

High Tech High

Summary

High Tech High (HTH) started as a single charter school in the U.S. opening in 2000, the organization now operates nine schools in San Diego County: one elementary school, three middle schools, and five high schools. All of these schools serve a diverse, lottery-selected student population; and all embody the High Tech High design principles of personalization, adult world connection, common intellectual mission, and teacher as designer.

Location

San Diego County, U.S.

Aims

The founding group comprising 40 San Diego business, industry, education, and civic leaders aimed to address the challenge that, in the late 1990s, San Diego's public education systems were failing to provide San Diego employers with successful, well-educated high school graduates. That deficit was particularly in the science, technology, engineering, and math fields, and at a time when the economy was developing successfully.

As reported by Marsha Sutton (2009), Gary Jacobs, a key member of the founding group, said, "There was a general feeling in the business community and the university community that kids coming out of high school, while good at memorizing facts, weren't very good applying what they learned."

The founding group went on to challenge the traditional foundations on which school-aged education was built, from the role of teachers and the pedagogies applied to learning to the use and design of learning spaces.

As Sutton summed it up, "Project-based learning would put students into real-life scenarios that applied learning directly to workplace skills, advisers would counsel students in small groups of mixed grade levels to prepare for college and beyond, expectations for success would be raised, and all students would be actively engaged in their own education."

Description

Larry Rosenstock was appointed as the first employee and leader of High Tech High and the school was developed based on design principles that arose from his experience when working in public education and in the U.S. Department of Education.

- **Personalization of learning** gives students individual attention in support of their learning and also encourages students to pursue areas of personal interest.
- **Adult world connection or authentic learning** puts students into real work environments and encourages them to behave and think as professionals do in these situations.
- **Common intellectual mission** prepares students for college and career with rigorous coursework needed for high school graduation that meets all admissions requirements set forth by the University of California and the California State University systems.
- A fourth design principle, **teacher as designer**, has now been added to the list which perhaps reinforced particular pedagogical approaches at High Tech High.

While Bob Pearlman (2002) states that "Despite its name and its impressive technology infrastructure, High Tech High is not a technology high school. Instead it is a school that merges academic and technical (hands-on) learning. "CEO/Principal Larry Rosenstock says, "Technology is not studied as a subject; rather technology tools, both 2D and 3D, are ubiquitous and used for producing—that is, making, shaping, forming."

This view is borne out by Andrew Webb who reported on High Tech High for the BBC in 2010, “The moment you walk into San Diego's High Tech High you realize this is a school unlike most others. Teenagers are writing video games, filming sketches, using heavy duty power tools for boat construction—and then there are the robots.” Webb goes on to observe some other projects and the students engaged in the projects, overseen by instructions from relevant industries and says, “One of his pupils adapted the '80s game Pac-Man into a 3D version. Despite his obvious skills, he does not see this as a future career. Gaming, he insists, is just something to fall back on. Instead, he aims to be a dentist.”

In other words, technology is ubiquitous and is integrated in learning, but not necessary the ultimate aim of students.

Scale

High Tech High: A Snapshot for 2010: www.hightechhigh.org/about/

- Nine schools (five high schools, three middle schools, and one elementary school). Two further schools are currently under construction, one an elementary and the second a middle school, both in Chula Vista with opening, planned for 2011.
- Approximately 4500 students, expected to reach 5000 by 2011.
- 100 percent of graduates have been accepted to college, 80 percent to four-year institutions.
- Opened first two statewide charter high schools in 2007 with plans to open additional statewide schools in coming years.
- First charter management organization to operate its own Graduate School of Education (GSE), the nation's first graduate school offering a master's degree in Teacher Leadership and School Leadership embedded within a K-12 learning community. It is reported to be “perhaps the only graduate school of education firmly embedded in K-12 schools.”

Staffing

Approximately 350 employees

Cost/Price

Close to \$100 million in real estate holdings

Annual operating budget: approximately \$35 million

Leading Practice

In some respects the leading practice of High Tech High is bound up in its implementation of personalization, adult world connection, and common intellectual mission. Those principles working together with challenge-based learning, and ubiquitous and integrated technology has led to some spectacular projects and extraordinary results. Bringing real expertise from development of High Tech High Flex which blends home-based independent learning through self-paced intelligent tutoring systems and face-to-face experiences integrates technology further into systems for supporting and managing learning is further evidence of High Tech High's continually developing and innovating approach to learning.

Lottery selection is used to select the 350 candidates from the 4500 applications High Tech High receives. Larry Rosenstock explained, “No information is taken about each student's past. There is no transcript or recommendation, only postal codes.” The computer picks appropriate percentages of candidates from each postal code, based on the number of eighth graders who live in each postal code district.

Approach to use of technology is summed up in “seeing the purpose of technology use in production, not consumption.” It is used to invent and make things. Programming is viewed as too narrow a focus and is not taught, but some students do it anyway. An example of use of new media is in production of documentary films. The students are challenged to make 15-minute documentaries on specific subjects, for example on cities that are cities today, and which were also cities in 1492. Through this they learn the power of media to represent and misrepresent, they learn geography and history through their own work and the documentaries produced by others, and they celebrate it all through the “Taco Salad Film Festival” when family and students view the films. One attendee said, “I never learned so much about the world in two hours.”

Measures used to determine the effectiveness of High Tech High include the percentage of ninth graders who enter college (currently 82 percent), and the percentage of children of poverty (currently 76 percent) and the percentage of children of poverty who enter college (currently 40 percent).

Impact

100 percent of High Tech High graduates have been admitted to college, with approximately 80 percent admitted to four-year programs.

Approximately 35 percent of High Tech High graduates are first-generation college students.

Approximately 40 percent of High Tech High alumni enter math or science fields compared to an average of 17 percent nationwide. Larry Rosenstock reflects that this strong performance in STEM derives from students in High Tech High learning to behave like scientists rather than memorizing science.

High Tech High African-American students outperform district and state-wide peers by a wide margin.

High Tech High students have completed more than 1000 internships in more than 300 community businesses and agencies, including the SPAWAR Systems Center, Qualcomm, FOX 6 News, San Diego Magazine, General Atomics, The San Diego Oceans Foundation, The San Diego Children's Museum, and the VA Hospital.

High Tech High is the first California public school organization authorized to operate its own teacher certification program. The program is run in collaboration with the University of San Diego and enables High Tech High to hire, train, and certify staff with deep content knowledge and relevant industry experience, especially in science and engineering.

High Tech High facilities have received numerous design awards, including a "2001 Educational Design Excellence Award" from the American School & University Architectural Portfolio; prestigious Honor Awards in the 2002, 2003, and 2005 Design Share Competitions respectively; and the Silicon Valley/San Jose Business Journal 2005 award for "Redevelopment Public Project of the Year."

High Tech High opened its Graduate School of Education in 2007, the first graduate school of education to open in California in more than 20 years and the only one located within a K-12 learning community. The HTH GSE awards Masters in Teacher Leadership and School Leadership to both HTH employees and outside educators. The challenge-based learning approach is applied in the graduate school just as it is within the school.

Technology

High Tech High innovatively and successfully brings together a range of key elements in teaching and learning, summed up by its guiding principles of personalization, adult world connection, and common intellectual mission. As in the adult world, technology is integrated with learning and its management and rather than being something that is added to the life of High Tech High, technology seems part of the fabric and molded to its purpose.

Similar and Related Products

A number of other schools and academies such as the Lumiar schools in Brazil share elements of High Tech High's approach and organization of teaching and learning.

Read the Education Best Practices Whitepaper and other case studies at:

www.cisco.com/web/strategy/docs/education/CiscoEdBestPracticesWhitePaper-D2_V1.pdf

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www.hightechhigh.org/

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