

Enterprise High School

Success Story

Virtual Reality Welding Brings New Life to a “Rebuilt” Welding Program



On March 1, 2007, the community of Enterprise, Ala., encountered the unthinkable—an EF4 tornado decimated the town’s high school, killing eight students and injuring more than 150 others.

“You never think that you would need to pull students and teachers out of rubble. It devastated our school and community,” says Dale Stewart, Enterprise High School’s welding instructor, a teacher at the school for the past 25 years. “I’ll never forget that day.”

While no one ever will forget the tragic loss, the school and community have shown great strength and resilience in the recovery process over the course of six years since this devastating tragedy forever altered life in the small town. And, with the support of the community and industry partners, Enterprise High School began to rebuild, determined to construct an exemplary educational facility that would continue to serve as a symbol of pride.

Reestablishing a Welding Program

This reconstruction required more than bricks and mortar. It required rebuilding entire educational programs, including the welding education program that Stewart leads. This process involved procuring new equipment and technology designed not only to stay in step with industry demands but also to engage and excite welding students about career paths in the skilled trades.

The program plays an important role within the Enterprise community and the surrounding region, in that it supplies welders for local industry. Students use the program as a stepping-stone to their career paths or as a foundation to the next level of education.

“There are so many options in welding as a career. We have students go into all different areas such as the military, engineering, aviation, nuclear, piping and maritime,” Stewart says.

When he saw Lincoln Electric’s VRTEX® 360 Virtual Reality Welding Trainer at several welding shows and competitions, the system sparked his interest because there was always a line of people ready to try their hand at welding a pass to

get their score. He saw the response when these would-be welders received instant feedback from the VRTEX virtual reality training system.

“They would change their positioning and want to try again, learning muscle memory by verifying that angles and positioning were correct through the use of visual cues on the VRTEX,” Stewart notes, adding that he immediately saw the engagement and motivation the virtual reality welding trainer could create in the welding program at Enterprise High School.

“If you can get a student interested in something, you’re half way there,” he explains.

The rebuilt Enterprise High School’s welding program now has 80 students, using a variety of Lincoln Electric equipment. They work with the Invertec® V275-S Stick Welder, Invertec® V350 PRO Multiprocess Welder, Power Wave® C300 Advanced



Enterprise High School’s new progressive welding school.

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Process Welder and the VRTEX® 360 Virtual Reality Training System in their hands-on training. Stewart says he is grateful for all the collaboration and support from the school, community and industry to reestablish an advanced welding program. The welding program costs \$200 per year per student, and use of the VRTEX virtual welding system has helped to reduce program costs while deepening student knowledge.

Student Engagement in Welding

For Enterprise High School, implementation of the VRTEX virtual reality arc welding technology was easy because the students love the technology. Through experimentation, Stewart says he found that the best way to blend virtual welding simulation with traditional welding training in his classes was through a rotation schedule. Four students work on the VRTEX welding training system, while the remainder of the class is in the lab working on the same skill.



Students in the welding program at Enterprise High School practice welding using the VRTEX virtual reality welding system.

This process has worked well. Stewart says all four students are engaged in learning while on the virtual welding simulator. One student may be practicing a weld, while the others are learning as they watch the instant feedback and collaborate on the cause-and-effect process the virtual reality simulator offers.

“We use the VRTEX every day. No matter what skill level the student is at, the VRTEX 360 helps them develop the muscle memory required for correct welding technique. Once the muscle memory is down, we transfer what has been learned to the lab,” he says, adding that the learning continues throughout the school year as students learn about new processes, electrodes and configurations.

“Students never outgrow the VRTEX as it doesn’t limit them on what they can do. There are so many options to advance and challenge student knowledge,” he says.



Dale Stewart and his welding students watch and collaborate on the process of virtual reality welding.

Seeing the Benefits of Virtual Welding

Stewart says he believes the VRTEX welding training equipment is an important tool for providing student welders with the repetition needed to grow their skills and refine technique.

“The repetitions students can do on the VRTEX with and without visual cues strengthen their knowledge and leads to a shorter learning curve,” he says. “The push of one button and students can try again and again and again until they get the muscle memory down.”

Using the VRTEX 360 simulator in the classroom helps encourage students to learn more about welding and the career paths welding opens up for them. It keeps the students involved and strengthens their understanding. Stewart correlates the virtual reality simulation process to something Benjamin Franklin said: “Tell me and I forget, teach me and I may remember, involve me and I learn.”

Another key benefit to the VRTEX virtual reality system is there are no sparks or heat involved, so students can focus on getting muscle memory under control before going out to the booth.

“It’s difficult for students to focus on one thing when there are so many other factors involved. The VRTEX helps them to focus on technique enabling students to assimilate faster to new welding processes,” Stewart notes.

Students enrolled in Enterprise High School’s welding program are reaping the benefits of investments made during the rebuilding process. Blending virtual reality welding training on the VRTEX 360 with the NCCER welding program has proven to be a rewarding opportunity for students. Training in a safe, virtual environment with an interactive teaching tool permits students to learn basic welding skills and challenge themselves to refine their skill to an advanced level. Through classwork and the SkillsUSA student organization, students are engaged in what they are learning. And, they are graduating from the welding program equipped with skills and qualifications they need to take the next steps in their future careers.

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