Drills and skills

By Linda Matchan

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Teachers like Ben Kellman were always in the school basement. Kellman is still down there.

He's the woodshop instructor at Marshall Middle School in Billerica. At 63, he's a relic from the days when most junior high schools had woodshops, those cavernous subterranean classrooms filled with table saws and lathes and sawdust where kids learned how to make birdhouses, napkin holders, and end tables. Most of these classrooms were dismantled by the 1990s as schools prepared students for a technology-based age.

But a few of those teachers refused to go away, and now there is a renewed call from a variety of corners for students to learn woodworking in the classroom. Some are becoming increasingly vocal about the need to reintroduce this kind of training. One Boston public school principal this year even made woodworking mandatory for middle schoolers, convinced it's the key to improving grades.

"This is what public school should look like,'' said Traci Walker Griffith, principal at Eliot School in the North End, surrounded by eighth-graders using coping saws to cut spoons out of pieces of walnut. "It's really important for students to feel they are the drivers rather than the passengers of their own learning.''

It's been a discouraging time for teachers. Recently they got the news that 15-year-olds in the United States are lagging seriously behind their global counterparts: An international assessment found they ranked 25th among peers from 34 countries in math and just average in science and reading.

While there's no quick fix, many woodworking teachers are convinced that getting students to work with their hands and not just their heads would help. They believe that shuttering the shops was irresponsible and shortsighted, a mistake that has helped create a dependent generation of young people who don't know how to fix things and lack even the most basic manual competence. They say it's also alienated students whose intelligence and gifts do not lie in traditional classroom learning.

"Does working with your hands make you smarter? Woodworking teachers have observed that effect for years,'' said Doug Stowe, an Arkansas woodworker and teacher who writes a blog called "Wisdom of the Hands,'' which advances the concept that hands are essential to learning.

There's no research to support the idea that learning woodworking can help students in other academic areas. But a 2009 Purdue University study funded by the National Science Foundation showed that eighth-graders using hands-on techniques in engineering and technology learned more than students who were taught with books and lectures. And in 2007 the Little Hoover Commission, a California state agency, concluded that vocational and shop programs had a positive effect on students: They stayed in school and graduated at rates higher than their peers, and were more likely to pass the high school exit exam and pursue post-secondary education.

The idea that there's a connection between hands-on learning and academics has been gathering steam, notably with last year's bestseller "Shop Class As Soulcraft,'' by philosopher and mechanic Matthew Crawford.

"I think the main effect of shop classes is to motivate an interest in math,'' Crawford said in an interview. "If you are building, say, a tube frame chassis for a race car, suddenly trigonometry becomes very interesting, because you need it.''

“Shop reinforces math and science and social studies and problem-solving skills,’’ said Kellman, head of the 60-member New England Association of Woodworking Teachers, an impassioned organization with no dues and two meetings a year. “Everyone talks about No Child Left Behind, but what we’ve left behind is the hands-on training that kids absolutely need.’’

Woodshop classes “are where they pull everything together, all the stuff they learned in math and science like how metal contracts or wood expands and dries,’’ said Kellman, who is writing a master’s thesis at Salem State University on the demise of hands-on technology education.

Kellman speaks loudly, so he can be heard above a Bob Dylan song playing; next to the wall he keeps a stack of old LPs by such groups as Jefferson Airplane and Iron Butterfly. He strides through the woodshop, fielding questions from students about sanding techniques and polyurethane. One girl is turning a pen on a lathe, one of three Kellman purchased with his own money. He rushes over to her because the machine isn’t sounding quite right.

“What did you have for breakfast?’’ he asks.

“Toast?’’ she said.

“No protein? I can tell,’’ he said, strapping safety goggles on top of his bifocals and adjusting the lathe. “An old man like me has to tighten this for you.’’

But it’s not just woodworking teachers who believe in the value of lessons learned in the workshop.

Walker Griffith, the Eliot School principal, launched an experimental program this year with the North Bennet Street School, which teaches carpentry, furniture making, and other manual arts. All sixth-, seventh-, and eighth-grade students at the Eliot School now spend one period a week a block away at the North Bennet Street School, where they build a project under the guidance of master craftsmen.

“It’s more than just learning how to make a spoon or create a box,’’ Walker Griffith said. “Working with your hands teaches math and science concepts to show how the real world connects to your classroom.’’

Now she and Miguel Gómez-Ibáñez, North Bennet’s president, hope the program will spread to other Boston public schools.

“The program got started because we see people coming to our school without having had hand-skill training in the lower grades,’’ Gómez-Ibáñez said. “They lack three-dimensional abilities and even curiosity about how things work. I’m constantly aware of people here who floundered in traditional academic schools but are truly gifted spatially.’’

According to the Massachusetts Department of Elementary and Secondary Education, 53 out of nearly 400 school districts in Massachusetts have woodworking courses, though some of them are elective programs in high schools. Here and there, though, there are schools where students are still required to learn basic woodworking skills. One of them is Wellesley Middle School.

“When I first interviewed at Wellesley 15 years ago, I was amazed that they still had this really strong program going in woodworking,’’ said Brian Kelly, who teaches woodworking as part of the school’s technology and engineering program. “Watching a kid working at the bench with a coping saw, seeing that degree of concentration and engagement, it still amazes me 15 years later.’’

One domain where woodworking programs still thrive is in private schools. At the Belmont Hill School, a coat-and-tie boys’ school, all seniors are required to hand-carve an elaborate mahogany panel in order to graduate. The school has a state-of-the-art workshop where students are expected to learn not only the skills that underline fine craftsmanship — how a tenon joint fits into a mortise, for example — but to develop their personal “voice,’’ said Steven Kaplan, chairman of the arts department and a woodworking teacher. Senior James Neissa, 18, is crafting a replica of an antique octagonal drum table.

At Buckingham, Browne & Nichols, a private school in Cambridge, Paul Ruhlmann has been teaching woodworking for 33 years and is a strong advocate of its value as an educational tool. The school has the latest lathes, band saws, jigsaws, and routers in a 1,500-square-foot woodworking shop.

“Culturally, we reward people who are very good in mathematics and writing, and we also value athletes,’’ he said. “But there are a lot of kids in the world who are extremely talented experiencing the world through their hands. And I think we should support them and help them.’’

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