Closing the gap: How one school district went about fixing standardized science test scores

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Phyllis Balcerzak, ISP associate director, conducts a training session with teachers at Garrett Elementary in the Hazelwood School District. Credit: Jerry Naunheim JR./Wustl Photos

A unique, long-term partnership between a university and an underserved suburban school district in Missouri is showing eye-popping, unprecedented success in elementary and middle school science test scores—and in the process providing a roadmap for other districts to follow.

The Hazelwood School District, a more than 18,000-student district in north St. Louis County, saw scores on the Missouri Assessment Program (MAP) tests increase 22.4 percentage points for fifth-graders, and 12 percentage points for eighth-graders over a five-year period beginning in 2008, the year the district began a partnership with administrators and

faculty at Washington University in St. Louis.

"We have improved at a higher rate in science compared to other schools in the state, and I believe it is a direct result of our relationship with Washington University and the support they have given us," said Grayling Tobias, EdD, superintendent of the Hazelwood School District.

The support is coming from Washington University through the Institute for School Partnership (ISP) and its community-based initiative to improve K-12 education in the St. Louis region in the areas of science, technology, engineering and math (STEM).

ISP's approach for Hazelwood is multifaceted: on-site professional education for teachers that gives them 15 hours of graduate-level education; Washington University faculty and staff serving as a constant resource; and the university providing curriculum materials and kits that level the playing field for students across the entire district.

"In the last year, we've improved 10.4 percent in science scores," Tobias said. "At the elementary level, we had 16 of our 20 schools show improvement in science. At the middle school level, we had five of our six schools improve in science, and at the high school level, all three of our schools improved in science."

What's unique about the partnership is its longevity – six-plus years and thriving, even with turnovers in district administration. The district is on its third superintendent and third science coordinator since the program began after a serendipitous conversation at a statewide STEM-education conference in Jefferson City between ISP Executive Director Vicki May, assistant dean of Arts & Sciences, and then-Hazelwood Superintendent Chris Nicastro, PhD, who is now the state's education commissioner.

"Hazelwood wanted an exemplary science program and was committed to putting the support structure in place to make it happen," May said. "They just needed the spark, and we were willing to provide it."

And from the beginning, it was clear the program would be so much more than the traditional methods of learning science that the teachers themselves had grown up with. "The philosophy of 'doing science' and reading and writing about science were key to the plan," May said. "Beyond that, it was important that the program rely heavily on evidence-based practice, collaborative learning and building a strong teacher leadership team."

Russell Elementary science teacher Georgene Collier says partnering with the ISP has made a world of difference in her approach to teaching. Credit: Joe Angeles/Wustl Photos

The program

Washington University's first step was to survey the teachers and

administrators and realize—on both sides—that change wouldn't happen overnight. For a two-year period, science-education experts from the ISP observed teachers and students in the classroom to assess exactly what was needed regarding instruction. Using test data, they identified curriculum pieces related to low scores to shore up teaching of specific concepts.

"This was the first time we, at Washington University, took the approach of asking 'What are the district's needs and how can we help solve these?' rather than developing a program on our end and encouraging teachers to jump on board," May said. "It was a real switch in our approach to partnership efforts. As a result, our teaching and learning specialists became 'embedded' in an authentic way with Hazelwood's leadership team."

Once the needs were assessed jointly, ISP leadership and Carrie Launius, then-science coordinator for the district, designed the program. In 2008, the first cohort of about 60 kindergarten through eighth-grade teachers began the Washington University Math or Science Education Certificate program. Attending classes on-site in their schools, the teachers completed 15 hours of graduate work and in 2012 earned the first certificates.

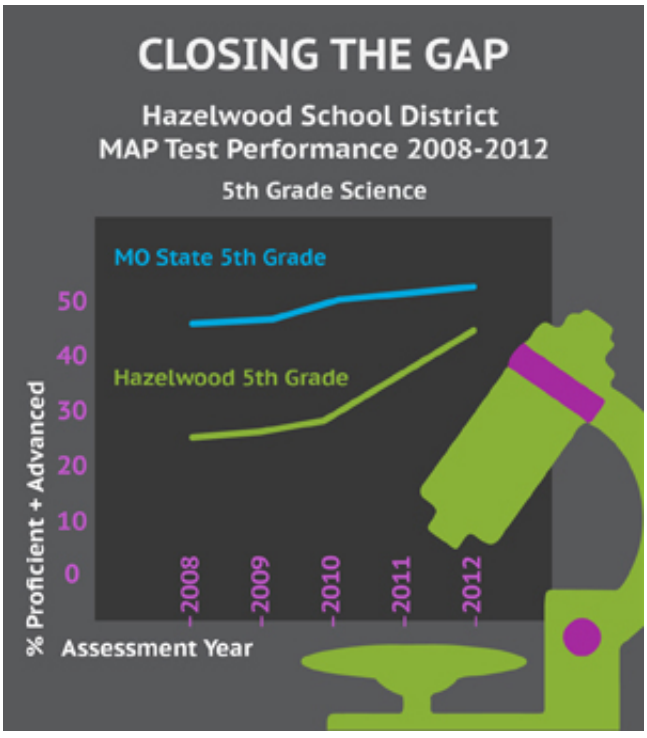
This fall, a second cohort is underway, with about 30 kindergarten through fifth-grade teachers beginning another five-course program, with completion set for the spring of 2015.

"The program has been tailor-made for Hazelwood," said Christina Hughes, science coordinator in the district. "The Washington University professors are very accessible to our needs. We schedule meeting times based on our teachers' availability. It's good to know that when we need additional support that we can contact the professors with specific concerns and they assist us.

"They make themselves available to our teachers, and that's one of the things that makes the relationship so strong. We have that open line of communication with each other," she said.

In addition to teacher professional education, the ISP also began providing, beginning in 2008, science materials for the entire district so all K-eighth science teachers, regardless of their participation in the cohort, have access to the same materials. This year, the ISP, in conjunction with the Monsanto MySci program, is providing about 850 kits to 320 teachers in 20 elementary and six middle schools.

"Our teachers love the materials," Hughes said. "The ISP has really made sure the kits are easy for the teachers to follow. Plus, they have opportunities such as the MySci weekends, where teachers can really dig into the kits and see what they're all about. They're not just handed a kit and told to use it; they make sure the teachers understand how it will be used and how students should be assessed after using those materials."



And the students are enjoying the hands-on opportunities. "That's the way kids learn," Hughes said. "So we really want to give them as many chances as possible to put things in their hands, to manipulate them, to test them. Our students are reaping the benefits of what the teachers are doing with the ISP."

"The Hazelwood partnership is powerful because of the alignment of multiple approaches to improving science teaching and learning," May said. "Tailored graduate courses, coaching and embedded professional development, and investigative STEM materials each have their own impact, but when implemented as a cohesive unit, the impact is greater and offers a more complete solution."

Hazelwood's administration, meanwhile, isn't resting on its current math and science scores.

"With the Next Generation Science Standards, there's more accountability at every grade level now," Hughes said. "We're going out of our way to make sure that our teachers have what they need to be the best science teachers they can be, and we're putting in as many supports as possible to help our students succeed."

And the district is looking to improve in other areas as well.

"This program has been so successful," Tobias said, "that we're going to try and replicate it in the area of English language arts with the University of Missouri-St. Louis. That's how strongly we feel about the partnership with Washington University."

Partnership being the key word here.

Provided by Washington University in St. Louis