PIPER

CASE STUDY

Expanding Access to Coding Through Hands-On STEM

Educator: Dr. Darin Gray

Role at Time of Implementation: Director

School/District: USC Viterbi K-12 STEM Center

Grade Levels: Elementary/Middle School

Products Used: Piper Computer

Implementation Period: 2 years

Overview

The USC Viterbi K-12 STEM Center expands STEM opportunities across Greater Los Angeles, especially in under-resourced communities. It strengthens STEM pathways by bringing coding, engineering, robotics, and hands-on learning directly to local schools and community centers.

The Center also engages USC undergraduates as volunteers and mentors, creating a strong bridge between the university and the communities it serves.

The Challenge

Many students served by the USC Viterbi K-12 STEM Center lacked reliable access to computers and internet in their community spaces, limiting their opportunities to explore coding, computational thinking, and problem-solving skills essential for school and future careers.

This digital divide meant students were falling behind more resourced peers—not due to ability, but simply due to lack of access. Change was needed to level the playing field and provide all students with meaningful entry points into STEM learning.

> “Our students simply didn't have computers or internet at home or in their community centers, and that meant they weren’t getting exposed to coding at all.”

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The Solution

To bridge this gap, educators introduced Piper Computers into community centers. Pre-assembled kits were brought directly to the sites, allowing students to jump right in. The Minecraft: Raspberry Pi Edition that's built into the computers was as an engaging, familiar entry point.

The most valuable aspects proved to be the ease of use, low barrier to entry, and the intuitive, hands-on design that made participation accessible regardless of prior experience.

The Experience

Week to week, students explored the platform through multiple modes:

- **StoryMode** - which provided guided, narrative-driven learning; students completed various missions, giving them a sense of progression and accomplishment
- **PiperCode** - where students built circuits and interacted with real hardware

An unexpected benefit emerged when an elementary school lost all of its computer and networking equipment due to theft. Instead of canceling their introductory coding class, staff deployed Piper Computers, thereby allowing the program to continue uninterrupted.

The Impact

Qualitatively, engagement soared. Students were excited by the Minecraft integration and felt free to learn at their own pace without the pressure of formal instruction.

The hands-on, game-based environment removed the "have to learn" mindset and replaced it with authentic curiosity and exploration.

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Lessons Learned

What worked well:

- High levels of engagement across age groups
- Students responded positively to the interactive, game-like approach

Challenges encountered:

- Because the computers were pre-assembled to save time, students missed out on valuable troubleshooting and hardware-building experiences, which could have deepened their understanding.

What's Next?

The program will absolutely continue using Piper Computers. In fact, the team recently purchased additional units to expand access to another community program, broadening the reach and ensuring more students can experience hands-on STEM learning.

Want to learn how Play Piper can support your students? Email us at sales@playpiper.com.

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