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## Engineering a School Turnaround

*Emily Hardee*

Learning takes off when a low-performing elementary school reinvents itself as a magnet school of engineering.

When you walk through the front door of our school, the symbols and language of engineering are everywhere. The floors are painted with colorful images of gears. The school logo includes a protractor and compass. A bulletin board showcases student "Engineering Stars" wearing white lab coats. And benches, birdhouses, and other student engineering projects are on proud display.

Seven years ago, our administrative team chose engineering as the new focus for Brentwood Elementary School and changed our name to the Brentwood Magnet Elementary School of Engineering. The district chose engineering as the focus, based on findings from several parent surveys.

The timing was right because our school, which serves about 500 students in preK through 5th grade, was struggling. Of the 120 elementary schools in North Carolina's Wake County system, we were one of the four lowest performing. Our students were only averaging from 20 to 30 percent proficient on standardized tests.

The low scores might seem surprising, given that we're located in Raleigh, near Research Triangle Park, one of the world's largest research parks and home to major technology companies like Cisco Systems, Oracle, IBM, and Verizon. With a large local population of highly educated and well-to-do workers, you might expect our school to be full of high-achieving students.

But our story is different. About 75 percent of Brentwood students come from economically disadvantaged homes. About 60 percent are Hispanic, and 40 percent speak English as a second language. At the time we made this change, many of our students were reading below grade level.

Besides low test scores, our school faced other challenges. One was the difficulty of communicating with parents because of the language barrier. It was also a challenge to get parents involved in school activities

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because many of them worked two or three jobs, which also doesn't leave much time for helping kids with homework.

We needed to help our staff adjust to the magnet school format. Not every teacher was happy with our focus on engineering. Many doubted that the subject was age-appropriate. "Are you kidding? You want me to do engineering with an elementary student?" one teacher exclaimed. Others didn't feel confident in their own abilities. The idea of teaching in a context of engineering is often daunting (Lachapelle, Hertel, Shams, San Antonio-Tunis, & Cunningham, 2014); elementary teachers take little coursework in engineering in college (Fantz & Katsioloudis, 2011); and teacher preparation often focuses more on teaching methods than on science content.

## Getting Started

One of the first steps we took was to collaborate with Elizabeth Parry, an educator and consultant at North Carolina State University's College of Engineering. As the Brentwood STEM (science, technology, engineering and math) coordinator, I had previously worked with Liz on engineering-related programs; this preexisting relationship was crucial to providing teachers with the information, training, tools, and confidence they would need to begin implementing instruction in engineering. Liz urged us to adopt Engineering is Elementary, a new curriculum from the National Center for Technological Literacy at the Museum of Science Boston.

One advantage of the Engineering is Elementary (EiE) curriculum is that it was designed to support learning for students from all populations (Cunningham & Lachapelle, 2014). The fact that it was research-based made teachers more open to considering it. And it was easy for teachers to get started because kits with all the needed materials were available. We could tailor instruction to our goals for each grade because the units were designed to integrate with the science topics commonly taught in the elementary grades. The units also connect to math, literacy, and social studies (Cunningham & Berger, 2014), making them easy to fit into a school day.

EiE's five-step engineering design process became the core of our school's vision statement. As Brentwood engineers, we

- Ask critical questions.
- Imagine possibilities.
- Plan collaboratively.
- Create innovative solutions.
- Improve continuously.

As we worked on implementation with our teachers, we stressed foundational skill development: learning the five-step engineering design process, working productively in teams, and keeping engineering notebooks to document student learning. In the lower grades, we worked with the teachers to develop engineering projects based on literacy themes. Once teachers became more comfortable with the idea of engineering in elementary school and with the engineering design process, they began to create their own integrated lessons.

## It's About the Real World

I've seen remarkable changes since we put the program in place. Our entire schedule is built around the science, technology, engineering, and math (STEM) block. Every school day, we dedicate at least 45 minutes to science or social studies. That's different from most schools, which often make literacy the focus of scheduling and give science and social studies lower priority. Our decision to protect the STEM blocks—there are no pullouts during this time—means no student ever misses out on STEM activities for other instructional opportunities.

We chose the various activities—both EiE's engineering design challenges and other STEM activities we've implemented—because they connect to real-world events. That really grabs our kids' attention. For example, one EiE unit starts with a storybook about American Indian children in the Pacific Northwest of the United States who help a team of engineers clean up an oil spill. As our students were reading this story and working on their own strategies for removing spilled oil from a model estuary, the North Carolina legislature voted on offshore drilling. The teacher made the connection, and now the kids are taking the oil spill activities one step further and writing to the governor. Our students may not travel the world, but we can bring the world to them.

Our students do some of their engineering activities in their home classrooms, but we've also set up a dedicated STEM lab—our makerspace. Engineering activities can involve a lot of materials, a lot of preparation time for teachers, and sometimes a bit of a mess—for example, when students experiment with different ways for making mortar to build walls or test different processes for making modeling clay from flour and water. Having a dedicated space for these activities is helpful. I see every student from every grade routinely come through the space.

## Getting Everyone on Board

### Reaching Out to Teachers

From the start, we've worked hard to make our teachers feel more comfortable and confident about teaching engineering. Liz facilitates both EiE and general engineering professional development workshops for the district. One year, she'll deliver a day of professional development on how to incorporate the engineering design process into daily instruction or use STEM notebooks with students to document learning. Another year, she'll work with individual grade levels to plan integrated lessons that include the engineering fundamentals.

Professional development is embedded and ongoing at Brentwood because teachers team teach with me in the makerspace or classroom. I work with them to develop new activities and ensure they have the resources they need. I also partner with any teachers who need extra support.

For example, our 2nd grade team recently added a veteran teacher who is new to Brentwood and to engineering. The first time she was scheduled to teach an EiE unit, I helped her set up the materials and then taught several lessons while she observed. The students were studying weather, so we used the EiE kit



that has students create a parachute that would be suitable for an atmosphere much thinner than that of the earth. This engineering unit ties into their science content about wind resistance; students take on the role of aerospace engineers and test different materials and situations before making a decision on their design.

The teacher and I decided to tie in the Mars rover, *Curiosity*, to engage students with a global, authentic connection. Throughout the unit, the teacher saw how purposeful grouping and exploration of materials enhanced student understanding. The next step involved team teaching, in which the teacher and I led the class together. This prepared her to teach the engineering lessons independently.

Another new teacher felt confident teaching engineering lessons from the start, so I worked with her on ways to integrate engineering into her math and social studies classes. Through collaborative planning time the teacher could see how some intentional changes to her lesson plans could create engineering challenges in her classroom.

## Reaching Out to Families

We've started holding activity nights for parents and guardians that revolve around hands-on STEM activities. This year, we had Engineering Night in October, Science Night in November, Math Night in February, and Technology Showcase in May. The events give families a chance to see what their children are doing in school, and we also share some ways to help their kids at home. Our goal is to communicate with parents consistently and respectfully and to send the message that their children matter to us. We also share the students' accomplishments: They can engineer, they can solve problems, and they're smart and capable. This approach helps parents feel more comfortable with the school.

## So Many Benefits

Since we've made the change to an engineering focus, we've really seen learning take off for our English language learners. Engineering activities are hands-on, so even if students can't speak fluently about what they're doing, they can show what they know.

Engineering also integrates well with English language arts because each unit starts with a storybook that shows a child solving a problem through engineering. For example, in one story, a girl is always forgetting to feed the animals on her farm. She collaborates with a neighbor, who's an electrical engineer, to design an alarm that will go off each time the food trough is empty. Students then have to address the same challenge—they must figure out how to create such an alarm.

Students can read the storybooks themselves, or the teacher can read aloud. A few years back, some of our 5th graders read and recorded several EiE storybooks. Now other students can listen to the stories whenever they want. The initiative boosts literacy skills both for the students who listen to the books and those doing the reading and recording. (See the selection of 10 recorded stories by Brentwood students.)

After we made engineering our focus, Brentwood saw a steady rise in standardized test scores. We're now one of the top 10 elementary schools in the district in terms of growth in our science scores—they've almost tripled, from 19 to 60 percent of students proficient. For other subjects, we've met (and, in some cases, exceeded) the expected growth set by the state for each of the past four years. We project that we'll

continue to grow and meet math and science target scores.

These results separate us from schools with similar scores because just four years ago we were one of the lowest-performing elementary schools in the district. We're still in the bottom 12, but we're not in the bottom 4 anymore. With continued improvement, we expect to move up and out of the bottom 12 this year.

In addition, the STEM survey that our 5th graders take each year reveals that our students express a confidence in math and science similar to that of other elementary students in the district. Students had a 13 percent greater understanding of engineering and its beneficial impact in the world, and 78 percent expressed an interest in an engineering career, compared with an average of 62 percent in STEM elementary schools in other districts.

## Beyond Test Scores

Test scores and survey results are heartening, but they can't fully express the changes we've seen in our students. Take the case of one of our students, a 2nd grade student who spends the majority of his day outside a traditional classroom receiving special education services. One time when he was in homeroom, the students were challenged to construct a house of cards, with monetary values associated with each card. After they were finished building, students combined their data and plotted the price of their houses on a wall graph. Most houses were in the \$3- to \$5-dollar range, but I noticed one point on the graph at \$14.75.

It belonged to the student in special education. He had understood that the base of a card house must be strong. He spent a lot of time building that base, using more cards than the others, making sure it was stable before he built the next layer on top. He couldn't explain the rationale behind what he'd done, but he could show it—and he also demonstrated his math ability by correctly adding up the value of the cards. The experience gave the student confidence, and it changed the way the other students thought about him. From then on, in group work, they would fight for him to be on their team.

The benefits of focusing on engineering aren't confined to academic achievement or education equity. We also use the language of the engineering design process in our behavior system. When students are called into the office, instead of having the administrator pass judgment and tell the student what to do, we work through the issue like an engineering problem, asking, "What is the problem? Can you imagine some solutions? From those possible solutions, what's your action plan?" If the results aren't satisfactory, the student has the chance to improve. With this approach, students take ownership of their behavior, just as they've taken ownership of their learning.

## A Model for Our District

Recently, we were thrilled to see Brentwood's progress recognized by its designation as a "North Carolina STEM School." This status was awarded to only 12 schools in the entire state. Of those 12, we were the *only* elementary school to be so designated.

I mentioned that we're the only elementary school in the district to focus on engineering, but that's about 1

change. We're now a model for our district. Educators from other districts and even other states are continually visiting us to see our program in action.

The Wake County Public School System has a business partnership with some of the companies located in Research Triangle Park. At the last meeting, company representatives were crying out for the district to graduate more students who can collaborate, work in teams, and solve problems using critical thinking. With our focus on engineering, these are exactly the skills we're developing in our students.

*Author's note:* Elizabeth Parry, from North Carolina State University's College of Engineering, and Cynthia Berger, from the Engineering is Elementary program at the Museum of Science, Boston, contributed valuable input to this article. Also, subsequent to the writing of this article, Brentwood Magnet Elementary School of Engineering received the Donald R. Waldrip Magnet School of Merit Award of Excellence from Magnet Schools of America. Brentwood is now the no. 2 magnet school in the United States for 2015.

## What Does Engineering Mean to You?

"Engineering is making a project to help the community, the state, or the country."

"Engineering is a problem you solve."

"Engineering is getting a block, and then putting another block together, and then trying to see what you can make out of it and how it can help and be useful."

Hear what these and other students at the Brentwood Magnet Elementary School of Engineering have to say about the school's focus on engineering—and what they're learning in the process.

## Resources for Engineering in Grades K–12

*The Engineering Place* is North Carolina State University's K–20 education and resource headquarters for exploring engineering. Contact Elizabeth Parry at [eaparry@ncsu.edu](mailto:eaparry@ncsu.edu).

*American Society for Engineering Education P12 Division* promotes engineering thinking and practice in formal and informal education settings for preK through high school-age students.

*Engineering is Elementary*, developed by the Museum of Science, Boston, supports educators and students with curriculums and professional development that build engineering literacy.

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Emily Hardee is the STEM coordinator at the Brentwood Magnet Elementary School of Engineering in Raleigh, North Carolina.

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## What Parents Want to Know About Foreign Language Immersion Programs

TARA W. FORTUNE, CENTER FOR ADVANCED RESEARCH ON LANGUAGE ACQUISITION, UNIVERSITY OF MINNESOTA  
DIANE J. TEDICK, DEPARTMENT OF CURRICULUM AND INSTRUCTION, UNIVERSITY OF MINNESOTA

Modeled after the pioneering French immersion programs developed in Canada in the 1960s, foreign language immersion programs in the United States are designed to enrich the education of native-English-speaking students by teaching them all of their academic subjects in a second language. The goal is for students to become proficient in the second language and develop increased cultural awareness while reaching a high level of academic achievement. Students develop proficiency in the second language by hearing and using it to learn all of their school subjects rather than by studying the language itself.

Parents who are considering an immersion program for their child usually have many questions. This digest provides introductory responses to some of the questions most commonly posed by parents.

### What is a foreign language immersion program and how does it work?

In foreign language immersion programs, the regular school curriculum is taught in the immersion language for at least half of the school day. In *partial immersion programs*, instructional time is divided equally between English and the immersion language throughout the elementary grades. In *full immersion programs*, teachers use no English at all in the early grades. In Grade 2, 3, or 4, teachers introduce English language arts and reading for one period per day and gradually move toward an even distribution of English and the immersion language by Grade 5 or 6. In the secondary school grades, immersion students typically have access to at least two course offerings in the immersion language, most often in social studies and language arts.

In U.S. programs, the immersion language is most often a world language spoken by large numbers of people, such as Spanish, French, or Cantonese. In some cases, it is a heritage language being revitalized, as in the Hawaiian and Yup'ik (an Alaska native language) immersion programs that serve indigenous communities. The goal of immersion is to provide educational experiences, beginning in kindergarten and ideally sustained through Grade 12, that support academic and linguistic development in two languages and that develop students' appreciation of their own and other cultures.

One of the key principles of immersion education is that linguistic and cultural knowledge is a resource—the more you know, the better off you are. Immersion education adds knowledge about a new language and culture while building on a child's English language skills and knowledge of U.S. culture.

In order to make academic lessons comprehensible to learners and to support their second language learning, immersion teachers—who are highly proficient in English and the immersion language—use a vast repertoire of instructional strategies as they cover the school district's curriculum (Cloud, Genesee, & Hamayan, 2000; Snow, 1987). Many of these strategies appear on the *Immersion Teaching Strategies Observation Checklist* (Fortune, 2000) developed by immersion teachers and researchers at a summer institute at the University of Minnesota.<sup>1</sup>

In the early years, immersion teachers realize that their students will not understand everything they say. They use body language, visuals, manipulatives, exaggerated facial expressions, and expressive intonation to communicate their meaning. In kindergarten it is common for students to speak English with their peers and when responding to their teacher. As the years progress, students naturally use more of the immersion language. To draw students into using the language, teachers often use songs, useful phrases, chants, and rhymes and carefully structure the day with familiar routines.

### Why should I consider enrolling my child in an immersion program?

Immersion programs are the fastest growing<sup>2</sup> and most effective type of foreign language program currently available in U.S. schools. Most immersion students can be expected to reach higher levels of second language proficiency than students in other school-based language programs (Met, 1998). Becoming bilingual opens the door to communication with more people in more places, and many parents want to provide their children with skills to interact competently in an increasingly interdependent world community.

In addition to reaping the social and economic advantages of bilingualism, immersion learners benefit cognitively, exhibiting greater non-verbal problem-solving abilities and more flexible thinking (see reviews in Met, 1998). It has been suggested that the very processes learners need to use to make sense of the teacher's meaning make them pay closer attention and think harder. These processes, in turn, appear to have a positive effect on cognitive development. However, a high level of second language proficiency is needed in order to experience the positive cognitive benefits that come with bilingualism (Cummins, 1981). From the standpoint of academic achievement, over three decades of studies consistently show that immersion students achieve as well as or better than non-immersion peers on standardized measures of verbal and mathematics skills administered in English (Cloud, Genesee, & Hamayan, 2000; Genesee, 1987).

### How will learning everything in a second language affect my child's English language and literacy development?

Many parents are initially fearful that immersion may have a negative impact on their child's English language development. But research consistently finds that the immersion experience actually enhances English language development (Cloud, Genesee, & Hamayan, 2000). It should be noted that full immersion students' English development may lag temporarily in reading, word knowledge, and spelling while instruction is occurring exclusively in the immersion language. However, after a year or two of instruction in English language arts, this discrepancy disappears (Genesee, 1987). It is important for parents to understand that this lag is temporary and to be expected.

In full immersion programs, children develop initial literacy in the immersion language. Many cognitive processes that underlie the ability to read, such as understanding the relationship between the spoken language and the written word, transfer from one language to another (Cloud, Genesee, & Hamayan, 2000). But when the immersion language differs significantly from English (e.g., languages that don't use our alphabet) literacy skills developed in one language will not necessarily transfer to the other language. Immersion students who learn to read first in a language that is markedly different from English, such as Arabic or Japanese, will need to learn and practice literacy skills that are specific to each language (Kanagy, 2001).

It is assumed that immersion students will have consistent exposure to and support for English at home and in the community. Parents need to provide their children with experiences that will enhance their English language and literacy development. For example, they should read to their children every day and involve them in games and activities that complement their classroom learning. Research shows that the stronger the development of the native language, the greater the proficiency in the immersion language, so children who enter an immersion program with a

strong base in English will succeed more easily than those whose English skills are not as strong.

### **Will my child become proficient in the second language? How long will that take?**

After only 2 or 3 years in an immersion program, students demonstrate fluency and confidence when using the immersion language, and their listening and reading skills are comparable to those of native speakers of the same age. While these skills remain native-like, students' speaking and writing skills lag behind those of native speakers (Johnson & Swain, 1997). Research finds that immersion students' second language lacks grammatical accuracy and does not display the variety and complexity produced by native speakers of the language. Achieving high levels of oral and written proficiency in a second language is a long-term process. A long-term commitment is essential, and parents need to understand that native-like proficiency in every skill area is unlikely. Still, immersion students will have a strong second language base upon which to continue moving toward full proficiency and to develop proficiency in subsequent languages.

Language learning is influenced by many factors, including students' personality and motivation, teacher expectations, parental support, program leadership, and support at both the school and district level. Student success requires the active involvement of all of these stakeholders.

### **Is immersion an appropriate choice for all children?**

The vast majority of immersion programs are open to all students. There is no admission test or pre-screening process. Research findings on the effectiveness of immersion education hold true for a wide range of students, including those from diverse socioeconomic and ethnic backgrounds (Genesee, 1992). As is sometimes purported, these programs are not intended exclusively for middle- and upper-class Anglo families. In fact, some recent research indicates that immersion may be an effective program model for children who speak a language other than English or the immersion language at home (deCourcy, Warren, & Burston, 2002). It is hypothesized that these learners may benefit from a leveling-of-the-playing-field effect that occurs when all of the students in the class are functioning in a second language. Students who are not native speakers of English are able to be on par with their native-English-speaking peers and enjoy the same kinds of success with learning.

There are, however, many unanswered questions concerning the suitability of language immersion for children with language-based learning disabilities. Research on this topic is scant. Some researchers and immersion practitioners argue that children whose first language acquisition is seriously delayed or who struggle with auditory discrimination skills may be overtaxed in a language immersion program (see review in Genesee, 1992). Previously identified language-processing challenges should be considered prior to enrolling a child in an immersion program. Still, many children with mild learning disabilities, knowledgeable teachers, and supportive families can and do achieve well in immersion programs and develop proficiency in a second language. Parents and educators need not assume that learning in two languages will overtax these children. In fact, many instructional techniques used in immersion are similar to techniques recommended for struggling learners. Understanding how to make language immersion classrooms more inclusive for a broader spectrum of learners is one of many topics of interest to immersion educators.

### **What can I do to support my child's immersion experience if I don't speak the second language?**

Like all parents, parents of children in immersion programs should maintain an active role in their children's education by providing experiences that help develop their English language skills and enhance their cognitive and affective development. They should read to them daily and engage them in activities where they need to apply what they are learning in class. For example, third-grade students studying measurement can do activities at home that involve measuring, such as hanging a picture or baking cookies. Parents should also communicate with the teachers on a regular

basis about their children's academic, social, and language development. They should become well informed about immersion education, make a commitment to keep their child in the immersion program, and support their children's use of the immersion language outside the school context, for example, by providing reading materials in the immersion language at home and encouraging a pen/pal friendship.

While volunteering in classrooms is often a good way for parents to be involved in their child's education, parents need to be careful that their volunteering efforts don't compromise children's use of the immersion language. Some programs designate one afternoon per week for parent volunteers, encourage volunteering during periods when English is used, or have parents volunteer their time for activities that don't involve classroom interaction.

### **Conclusion**

Immersion education offers an exciting opportunity for students to reach high levels of academic achievement and to acquire strong proficiency in English and another language. Parents who are interested in immersion for their children should become as well informed as possible about this program model. It is hoped that this digest will serve as a useful starting point.

### **Notes**

1. This checklist can be found online at <http://carla.acad.umn.edu/Immersion/checklist.html>.

2. To access the directory of foreign language immersion programs maintained by the Center for Applied Linguistics, see <http://www.cal.org/ericell/immersion>.

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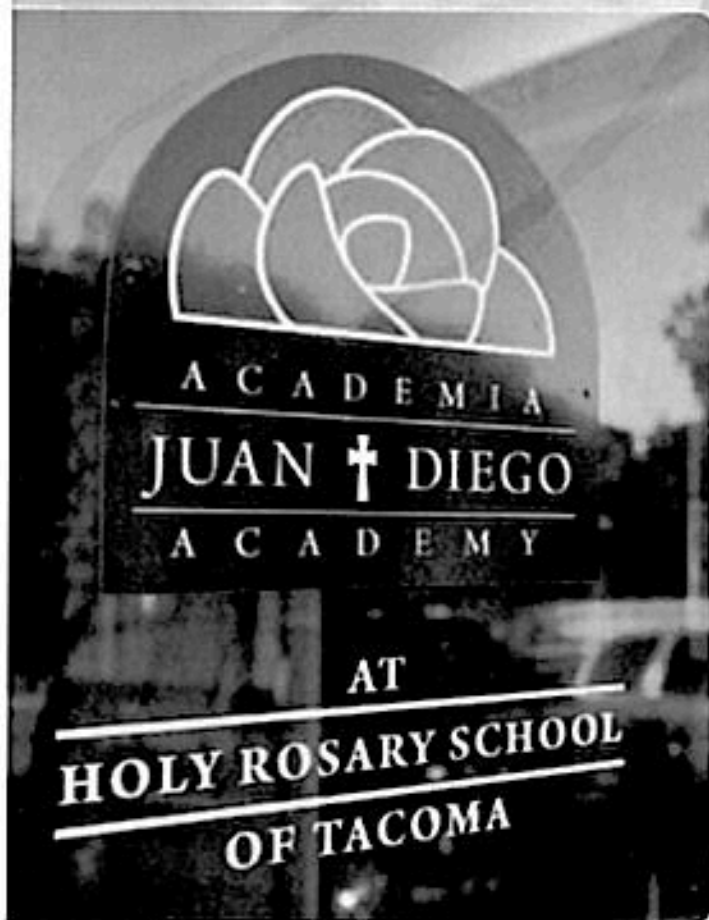
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# A TURN-AROUND IN TOWN

## HOW DUAL LANGUAGE IMMERSION HELPS



*Students enjoy learning in both English and Spanish at the new Juan Diego Academy.*

**H**oly Rosary School is a 122-year old accredited, pre-K-8 Catholic school in Tacoma, Washington that hasn't let age get in the way of innovation. Although the school has been in existence for well over a century, their dual immersion Spanish-English program is a popular new approach introduced in 2012.

Holy Rosary is the first Catholic school in the state of Washington to offer such a program. Dual language immersion programs—integrating native English speakers and speakers of another language—provide instruction in both languages for all students. They promote bilingualism and biliteracy, grade-level academic achievement, and positive cross-cultural attitudes and behaviors in all students.

It is this new program that may indeed be the saving grace of the once struggling school.

### MAKING A CHANGE

The reinvention of Holy Rosary was pioneered by Principal Timothy Uhl. When Uhl first came to the school, he was met with a dramatically dwindling enrollment list.

"The school was struggling to stay open year after year after year. It was probably struggling with financial issues for 20 years," he says. "When I was hired, I thought something has to be done to turn this school around, or it's going to close."

Uhl says the superintendent also warned him that the school's days were numbered unless a major change was made.

"I am always up for a challenge, but I wouldn't have stuck around if we couldn't do something unique," he explains. "I was able to turn the curriculum around so quickly because there was no one around to resist; there were a lot of empty seats. When half your seats are empty, that's 50% less [opposition]."

Student numbers had been steadily dropping for years at Holy Rosary. Fortunately, the focus of Washington's archdiocese and archbishop was on outreach to Catholic Hispanics, coinciding with Uhl's initiatives.



# NO PLAN TO LANGUAGES: SAVE A SCHOOL

"[Hispanic] representation in Catholic schools is very low. So we found the archbishop was very supportive financially in giving us the resources to research and develop this program."

Joe Womak is the director of The Fulcrum Foundation, the fundraising arm for the archdiocese of Seattle, who assisted the effort.

"He and I both have young kids the same age—pre-K and K," recalls Uhl. "Both of us are of the mind that we want our kids to be in a dual language program. In Seattle, there are immersion schools that are very popular, people are aware that this program is very popular among young professional parents," he says.

So, in the fall of 2012, Uhl breathed life back into Holy Rosary, and the pre-K and kindergarten classes became the Juan Diego Academy, unifying the newly enrolled children in their unique language program. The first class participating in the program includes Uhl's own two children. ACTFL Board of Directors Member Bridget Yaden also has a son in the kindergarten class at Juan Diego Academy.

"We chose the school based on the dual immersion program," says Yaden, an Associate Professor of Hispanic Studies and Language Resource Center Director at Pacific Lutheran University in Tacoma. While she had not been considering sending her youngest son to a private kindergarten, once she saw a newspaper article highlighting what was happening at Holy Rosary and took a tour, she knew she wanted to enroll him.

"As a parent and educator, I've always wanted all my kids to learn the language as early as possible," says Yaden, who has two older children that have studied Spanish in middle and high

"The dual language component has added a level of focus and motivation that we can even see at age five; that's a difference in performance."

—Principal Timothy Uhl







Because they are encouraged to help each other learn, the children are sharing not only their languages but their cultures as well. The expectation of the program is to cultivate bilingual students who are able to read and write in both languages by eighth grade.

school. She sees a great advantage for her son in the immersion program—even after just a half a year. For one thing, she says, “his accent is perfect.”

Yaden continues: “He has this awareness of language and he’ll tell me that ‘Today is Spanish day’ or ‘Today is English day’—and when it’s Spanish day, he comes home and says it’s Spanish day so I need to only speak Spanish to him. To see a five-year old have that kind of awareness that these are two different languages and he knows that, it’s pretty exciting.”

“One of the things I’ve noticed in this kindergarten is that the classroom seems much more focused,” notes Uhl. “They have an academic motivation that they didn’t have last year. Kids do have to learn to [use scissors], they have to develop their motor skills, but now they’re cutting out Spanish words. The dual language component has added a level of focus and motivation that we can even see at age five; that’s a difference in performance,” he says.

## POSITIVE REACTIONS

Many other parents, like Yaden, were inspired to take advantage of the opportunity which had never before existed in Tacoma and the school doubled enrollment in the kindergarten class for 2012-2013. There is also great diversity among the class, including both native English and Spanish speakers, as well as a number of Vietnamese speakers who are learning English and Spanish as their second and third languages in class.

“You can see kids of all different backgrounds mixing and mingling; it’s phenomenal,” says Uhl.

Parents have responded with strong enthusiasm. One woman e-mailed Uhl and said: “I heard my daughter during playtime this evening speak Spanish for 20 minutes. Some were phrases I recognized from homework, but most of them I didn’t know. It was pretty exciting!”

He recalls this mother’s concern last year about the change in the curriculum. “She didn’t know what to think. She thought it would be interference, getting in the way of the important stuff. But here we are, this year, and she and her husband are now interested in learning the language themselves.”

The school expects to incorporate the program at all levels by 2020, as each new grade begins in kindergarten. The students receive instruction in both languages equally, but in different deliveries. For example, the Spanish-speaking students receive written instruction in their native language, and oral instruction in English. Because they are encouraged to help each other learn, the children are sharing not only their languages but their cultures as well. The expectation of the program is to cultivate bilingual students who are able to read and write in both languages by eighth grade, once the Juan Diego Academy has reached its full potential.

Yaden, as a college professor, has an additional perspective on what is happening at the school and thus in her community.

“I think that when we see these kids progress with their language education and eventually show up at the postsecondary

level, they'll be starting out in 300- and 400-level courses, purely content. They'll bypass the lower language levels entirely and a lot of them will be ready to start their third or fourth language," she says of the native English-speaking students.

When it comes to the Spanish speakers—many of whom come from economically disadvantaged backgrounds—Yaden thinks it is more likely that these students will end up in her classes than it would have been before this early start. "Their English and Spanish skills will be much stronger from this model and so I think it's going to add to the growing population of heritage Latino students that we see coming to college that want to continue their Spanish language study at higher levels," she says.

## STARTING SMALL CAN WORK

For language educators and administrators throughout the country, the successful turnaround of a small school like Holy Rosary can be an inspiration to look to language education to solve problems of dwindling enrollment. The hope in this case is that the dual language immersion model spreads to other Catholic schools in western Washington.

Yaden thinks it is a good example that language advocacy efforts do not need to be on a large scale to be successful. "As an ACTFL member, I go to the convention and read *The Language*

*Educator*, and I might hear about Utah's emphasis on dual immersion or read that big city school districts are adopting immersion, and I can think, 'Well, my city is never going to do that.'"

Yaden continues: "To see that one school just did it all on their own as a turnaround model is inspiring. They knew that they were going to have to close the school or come up with something innovative to keep it open and that can give us all hope. When it comes to advocacy, we can get nervous or scared when we think we have to go talk to our school board or governor about language education, to change how things are done in our states. You may hear about these big successful models but it doesn't have to only start that way; it doesn't have to come from top down. It could be about making changes at one small school—and then who knows where it can spread from there."

Learn more about Holy Rosary School  
[www.holyrosarytacoma.org/](http://www.holyrosarytacoma.org/)

Learn more about Dual Language and Two-Way Immersion

A comprehensive site from the Center for Applied Linguistics, including resources for two-way immersion and dual language practitioners  
[www.cal.org/twi/](http://www.cal.org/twi/)

Join the ACTFL Immersion Special Interest Group (SIG)

[www.actfl.org/membership/special-interest-groups-sigs/immersion](http://www.actfl.org/membership/special-interest-groups-sigs/immersion)

Discuss immersion in the ACTFL Online Community

[community.actfl.org/actfl/communities](http://community.actfl.org/actfl/communities)  
Choose the Discussion Group: IMMERSION



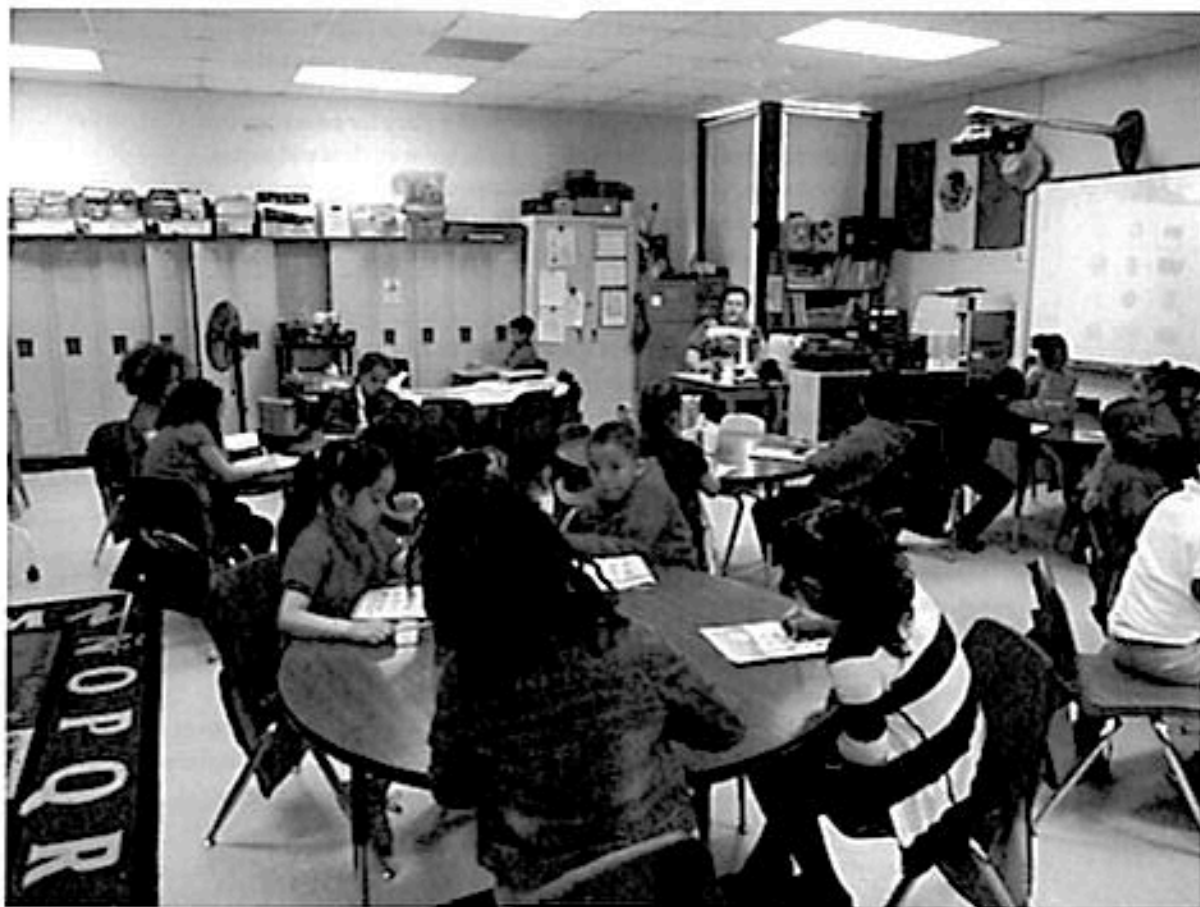
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DUAL LANGUAGE

## For state's only dual language program, turnaround efforts present challenges

BY DAARL BURNETTE II • APRIL 29, 2015



Teacher Lellene Perez works with third-grade students in Spanish at Treadwell Elementary School in Memphis.

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When one innovative academic program bumps into another innovative academic program, worlds can sometimes collide.

Such is the case at Treadwell Elementary School in Memphis, home of the state's only dual language program and also part of the Innovation Zone, an aggressive academic turnaround program within Shelby County Schools.

While Treadwell's dual language program graduates its first class of students this year,

the program also is reeling from the challenges and repercussions of being part of the iZone. Leaders are strategizing how to increase enrollment, retain and recruit more teachers and enrich its curriculum, which is conducted mostly in Spanish for both native Spanish and English speakers.

The challenges stem largely from 2012 when the state labeled Treadwell among Tennessee's worst schools academically, as well as a subsequent decision by the district to move Treadwell into its iZone.

The intervention has been effective for the school overall, with Treadwell's math test scores jumping 10 percent, but often intrusive for the school's innovative bilingual education program, now in its sixth year.

Many parents are reluctant to enroll their child into a school amongst the state's bottom five percent. Today, 157 students remain in the program, with just 12 students in its fifth-grade class. In addition, six of the nine dual language teachers have been replaced in the last year. And the school has had four principals in three years.

The turnover is normal for an iZone school, a demanding place for educators that focuses on intense and expensive turnaround efforts to boost student test scores. However, the interventions, which usually are conducted in English, cause frequent disruptions to the dual language program and significant challenges to its teachers, who work to build an environment of cultural diversity, while teaching literacy and content in two languages.

"We're trying to meet the requirements of the iZone while also maintaining the integrity and sanctity of a quality dual language program," said Talia Palacio, the program's newest director.

The dual language program is one of three of the district's magnet programs located at a priority school in Shelby County.

"Our dual language program is a diamond in the rough in our own corner of the world," said Treadwell Principal Tanisha L. Heaston. "The iZone, I think, has upped the rigor for our entire school."

Treadwell established the program in 2009 to add to then-Memphis City Schools' extensive world language program which includes Russian, Japanese and Arabic. At the time, the surrounding Highland Heights neighborhood had an influx of Hispanic families, and the program has helped to smooth the transition for many native Spanish speakers who fill up about half of its enrollment.

For native English speakers, simultaneously learning a new language while also learning new classroom material requires the sort of brain power and decoding that results in deeper comprehension and higher test scores. Student scores have outpaced those of fellow students in the rest of the school.

Classrooms are organized in groups so that two native Spanish-speaking students sit next to two native English-speaking students. It's not unusual to see 5-year-olds interpreting for each other the teacher's lessons, a process that reinforces the material for children. Classroom walls are covered in maps, Spanish vocabulary lists and posters that highlight customs from Spanish-speaking countries. Teachers receive the district's curriculum in Spanish and interpret all of the school's other lesson plans and supplemental material.

To participate, students must maintain satisfactory grades in all of their classes and cannot miss more than 15 days of school. Older students describe the program as



challenging but adventurous — full of field trips, classroom activities and imaginary journeys around the world.

"It was hard at first," said fifth-grader Elaine Howard. "But then when you got to pick up on the language, it got easier."

The iZone, meanwhile, is an equally intense model that relies on steady intervention and frequent assessments to make sure students are on track to make significant academic gains. An extra hour is tacked onto the school day. If students are falling behind, they're pulled out of class for tutoring, and if enough children are behind, the lesson is taught over again. Teachers are paid bonuses for test score gains and often work late into the night reviewing spreadsheets and developing new lesson plans.

The focus and intensity of both programs sometimes don't mesh.

During a recent dual language class, just weeks before taking their standardized tests, students hovered over laptop computers, immersed in remedial lessons. Although the Mexican flag hung over the room, indicating the language to be spoken, students were taking their online lessons in English.

"I'm not sure the district really knows what we are about," said LeiRene Perez, a teacher in the program since its start. "They're constantly pushing a lot more on us and the children. A child can be behind up until the fifth grade because they're learning two languages."

While being an iZone school is challenging, school leaders say Treadwell has benefited from numerous resources provided by the district such as laptop computers. They want both programs to be successful and hope eventually to grow dual language enrollment to 500 students. They are promoting the program in newspapers, on radio shows and at school fairs, and also are recruiting Spanish-speaking tutors.

At a school board meeting this week, dual language students spoke both in Spanish and English to describe their day at school.

"We're producing bi-lingual, bi-literate and bi-cultural students," said Palacio, who was born in Panama. "We want this program to be here for the long run."

Contact Daarel Burnette II at [dburnette@chalkbeat.org](mailto:dburnette@chalkbeat.org) or (901) 260-3705.

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By Daarel Burnette II [dburnette@chalkbeat.org](mailto:dburnette@chalkbeat.org)

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