBL practices. –July 2017

