How to Build a Winning High School IT Training Program

EL DORADO HIGH SCHOOL, EL PASO, TEXAS
Executive Summary

El Dorado High School in El Paso, Texas, has 70 percent of its students designated as economically disadvantaged. Nonetheless, the school, with the leadership of its principal, its district administrators and its computer maintenance instructor, David Caldwell, have built a program that is equipping its students for success.

El Dorado High School is a member of the CompTIA Authorized Academy Partner Program. Its students routinely obtain industry IT certifications that poise them for jobs after high school. Caldwell employs a number of strategies to help his students succeed. The result: Parents are excited that their students are being prepared for 21st century jobs, and students are thrilled, too.

SCHOOL PROFILE AND DEMOGRAPHICS

El Dorado High School is part of the Socorro Independent School District (SISD), located in the rapidly growing eastern section of El Paso, Texas. New Mexico mountains are visible in the distance to the north, and Mexico is just a short drive to the south. If one climbs the ridge of one of the hills along the north edge of town, it's possible to take in a view of two U.S. states and two countries from a single overlook.

The SISD boasts 46 campuses (including 6 high schools) comprised by 44,000 students. The strategic priorities for the district's students include making its students career ready. To prepare students for the world of work, the district's Career and Technical Education (CTE) Program offers 132 courses in its schools that represent 16 different career clusters. More than 11,000 students — a quarter of the district’s students across all achievement levels — are enrolled in at least one CTE course at their school.

“El Dorado High School offers a variety of resources to our students to allow them the opportunity to be as successful as possible after high school.” - Nora Paugh, El Dorado High School Principal
About 3,000 students in grades 10 through 12 attend El Dorado High School. About 90 percent of the school’s students are Hispanic, reflecting the demographics of the district’s residents (Note: About 50 percent of Texas’s public school system is Hispanic). Seventy percent of El Dorado’s students are classified as economically disadvantaged, a bit higher than the 60 percent statewide figure. The annual dropout rate of 1.7 percent is lower than the state average of 2.2 percent, and the graduation rate of 93.6 percent is higher than the state average of 88 percent. In 2014, 40 percent of the school’s 928 graduates went on to a two-year college; 46 percent went on to a four-year college.

Students typically enroll in the program in the 10th, 11th and 12th grades. The majority are juniors and seniors, and enrollment is on a first-come-first-served basis according to seniority. Class periods at El Dorado last 45 minutes, limiting the amount of material that can be covered.

“I tell them that a certification can really help them to obtain a job and a career in computing. When they see others achieving certifications, they often will say, ‘I want to try,’” remarked Caldwell.

Historically, Caldwell finds that students are typically ready to learn the CompTIA A+ curriculum by the beginning of their junior year. “I can usually move them through CompTIA A+ and CompTIA Network+ in the 36 weeks of the regular school year.” Particularly ambitious students might tackle CompTIA Security+ over the summer or wait until their senior year, he says.

Obtaining a certification is not a requirement of the program. However, Caldwell continually looks for students who excel in the subject matter and encourages them to pursue certifications.

As a member of the CompTIA Authorized Academy Partner Program, the school can leverage deep discounts on exams and study materials and also receives promotional materials to advertise IT to students and parents. “Right off the bat, the prestige of being a CompTIA Academy is obvious to students and parents who walk by my classroom and see the banner,” said Caldwell.

He usually begins students with online mini-certs, such as the ones offered for free by SHL Talent Assessment at different times of the year. When a student decides to pursue a more rigorous certification, such as CompTIA A+, Caldwell starts the student on an individual course of study. During class the student often will work independently on one of the desktops lined along the walls of the classroom. The student may attend one of the special half-hour tutoring sessions Caldwell hosts several mornings per week before school, and may also attend an afternoon study group.

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If a student is having trouble with a certain section of the study material, Caldwell will connect the student with a peer who has already completed the certification. This peer learning model is powerful, says George Thomas, who directs the CTE programming for the district. “Students supporting students is invaluable. You have so many resources right here in the form of students,” he explains.

The peer interaction also comes in handy when it’s time to assess whether a student is ready to test. Once the peer approves testing, “they still have to get past me,” Caldwell says. Caldwell will quiz the student again before approving testing. Often he will recommend a practice exam, if only to simulate the test environment in an effort to prevent testing stage-fright. Students are responsible for paying their own exam fee, but if a student has worked with the program’s social group, the FOG, to help fundraise, dollars are available from the group’s treasury to pay some or all of the fee.

Since 2007 El Dorado students have taken about 400 CompTIA certification exams. About 60 percent have been CompTIA A+, with CompTIA Security+ and CompTIA Network+ comprising most of the rest. Thanks to the safeguards Caldwell puts in place to make sure that students who want to test are ready, the vast majority of students who take an exam pass.

**FINDING ONE’S WAY THROUGH THE FOG**

Students encourage one another’s certification journeys through the FOG extra-curricular social club, which meets a few times a month before or after school. Historically the FOG stands for the “Fraternity of Geeks,” but the club is co-ed and, if anything, leans heavily female in its membership. Most of the group’s activities center around fundraising activities that help students pay for exam fees. Rather than adopt the typical hierarchy of president, vice president, etc., the club follows a paradigm of medieval royalty. For example, a lady or duchess can aspire to become a princess. Caldwell wears the crown of “King FOG.” Titles are dependent on the level of service one devotes to the club.

Additionally, the club uses a martial-arts belt strategy to mark achievement in the club. Students wear “FOG tags” and collect different colored RAM memory sticks to attach to their chains. Students start with green (the factory color for a RAM stick) and work their way through various other colors all the way to gold. “It’s what you do in terms of community service and fundraising, attending meetings and overall contribution,” Caldwell says, when describing how the FOG memory stick levels are achieved.

A hand sign, and special “members-only” promotion ceremonies give the club an aura of secrecy and a “beautiful sense of belonging,” says Principal Nora Paugh. “They have taken something that probably they have been teased about in the past and elevated it to such a prestigious organization.”

**LEARNING THROUGH PUBLIC SERVICE**

In addition to the FOG social club, another group made up of computing students, the ANTS, or Aztec Network Technology Society, has evolved with a slightly different focus. The ANTS meet on Saturday to do community service work, usually fixing broken computers of needy individuals and nonprofit groups. One group they have worked with recently is the Hope Institute for Homeless Female Veterans, operated by retired Lt. Col. Hope Jackson. “We’ve been running a lot of network cable for her over there,” Caldwell explains.

This kind of service work not only helps others, but gives the students great hands-on experience, says Caldwell. He adds that, due to all the practice that students have been able to get fixing computers for the community, there has been discussion of creating a computer and networking business that the students can run themselves.
INTERNSHIPS AND JOBS

Compared with the rest of the state, West Texas struggles to provide economic opportunity to its graduates. “Businesses are trying to look to the future, and they know a lot of young people leave El Paso,” says Derrick Brown, an assistant principal at El Dorado. San Antonio, Houston, Dallas, and Austin are all at least an eight-hour drive. Fortunately, defense contractors — Raytheon and Lockheed Martin being the most prominent — are drawn to the area due to the proximity to Fort Bliss.

Still, connecting students to work is an area in which the El Dorado program and the rest of the district’s CTE program is hoping to improve. “Businesses are trying to work with schools more than they have in the past, to try to keep the best and brightest here,” attests Brown.

Students still attest to the program leading to new opportunities after graduation. One El Dorado graduate moved to San Antonio, walked into a Best Buy store, and was quickly hired as part of its Geek Squad technical support staff while she attends college. Several students have been hired by the Socorro Independent School District to be part of its desktop support team, generally working a year or two in that capacity before moving on to even better IT jobs. “We have trouble keeping them,” admits Thomas. “They are the best of the best.”

I haven’t seen the successes in other programs as I’ve seen in this one,” says administrator George Thomas. “I use this program as a model for other programs around the district. This is by far the strongest.”

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Jacob Rey graduated valedictorian from El Dorado in Spring 2014 and enrolled on academic scholarship in the University of Southern California in Fall 2014. He’s already actively pursuing a degree in Computer Engineering / Computer Science.

In Summer 2015, he’ll work a prestigious network engineering internship at Verizon’s offices in San Jose. “I was the only freshman chosen out of 20 finalists,” says Rey. “The rest are all juniors and seniors. I can say it was because of those certifications.”

Although he feels extremely challenged in his coding classes (Rey admits, “I’m more into hardware and don’t like coding as much. They are working us to the bone because they are assuming that we already had some coding”), Rey’s background in networks and servers — not to mention his CompTIA certifications — has certainly served him well.

Ricardo “Ricky” Serrano, 18, went through the El Dorado computer maintenance program, too, earning A+ and Network+ certifications before enrolling in the University of Texas at El Paso. He plans to major in computer science. In addition to the regular coursework and membership in the FOG, he credits the school’s involvement in a network design competition sponsored by the Business Professionals of America for igniting his long-term interest in computer networking. The El Dorado team—which included Serrano, Rey, and a third student, Sergio Hernandez—went on to the state competition and earned second place.

“We might have won, but we were too geeky,” Serrano explains. “We weren’t ‘business-y.’” Points were deducted for the team not wearing suits and ties, not a lack of knowledge of networks.
Hernandez, now 19, isn't sure he would have stayed in school if not for Caldwell's program and gauntlet of certifications. “For most classes, I’d do all my work for the next nine weeks and then just sit there. I was bored. Then I hit Caldwell’s class and it was like, ‘You finished certification? Okay, now go on to the next one.’” Hernandez earned his CompTIA A+, Network+, Security+ and CompTIA Advanced Security Professional certifications in high school. He has applied to the U.S. Coast Guard, where he hopes to work as part of its information technology division.

ACCLAIM FOLLOWS STUDENT SUCCESS

Caldwell’s program averages about 30 to 40 CompTIA certifications among his students each year. In addition, Caldwell’s students have achieved numerous other IT certifications, including Certiport’s IC3 Digital Literacy credential. Since his program was established 12 years ago, his students have achieved well over 1,000 IT certifications.

In Spring 2015, El Dorado junior Samantha Sianez, 16, passed her CompTIA Security+ exam, making her one of the youngest (if not the youngest) females to earn the cyber security certification. She was honored by the SISD superintendent in a closed cabinet meeting and interviewed by the local FOX TV affiliate. The attention she received gained notice from other students, who approached Caldwell asking how they can certify, too. “It just raises the bar. When students see other students achieving, they want to certify, too,” Caldwell remarked.

CREATING IT FUTURES

“I really think it’s a special program,” says graduate Jacob Rey. “We got to troubleshoot computers. We got to use tools that we never heard of. We’d fix computers that were old and we had to make them run again. This is where the money is at. This is where we are going to get jobs.”

Claudia Casas, whose daughter, Bianca, is enrolled in the program and a leader in the FOG, likes that the program encourages girls to succeed. “People need to be aware of the benefits [for their daughters]. They could be working after high school, while they are in college, or even working for big companies,” Casas says.

Because parents are the number one resource for students contemplating career and college, it’s important to get them on board early, says Caldwell, who has a meeting at the beginning of every school year to explain the ins and outs of his program. “It’s like anything else. You have to sell your program,” says Caldwell, who before getting into teaching was in charge of marketing his father’s flower-growing business. Today, he works at helping young people bloom.
Caldwell and his administrators believe the program can be replicated by other school systems provided they put a few key elements in place:

1. Hire staff who are passionate about teaching IT and will consistently put in extra time before and after the regular school day.
2. Make classroom learning fun, with hands-on activities the students can relate to.
3. Promote certification and give individual attention to students who want to certify, including tutoring sessions and peer-to-peer coaching.
4. Host regular parent meetings in order to communicate the opportunity of an IT career as well as expectations for the program.
5. Create a holistic culture of computer learning through extracurricular clubs and IT competitions.
6. Promote computer-related community service activities and parlay student experience toward workplace learning, including summer internships.

FOOTNOTES

1. An economically disadvantaged student is defined as one who is eligible for free or reduced-price meals under the National School Lunch and Child Nutrition Program.
2. Starting in Summer 2015, Caldwell will begin requiring that students pass CompTIA’s newest and most basic certification, CompTIA IT Fundamentals, before progressing to CompTIA A+ or before working on computers as part of the school’s ANTS service club. CompTIA IT Fundamentals involves an hour-long test of 75 questions and can be proctored in the classroom by the teacher; higher level certifications require proctoring by a testing center. Normally $66 each, the CompTIA IT Fundamentals exams cost just $23 each when purchased in bulk, another incentive for Caldwell.
3. El Dorado and SISD are consulting with IT Futures Labs to attempt new strategies for connecting students with more summer internships. El Dorado hosted an open house for employers in early May 2015 to learn about its computer maintenance program, and Excel Learning Center, a private IT training company, has offered a complimentary two-hour, job-prep seminar to students who sign up for the program.

IT FUTURES LABS

Creating IT Futures established IT Futures Labs in 2015 to discover new approaches to IT career on-ramps. Rather than taking a purely academic approach, IT Futures Labs learns by doing — through collaborating, asking good questions and measuring outcomes. It discovers and develops:

- **Market Research** to increase understanding of the audiences who may make IT a career.
- **Process Improvement Projects** to advance the effectiveness or efficiency of IT workforce development programs.
- **New IT Workforce Programs** that IT Futures Labs may develop either on its own or in conjunction with other organizations.
- **Best Practices in IT Workforce Development** that we can promote to target audiences, whether it be schools, for-profit corporations, or other nonprofits.

With additional funding, IT Futures Labs will be able to launch projects that bring more youth, women, minorities and under-employed adults into the IT field. If you’d like to get involved in IT Futures Labs’ latest projects, contact Eric Larson at elarson@comptia.org.
El Dorado High School is affiliated with the CompTIA Authorized Academy Partner Program, which makes it possible for the school and more than 3,000 others to provide access to CompTIA certification exams and the CertMaster elearning platform. CompTIA provides valuable tools and resources to assist schools in recruiting, training, certifying, and upgrading the skills of their IT students.

Some of the CompTIA Authorized Academy Partner Program benefits include:

- 20-50% discounts on CompTIA exams
- 50% off the purchase price of CompTIA’s new learning solution, CertMaster
- Classroom and instructional resources
- Join CompTIA-hosted webinars
- Invitation to attend CompTIA’s annual Educator Conference to be held July 31 – August 2, 2015, in Chicago, CompTIA.org/academyconference

The conference brings together more than 100 academic educators and training partners annually for peer-to-peer learning, interactive discussions and face-to-face networking.

To join the CompTIA Authorized Academy Partner Program, simply fill out the online application at CompTIA.org/academy and receive all the benefits of being a member. There is no fee to join.