Turbocharging STEM Ed:
35% More Productive Teaching Time in Every Class Period

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— **BILLY AYOTTE, DIRECTOR OF INNOVATION AND DESIGN, KIMBALL UNION ACADEMY**

SITUATION

As the new Director of Innovation and Design for an elite private school, William "Billy" Ayotte wanted an electronics and robotics platform that would enable him to make a splash in his first year, engage his students in a more ambitious curriculum, make student projects attractive, and enable him to keep his classroom orderly. A tall order to achieve all that with one solution.

SOLUTION

Ayotte's secret weapon? Phase Dock WorkBench. He'd seen a pre-production demonstration at the World Maker Faire in 2018 and immediately understood the potential for his engineering classroom. Twelve months later his students were building projects on WorkBench Kits.

BENEFITS

The WorkBench gave Ayotte everything he had hoped for, plus one additional benefit: 35% more productive teaching time in his engineering labs. Instead of students spending 20 minutes of every 60-minute period on set-up and tear-down, now Ayotte claims "I'd say we spend 5-minutes taking things out and putting them away. It is super quick."

PRE-PANDEMIC ACCELERATION

During the Fall and Winter 2019, Ayotte taught basic electronics using resistors and LED-based projects, some with breadboards.

"I'll be honest, said Ayotte. "[WorkBench] worked so well that the kids didn't really have to think about it. And I didn't have to think about it. I was just putting stuff out on the table 'OK, you need this, this and this.' They were able to go up, get it and click it together really quick and away they went."

"I look at this in hours and minutes," said Ayotte. "If you're teaching traditionally where you have an Arduino mounted on a breadboard, that's all you can do…Arduino and breadboard stuff. If you are doing anything else, like I am, then you have assembly, disassembly. You have to manage components and set up."

"At a previous school, I was teaching 90-minute classes. When I joined the KUA staff, I was really concerned about teaching electronics in a 60-minute period knowing that it would take 10 minutes to get things put out… and then it would take probably 5-6 minutes for students to put everything away—and
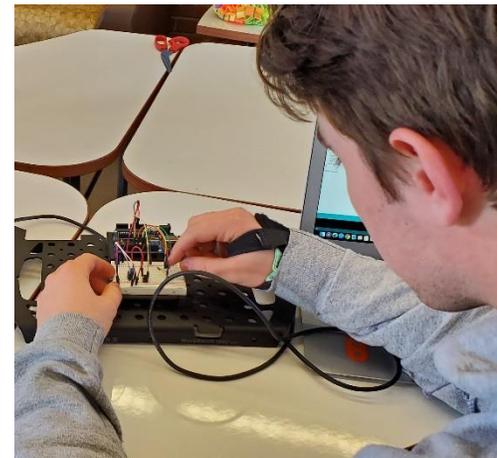
that is if they threw it together messy. If they kept it neat it would take 10 minutes. That's 20 minutes lost. I can't stress how much class time that takes. And you don't notice it until you've tried something better."

"With Phase Dock, I felt like I had more time to teach in the 60-minute sessions than I did in the 90-minute classes under the old methods," said Ayotte. "In actual application (with Phase Dock), I'd say we spend 5 minutes [total] taking things out and putting them away. It is super quick."

"We use rolling racks to store the projects in the classroom. I pull the cart out to access both sides. The kids come in and they pull everything out in two minutes. Set-up and tear-down time is really, really fast. And for COVID that also means that they aren't interacting as much. It is quick and easy."

ADAPTING TO CHANGING REQUIREMENTS

In the classroom, Ayotte didn't use the WorkBench covers. However, he found them to be useful: 1) For a LoRa project carried around campus. 2) For displays during tours. 3) When students worked outside of the classroom.

"I had one student doing a project outside of our academic program," said Ayotte. "He used a WorkBench with a Raspberry Pi project he brought home. With that portability, he didn't have to think about it and didn't have to worry about hardening it. He just put the cover on and in the backpack it went."

According to Ayotte, "Once the kids get here [Fall 2020], it will be clear relatively soon if we are going to complete this term in person. I'm most worried about next term. It would likely start remote and that's a whole different ballgame. Being able to harden a project [with the cover] would be useful in a home environment where things might be a little more chaotic."

Since he is considering sending electronics to his students to work on remotely, Ayotte is also interested in Phase Dock's newest product: a WorkBench-IO with integrated parts storage. "If I were able to put everything into the kit, then I can hand that in a box to a kid or ship it if necessary. We could really use that."

Phase Dock is committed to making sure Billy Ayotte gets the first one.

Contact us for a demonstration or to see if you are eligible for a free Phase Dock evaluation kit.