

Career and Technical Academy Innovations in Teaching and Learning

Background

The Southwest Career and Technical Academy (CTA), an Apple Distinguished School, is a Clark County School District (CCSD) public magnet school in its fourth year of operation that has 1,400 students enrolled in 11 different career and technical education (CTE) program areas. The school is divided into two smaller personalized learning communities—the Design Academy and the Professional Service Academy. Within the Design Academy, the Southwest CTA offers the following areas of specialization: Entertainment Engineering, Fashion Design, Video Game Design, and Web Design. In the Professional Services Academy, the areas of focus are Culinary Arts, Hospitality, Travel and Tourism, Automotive Technology, Respiratory Therapy, Dental Assisting, and a Certified Nursing Assistant Program. Within the smaller learning communities, students who have common career interests share English, math, science, social studies, electives, and program classes. In the classroom, project-based learning activities simulate real-world experiences, preparing students for entry into the workforce, post-secondary training, or study at the college and university level. Teachers and students have access to laptops, computer labs, iPods, and iPads. Students extend their learning day through the integration of the Flipped Classroom method, teacher podcasts, ePubs, the use of Google Apps and other online resources for assignments and educational tools. Using innovative technology has impacted the academic culture at Southwest CTA because the school is providing an education that relates to the 21st century student.

Documented Results

With the increased access to technology and a forward approach to delivering digital content, the Southwest CTA has experienced tremendous academic success and growth in Adequate Yearly Progress (AYP) and district-wide benchmark common assessments.

- During its first year (2009–2010), the Southwest CTA achieved an AYP report rating of “Adequate.” At the end of the second year (2010–2011), our school achieved an AYP report rating of “Exemplary.” At the end of the 2011–2012 school years, our school was designated as “Continued Exemplary.” The CCSD goal for ELA was 76.92% and SWCTA achieved a 96.02% pass rate. The CCSD goal for math was 81.51% and SWCTA achieved a 93.6% pass rate. AYP data is based on our junior class results on the required Nevada state English Language Arts, Math, and Science graduation exit exams.
- The Clark County School District has been working to develop district-wide benchmark common assessments in core subject areas, with the first area being math. These math assessments are given at the end of the first and second semester in Pre-Algebra, Algebra I, Geometry, and Algebra II. For the past three years, Southwest CTA has consistently scored above the school district average in all four subjects.

Potential Applications

All teachers and administrators have received formal training in project-based learning. Project-based learning supports cross-curricular projects. To succeed in the industry, students need to have (1) a solid skill set and practice in teamwork, collaboration, and communication (both written and verbal), (2) a professional work ethic, and (3) a desire to learn and research new ideas to add to their current knowledge base. Through our use of project-based learning, students collaborate in groups requiring communication inside and outside the classroom using intra-school e-mail, social media and mobile devices. They must also create unique and interesting projects and presentations to demonstrate their understanding of the material. Southwest CTA works hard to promote a natural curiosity in its students through the use of technology and the fostering of a highly collaborative environment. Students are given the opportunity to solve problems, investigate issues, and then create presentations that demonstrate an understanding of the

issues and curriculum. The kinds of projects that prepare students for real-world experiences are the ones that take an actual problem that the students need to research, analyze, and create a solution for an individual, a business, a government agency, and various other entities.

One example of a STEM project at Southwest CTA is an 11th-grade guitar project in the entertainment engineering program. In collaboration with the math and physics teachers, students explore all aspects of STEM that are present in the construction and usage of the guitar. While exploring the relationship of math and science during the process of making a working instrument, students each design, fabricate, and tune their guitars to industry standards. The STEM guitar project was originally developed from a National Science Foundation grant in coordination with Fender Guitars and Purdue University and has been adapted successfully into woodshop, drafting, science, and engineering high school classes throughout the United States, as well as community college electives and after school programs as early as middle school. Schools can scale the project down by purchasing the complete kits and having teams of four or five students build one guitar using common hand tools. Teams can use the guitar to expand into areas such as music, marketing, manufacturing and entrepreneurship.

For More Information

Southwest CTA Website: <http://swcta.net>

Southwest CTA Student Showcase: <http://swcta.net/showcase>

The Buck Institute for Education (Project-Based Learning): <http://www.bie.org>

The National Science Foundation STEM Guitar Project: <http://www.guitarbuilding.org>