Q&A

STEM researcher Sharon Lynch

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With demands for more education programs emphasizing science, technology, engineering, and math (STEM) to better meet 21st century workforce needs has come a new generation of STEM-focused high schools. Unlike highly selective schools that target students identified as gifted and talented in STEM, open-enrollment STEM high schools admit students on the basis of interest rather than on test scores or prior achievement and are designed to increase participation by students traditionally under-represented in STEM fields.

Sharon Lynch, professor of science education in the Department of Curriculum and Pedagogy at George Washington University in Washington, D.C., is principal investigator of a National Science Foundation-funded research project studying eight exemplary inclusive, STEM-focused high schools, or ISHSs. *ASBJ*'s Michelle Healy spoke with Lynch about these successful models.

Are these schools following a set design or STEM curriculum?

Not at all. They are all college prep, public and public charters, and tend to have smaller enrollments of around 400 students, the largest of around 700. They include early college high schools with a STEM focus; schools that rely heavily on project-based learning; and career-tech schools that prepare students for college and careers in agriculture or medicine. They all have high graduation rates and good reputations in their communities for being successful and innovative. And they all have positive school cultures.

What are the key qualities that make these schools successful?

Four things are foundational—a broad and deep STEM-focused curriculum; a well-prepared teaching staff; supports for students underrepresented in STEM; and a mission-focused administrative structure.

When the school was planned, the right people at the district or regional level were involved and committed to the idea and said, "Yes, we support this. We understand what we're trying to do, and we're going to take the time to figure out how to make this work." All of the schools have a board of advisers who come from business, industry, or the science community and are able to help provide real-world partnerships.

What stands out about the teachers?

In addition to being innovative with strong content knowledge, teachers often assume a formal or informal leadership role in creating the program. You see professional development every week led by teachers working collaboratively on school-based problems and creating a really sound STEM curriculum with interesting courses and opportunities for students.

Did anything surprise you about these model programs?

That in some of the schools, the instruction is so far advanced from what you usually see in a comprehensive high school classroom. Several of the schools are entirely project-based learning and it's all about student production of knowledge. Often with the project-based learning schools, there's also an integration with the humanities, so it's a STEM school, but there's also really sophisticated humanities education going on. The other surprising thing was the ability to use the community, through internships, research, and mentoring opportunities. It creates opportunities for social mobility by introducing kids to people that they would otherwise never come into contact with.

Find out more about Lynch's research project at http://ospri.research.gwu.edu.