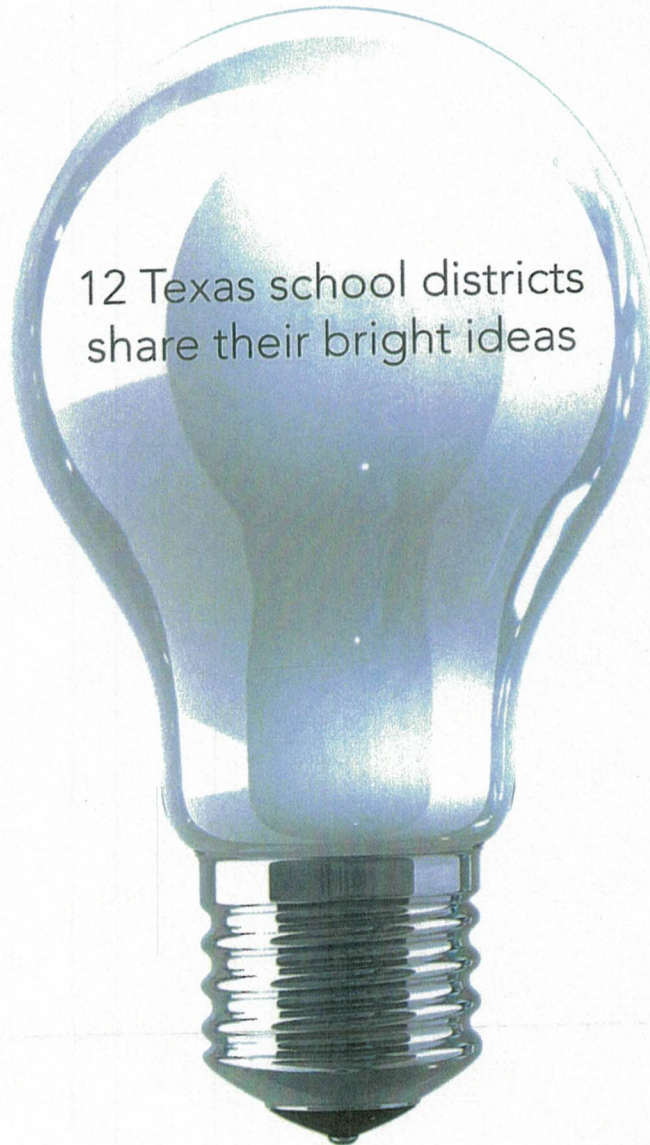


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Product-oriented education brings classroom learning to life

by Jennifer LeClaire

As in many districts across Texas, educators in Greenville ISD have concerns about fostering student engagement and critical thinking skills across its schools.

For years, administrators and teachers in this Dallas-area district had noticed that students, from elementary school through high school, were becoming less interested in math and science courses, and there was virtually no curriculum that offered students hands-on experience with the concepts being taught in the classroom.

Greenville ISD Superintendent Don Jefferies recognized the instructional gap and began rolling out a program he developed called product-oriented education (POE). Today, after years of development and strategic implementation, examples of POE can be seen on every campus in the district.

POE is an instructional model designed to engage and involve students in the learning process as producers of knowledge, not merely consumers of a teacher-directed lesson. In other words, the students are hands-on with real-life applications of the lessons. The overarching goal of POE is to narrow the achievement gap among student populations and foster critical thinking skills by increasing participation.

Boredom in the classroom

POE might be part of the answer to a nationwide problem: bored students. A majority of U.S. high school students said they get bored in class, according to a study out of Indiana University, and 42 percent said they considered dropping out because they didn't see the value in the work they were asked to do. At the same time, 82 percent said they would welcome opportunities to be creative at school.

Jefferies understands this reality. That's why he implemented POE lessons on all Greenville ISD campuses, which include one high school, one middle school, one sixth grade center, one alternative school, five elementary schools and one Head Start school.

As part of the POE program, the district also introduced what it calls a STEAM Academy at the high school. The academy offers a specific focus on science, technology, engineering, arts and math. STEAM students often can be seen racing life-sized cardboard boats, constructing bridges and building electric cars from lawnmower batteries. Through these activities, they learn about concepts such as the physics of levers and kinetic energy.

"When students are hands-on with lessons, they learn the concepts more deeply," says Jefferies. "If students make something using the Pythagorean theorem, for example, then they better understand it, as opposed to just reading about it and doing a couple of math problems."

POE in action

The POE model usually involves a problem-based learning situation. The aim is for a student or group of students to solve a problem or produce a product. The method of teaching seems to leave a lasting impression because the process demands the full attention of students; they must understand the lesson to solve the problem

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Don Jefferies, superintendent



GHS STEAM students (left to right) Jijun Sui, Jacob White and Jose Enriquez win the Popsicle stick bridge competition. Their winning bridge held more than 80 pounds.



Greenville High School STEAM students Carlos Perez and Giselle Archila race Sasha Tripp and Gwen Ward in the cardboard boat race, held at the Greenville YMCA.

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or accomplish the task. Sometimes, exploratory research is necessary to get results. Other times, students have to go outside the classroom to participate in projects.

"If you give kids a simulation or a problem to solve in cooperative groups, the kids are much more engaged. You can assign different roles and responsibilities to each student, which lets you cater to their individual talents," Jefferies says. "Instead of just teaching about Westward expansion in the mid-19th century or talking about how wagon trains went over the Oregon Trail, we give kids a problem to solve."

In the Oregon Trail example, students are presented with a scenario that goes something like this: You and your family are moving to the Willamette Valley in Oregon. You have to organize a wagon train and some important decisions have to be made before the journey: Who is going? What are you going to allow people to carry? When are you going to leave? What time of year is best to begin the journey? What tools do you need to take with you?

The students then conduct research to plan appropriately for the trip. This approach fosters critical thinking and problem-solving skills.

Simulation is another huge component of POE.

"We've done mock trials for Lee Harvey Oswald," Jefferies says. "Instead of just reading about John F. Kennedy's assassination, they have to research it and engage with the content."

Beyond history, POE works equally as well in other subjects. In sociology, for example, instead

of teaching the difference between authoritarian and democratic family structures, students role play and make a series of decisions around child discipline, potty training, and what roles the mom and the dad play.

"When I taught this, the students would actually have discussions. They would get into debates about spanking and roles in the household," Jefferies says. "So the students had to deal with these issues and come up with a plan for how to structure their families and raise their children together."

Encouraging teacher collaboration

The POE model also allows for teacher collaboration. For instance, a creative writing teacher and an art teacher might work together on a project in which students must write and illustrate a story.

"I gave my English and art teachers a two-hour block during which they had to teach mostly at-risk kids," Jefferies explains. "They could structure the time however they wanted. It could be 30 minutes on English and 90 minutes on art one day, and a different structure the next. It didn't matter, as long as the teachers covered the required curriculum."

For instance, in one such class, the students' assignment was to write and illustrate a children's book. The stories were written on poster board, and the pages tied together with leather shoe strings. In the end, the students had created books they could treasure. To prove his point, Jefferies offered to pay the students \$50 each for their books.

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"Do you know how many of those books I own?" Jefferies asks. "I own zero. They would not sell the books. The books meant something to them. The books had value. They produced a product. And they learned."

Other examples of POE in action include solar engineering students designing and building small electric cars, math students designing a pole barn for a farmer and social studies students drawing political cartoons of historic figures. Again, teachers are encouraged to find ways to collaborate on lessons to make learning product-oriented.

"We integrate curriculum where it makes sense. We don't try to force content together," Jefferies says. "If you are teaching genetics in biology, you can teach probability in algebra. That has a logical connection. If there is no logical connection, then the teachers approach each lesson separately."

Collaborations with community businesses

After its initial success, the POE program is expanding to rely more on people from the business world to bring real-life situations to classrooms. For example, the district recently created a culinary arts class, which Jefferies reports was so successful that he needed to hire a professional chef to serve as the instructor. The culinary class, which includes 80 students, has catered a wedding and formed partnerships with the city of Greenville on many community events.

The district also has incorporated POE principles into its tutoring programs. As of this past fall, the tutoring program at the high school included a completely voluntary POE component, which was set up in the months leading up to the TAKS test. More than 150 students chose to spend their Saturday mornings at school, participating in POE tasks — like building bridges out of Pop-sicle sticks — to reinforce skills on the standardized test.

Finding the talent to get it done

Implementing POE sometimes requires teacher training, but Jefferies says some teachers seem to have a knack for experiential learning. He admits POE makes the most sense — and is easiest to apply — in courses related to science and engineering. That's good news, he says, because many districts in the state have seen assessment scores dip in math and science.

"Sometimes it takes curriculum experts to develop product-oriented lessons," Jefferies says. "This summer, our team worked on developing some lessons that

could be used during the school year that work with our CSCOPE curriculum."

Jefferies' advice to other superintendents is to start with the teaching talent you have, rather than bringing in experts. School districts also should look to their communities for teaching talent. In fact, to ensure POE is setting up students to excel beyond graduation, Jefferies says it's critical to get support from the business community. This way, curriculum stays current with trends in desired skill sets.

These partnerships also can help offset funding for collaborative classroom projects.

Greenville ISD has worked with Sherwin Williams, 3M, Southwest Ford and The Shop Designs, which collectively have donated more than \$25,000 in project materials. Sherwin Williams and Southwest Ford employees also donated labor to renovate the district's auto body shop and paint booth. Jefferies says local car dealerships ended up hiring some of the Greenville ISD graduates who had worked alongside the corporate employees on the renovations.

"Pull in some professionals from your community, like a banker, a human resources manager from a local business, and others who can help students explore real-life problems and find solutions," Jefferies says. "The idea is always to solve the problem and produce something in the process. Give the students challenges that involve multi-step issues and integrate content from two subject matters when you can. Get the teachers to buy into cooperative projects.

"Kids learn when they are working, not when they are doing worksheets," he says.

JENNIFER LECLAIRE is a freelance writer based in South Florida. She has reported for *The New York Times*, the *Associated Press* and *Christian Science Monitor*, among others, in her 20-year career.



Greenville High School seniors show off their senior memoirs, which they wrote and designed. The books integrate students' photographs with 20 reflective writing assignments completed over the course of the year.