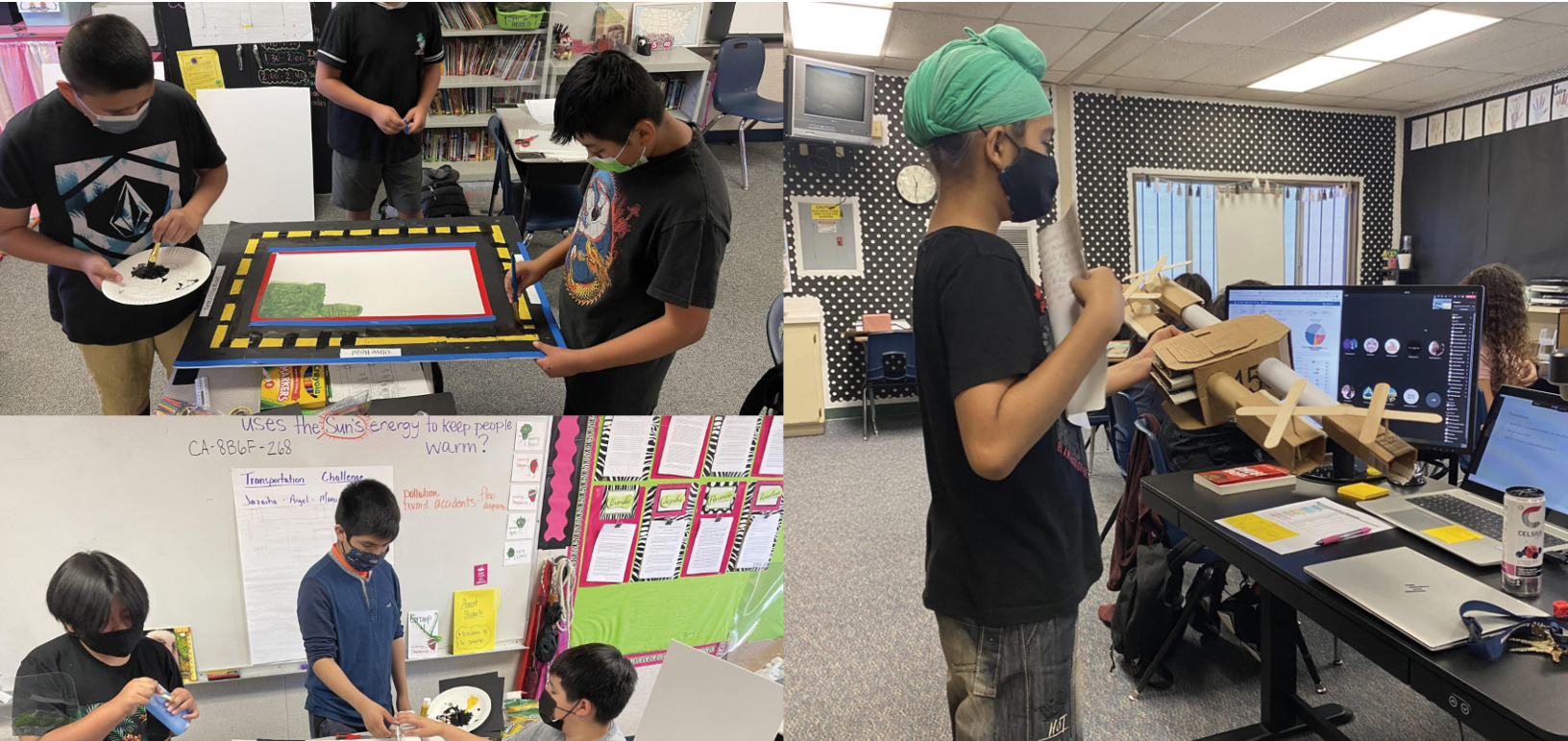# The Central Valley Transportation Challenge

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Introduction

The Central Valley Transportation Challenge (CVTC) aimed to provide underserved minority students, who are primarily from rural areas, with high quality transportation-related educational experiences, empowering them to learn about transportation and related careers. The program brings university faculty and students to K-12 classrooms in rural areas. Because of the focus on rural areas, the project had already planned to leverage technology, but COVID took the use of technology to an unprecedented level. The CVTC is an agile pedagogy and has a generic structure with the project phases documented in Table 1. The structure can adapt depending on the content, teacher, and student needs. A key feature of the program is collaborative implementation revision through teacher/faculty/engineer discussions.

The project goals were accomplished through three main objectives that intersect within the CVTC program. First, the project supported K-12 teachers' understanding and implementation of the CVTC programs. Second, the project connected K-12 students with university faculty and students, as well as transportation professionals, through the CVTC program. These interactions created opportunities for students to explore transportation topics and deepen their knowledge in meaningful and authentic contexts. Third, the project developed an online hub with transportation-related lesson plans and lesson sequences.

Study Methods

The results are reported as five case studies and a description of the online hub. The case studies illustrate how different pedagogical approaches and uses of technology were implemented and how the connections between the schools, community members, and professionals from transportation-related fields were developed. Also, to support the sustainability of transportation-related learning across subsequent years, the team also created an online transportation resource repository. This hub

was then populated with lessons and units developed by pedagogical and content experts. The lessons cover the grades K-12 and range from brief lessons to more holistic two-week long lesson sequences.

> Teacher A: "I feel much better about the project. I handle the steps and the university brings the process and content expertise. I learn together with my elementary students."

Findings

Overall, the CVTC program is a highly resilient program with a wide variety of pedagogical and technological approaches, even more so because it had to be adapted to fit the challenging times during the COVID-19 pandemic. The case studies illustrated how different pedagogical approaches and uses of technology were implemented and how the project connections between the schools, community members, and professionals from transportation related fields were developed. The challenge was adapted for different grade levels and different delivery methods. The team developed a fully online experience, a hybrid experience, and an in-person experience.

A key feature of this project was the development of an online transportation resource repository to support the sustainability of transportation-related learning. The goal is to offer teachers and students an option to independently access transportation-related content, materials, and curricula to use with students. In addition, the repository could also serve as a mechanism to facilitate teachers' identification and contact of relevant university and industry experts. Furthermore, this platform will provide a way for online interaction between teachers implementing projects like the Transportation Challenge and transportation professionals. The online transportation hub, with its lesson repository, will endure beyond this project and make this project's impact sustainable.

Policy/Practice Recommendations

There were eight key research findings that can be summarized with the following three professional practice recommendations. First, create an agile program that has a solid structural foundation with enough flexibility to be responsive to the needs of the students. Second, provide flexible asset-based support that allows for the experience and expertise of the participating teachers to come through and leverage the existing technology resources. Third, align transportation outreach with academic standards that the teachers and educational leaders are focused on, so that they value the transportation-related content as high quality educational experiences that support their other efforts.

About the Authors

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To Learn More

For more details about the study, download the full report at transweb.sjsu.edu/research/2029

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