



JOHN PAULUS

Mobile Manufacturing Lab
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-John Paulus

REALITYWORKS SUCCESS STORY

Using Technology to Help Students Explore Welding and Other Career Skills

For the last nine months, a mobile lab has been giving middle- and high-school students from across West Central Wisconsin the chance to experience a variety of manufacturing careers firsthand. Funded by a three-year National Science Foundation grant of nearly \$800,000, Chippewa Valley Technical College (CVTC)'s Mobile Manufacturing Lab is using technology like

Realityworks' guideWELD® LIVE real welding guidance system to give students in rural school districts opportunities to explore skills like welding – and discover potential career paths they might not otherwise have considered. "A lot of these kids have never touched

a welder or turned a lathe in their life," said Mobile Manufacturing Lab Technician John Paulus, who accompanies the lab as it visits one school every quarter of the academic year and team-teaches with the host school. "I had one seventh-grade student whose first question after seeing the guideWELD LIVE system was, 'am I going to get electrocuted?' But after 2 weeks of using it, her welds were pretty consistent and she was confident

around the machine."

Establishing proper welding technique and building confidence are two goals the guideWELD LIVE system is designed to help educators accomplish. The system consists of a welding helmet, speed sensor board and hand sensor, all of which work together to provide real-time feedback on core aspects of welding technique



The CVTC Mobile Manufacturing Lab offers students the opportunity to receive hands-on, real-life training in manufacturing careers.

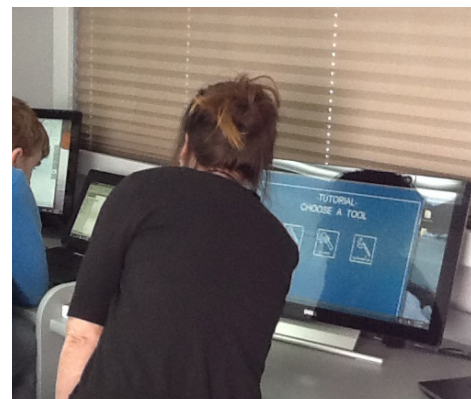
while the user conducts live welds. Feedback occurs in a heads-up display inside the helmet, so the user can make immediate corrections to work angle, travel angle, speed and nozzle-to-plate distance. With repetition, users like Paulus' seventh-grade student can establish correct muscle memory, form and positioning by learning from their mistakes and correcting their techniques. "With practice, a right-handed person can learn to write correctly with their

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left hand – it's all about establishing muscle memory," said Paulus. "The same concept applies to working with the guideWELD LIVE system; it helps you learn correct welding technique so that when you move on to real welding without guidance, you're doing it right." According to Paulus, the immediate feedback guideWELD LIVE offers also makes the system a corrective teaching tool for students with welding experience. "I have had several students use guideWELD LIVE who walked in thinking they could weld really well – they'd grown up using Dad's welder on the farm, for instance," said Paulus. "After welding with the guideWELD LIVE helmet on, however, they realized that they were going too slow, or didn't have quite the right angle for a solid weld... It's definitely a good test to determine if you have the proper technique." In

addition to the guideWELD LIVE system, the semi-truck trailer that houses the lab includes a Computer Numerical Control (CNC) milling machine for metal working, two wire feed welders, two tungsten gas welders and 13 computer workstations that



Inside the CVTC Mobile Manufacturing Lab students train on the RealPrecision™ Measurement Program.

connect to a computer-assisted design program and a precision measurement program. The career exploration opportunities provided by these tools enables students to experience manufacturing technology and explore science, technology, engineering and math (STEM) pathways, experiences that are necessary for training the future workforce and closing the skills gap. "I remind all my students that the more skills you have, the more employable you'll be," said Paulus. "We're trying to get these kids excited about getting skilled and getting into manufacturing careers. This equipment is enhancing our ability to do that."



A view from inside the CVTC Mobile Manufacturing Lab that brings guideWELD LIVE to area schools.