

ROSIE'S GIRLS SUMMER CAMP IMPLEMENTS VR FOR STEM AND TRADES CAREER EXPLORATION

A Vermont-based gender equity organization has found an engaging and cost-efficient way to introduce welding to young students. When they introduced Voyage Arc virtual reality career exploration tool from Lincoln Electric at a camp for middle-school girls and gender-expansive youth during the summer of 2023, the results were as fun as they were educational.

Since the 1980s, Vermont Works for Women (VWW) has been working to create and promote opportunities for women and young girls at every stage of their career development. As part of that effort, VWW developed Rosie's Girls camps in 2000. Named in honor of the Rosie the Riveter persona that has become iconic in American manufacturing since the 1940s, Rosie's Girls is a STEM and trades career exploration summer day camp that introduces middle school girls to career fields that are non-traditional for their gender through hands-on learning in a supportive and empowering environment.

"Historically, we've offered a Rosie's Girls build camp, which is carpentry-focused, and a Rosie's Girls weld camp that's obviously focused on welding," says Caelan Keenan, Youth Programs Manager at VWW. "We've dabbled a little bit in other areas as well, but those two have always been our tried and true themes, and the girls really love them. They're quite powerful experiences."

Test drive

VWW had explored virtual reality for a number of years through research initiatives at the University of Vermont and other colleges within the state, says Keenan. "We'd been adjacent to that world for a little while, but we'd never had



anything that connected with youth on it, and we'd never had something that was welding-oriented that really dovetailed with what we'd been trying to do with kids."

Connecting with Lincoln Electric in 2022 and getting familiar with Voyage™ Arc Virtual Reality Headset changed the game, she says, because it provided a tool that could be used in camp settings with limited space, staff and resources for traditional welding training. The Voyage Arc VR Headset creates opportunities for Rosie's Girls camp participants to get started on the basics almost immediately so no one has to wait around for the opportunity to do actual welding in a booth.

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"We don't have our own space when we run programming, so we're often partnering with schools or career technical education centers," says Keenan. "There are a few tech centers in the state of Vermont that are really well outfitted from a welding perspective. They have a lot of booths, and every kid can be in there at once. But more often, we're in settings where we have twelve or fourteen kids and we're working with two welders."

The initial test drive took place at U32 Middle School in Montpelier, Vermont. The camp instructors used the Voyage Arc headset as an introductory tool to prepare attendees for actual welding in a booth setting. The girls' pre-existing familiarity with virtual reality technology – not uncommon among their generation – made the ramp-up process fairly quick and easy.

"Many of the kids said, 'Oh yeah, I know how to use those things,'" says Keenan, who worked as an instructor at the U32 camp. "So they were comfortable giving it a try just from

experience, because they had used a virtual reality headset before with their friends or their siblings."

However, none of them came to the Voyage Arc VR Headset with any prior welding experience, she adds, "and with a room full of middle schoolers, there was plenty of laughing as they watched each other try to do it. So there was definitely an element of fun to it. They weren't intimidated at all about using the headset."

The equipment dovetailed seamlessly with the prearranged camp programming, she adds. Day one included an introduction to safety equipment, the shop and the type of welding that would be happening throughout the week. "That was all reinforced, almost verbatim, in the Voyage Arc programming sections that they went through on the second day," she says. "I think it was important for them to hear us say it, and then have it reinforced when they started using the equipment."



The Voyage Arc headset helped many of the camp participants with technique before they even touched an actual welder. The result was often the "ah-ha moment" that many instructors talk about as part of the learning process.

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“There was a moment where they were learning to weld with the Voyage Arc headset, and they realized that if the angle of their hand wasn’t precise, then the weld wasn’t going to be correct,” says Keenan. “Those little bits of detail, I think, made the difference between a kid who was going to be sloppy and just try to make it work and a kid who was actually deliberate and focused about their hand placement, arm placement, speed and other factors. They learned that from using the headset, and when they went into the booth a day or two later, there were noticeable changes in how they approached their project.”

No experience, no problem

Keenan admits that she had minimal experience with virtual reality technology prior to implementing the Voyage Arc VR Headset into the Rosie’s Girls camp programming last summer, but the lack of familiarity was never an impediment.

“My fellow instructor and I both found the equipment to be user-friendly,” she says, specifically citing the equipment’s effectiveness in helping users develop fine motor skills. “It was unbelievable how realistic it was...It was educational, but not overtly educational. It was something we could easily embed into the camp and the kids didn’t feel like it was a formal assignment that they had to complete.”

The Voyage Arc headset was also helpful in creating balance amid the camp’s somewhat lopsided instructor-to-participant ratio.

“There are always more kids than there are instructors,” says Keenan, “so our ability to give each kid the amount of time and coaching that they need is limited, because we want to get the next kid in the booth, and we’re managing other things. So to know that some of those details are being reinforced in this really fun virtual reality experience that they could have outside the booth was great.”

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Other opportunities

After the success at Rosie's Girls camp experience in Montpelier, Keenan is already considering ways to bring the Voyage Arc VR Headset into Vermont schools – typically in smaller and more rural districts – that lack equipment for welding training of any kind, usually due to budget restrictions. She sees it as an affordable way to introduce students to welding in circumstances where a more traditional model would be cost-prohibitive.

“All of our work is from this place of gender equity and getting more girls involved, so we'd be coming at it from that angle,” she says. “Could we get more girls into their manufacturing program or their welding program by introducing them to welding through the Voyage Arc headset first? That's an avenue we haven't explored yet, but that's part of what we do. It would just be another tool.”

These are just a couple potential applications and opportunities associated with the Voyage Arc VR Headset, says Keenan. The technology can deliver the welding experience to a maximum number of students in the quickest way possible, without the expense or any of the initial apprehension.

“It's a very low-risk point of entry, for both the instructor and the student,” she says. “This is an opportunity to begin the exploration of welding that is free of fear and worry. None of the kids in this program were timid at all about putting on the headset and getting into it and learning the basics. Not every school has twelve welding booths that will accommodate every student, and you have limited time with your students, and you want to make sure you're using it well. The Voyage Arc Virtual Reality Headset enables you to do all that and more.”

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