Teaching The Ability To Learn

One of the things about Massachusetts most consistently praised by business groups is how well educated its workers are, particularly when it comes to math and science. But education is also an area where just about everyone recognizes the need for continuous improvement.

Sandra Mayrand, director of Central Massachusetts STEM Pipeline Network, says both schools and businesses in the local area have enthusiastically embraced efforts to make science, technology, engineering and mathematics (STEM) education better and more appealing to students.

"In the last maybe five or six, seven years, business has really come to the table with K through 12," she said. "It's a good thing. It's a neighborly thing to do, but it's also self-serving to some extent because they need good employees."

"Schools don't need to do that anymore," she said. "We have robots to do that now."

Mayrand said educators are generally ready to embrace new ways of teaching that encourage creativity and problem solving, but it can be more complicated to convert whole schools to new ways of doing business.

"It's kind of a fascinating time, but a really messy time," she said. "Changing a system is not easy because there are many, many moving parts."

Mayrand said many schools are shifting their science classes to treat students as young researchers. Students come up with questions around a scientific topic and then develop and carry out experiments to find answers.

"It's it's putting the ownership on the student, not the teacher," she said.

The skills that STEM education can teach apply to a wider variety of fields than most students realize, Mayrand said. For example, she said it's important to expose students to jobs at UMass beyond doctors and nurses, including occupational therapists, medical IT workers and financial specialists. Even outside traditional science and math fields, the creative thinking and decision-making skills learned in STEM education can be useful.

"It's really deeply embedded in many professions," she said.

Reorientation

Of course, there's a big need for workers in some jobs that are more obviously made for the science-oriented. In Central Massachusetts, Mayrand said, biotechnology has been slowly emerging as an important industry for many years. She said the potential is huge, though she doesn't foresee a sudden explosion in hiring.

Even at the current level of activity, Mayrand said biotech manufacturers can't always find the workers they need.

"The only way they get people is stealing from each other's companies," she said.

Jobs like biomanufacturing traditionally suffer from not looking like an option to half of future workers. Mayrand said there's still a need for the STEM world to reach out specifically to girls.

Mayrand helps organize the area's annual Women In Science conference, which will occur for the 15th time next March. It gives middle-school girls a chance to hear from women in all sorts of science-oriented jobs.

Mayrand said many girls hope to use their careers to help people, and the conference can show them that STEM careers aren't necessarily sterile or solitary.

No matter what career girls — or boys — choose to pursue, Mayrand said the era of middle and high schools focusing on specific, easily defined skills is mostly over.

The skills that are needed for particular jobs can be taught on the job, or in quick training programs, she said. What students need to emerge from high school with is an ability to learn, think and make decisions.

"It's the way of thinking and the way of knowing and the way of communicating," she said. "Those are the things that you need to practice a lot."