

PROFILE: High Tech High Network

Student-Centered Learning in Action

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I INTRODUCTION

High Tech High (HTH), which began as a single charter high school in 2000, and now comprises a network of 12 schools across San Diego, has successfully implemented new and personalized approaches that meet students where they are. The school exemplifies many of the Nellie Mae Education Foundation’s attributes of student-centered learning, in which education extends beyond the traditional school calendar and classroom walls, and requires students to take shared responsibility for learning in a variety of settings and real-world situations, where teachers act as coach and guide. Thirteen years after HTH was founded to combat the “digital divide” that resulted in low numbers of women and ethnic minority groups entering STEM fields – the school has grown into a replicable and nationally recognized model to prepare learners for 21st century success.

HIGH TECH HIGH QUICK FACTS

- Statewide Benefit Charter (Independent Charter)
- Network of 12 schools serving approximately 4,500+ students grades K-12
- Population served: White 43%, Hispanic 34%, African American 10%, Male 52%, Female 48%, FRLP eligible 26-39% (32% average), ELL 3%, Special Needs 10-12%
- 5 high schools (Grades 9-12, 400-500 students per school), 4 middle schools (Grades 6-8, 300-350 students per school), 3 elementary school (K-5, 275 students per school)
- 3 “villages” of schools located in San Diego County: Point Loma, San Marcos, and Chula Vista
- Philosophy and goals of the school: Inquiry- and project-based school programs based on underlying design principles of Personalization, Adult-World Connection, Common Intellectual Mission, and Teacher as Designer.

II SCHOOL CONTEXT AND ORGANIZATION

History of High Tech High

High Tech High (HTH) was conceived by an alliance of over 40 civic and high tech industry leaders in San Diego, California. Assembled by the Economic Development Corporation and the Business Roundtable, and led by Gary Jacobs, then Director of Education Programming at Qualcomm—the group voted in late 1998 to start a charter school and engage Larry Rosenstock as the founding principal. Rosenstock, a former vocational teacher and high school principal, brought with him a strong vision and clear set of design principles that provided the foundation for HTH’s project- and performance-based academic program. The mission was to increase the number of educationally disadvantaged students in math and engineering who succeed in high school and post-secondary education. To accomplish this goal, the alliance decided on an inquiry-based school model that integrated technical and liberal arts education and prepared students for post-secondary success in these fields. The resulting Gary and Jerri-Ann Jacobs High Tech High School was founded in the fall of 2000.

Due to the school's early success in engaging its students, leveraging community resources, and showcasing high quality student work, HTH quickly began to attract local and national attention. Over the past twelve years, the guiding vision for HTH evolved into an integrated network of schools spanning grades K-12, housing both a comprehensive Teacher Certification Program and a Graduate School of Education. The original high school is now part of a "village" of three small high schools, two middle schools, and an elementary school at its Point Loma site in San Diego, serving over 2,000 students. After receiving a Statewide Benefit Charter from the California Board of Education in September 2007, HTH established new "villages" elsewhere in San Diego County by opening schools in Chula Vista and San Marcos (North County).

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Even before the original school opened in 2000, HTH was asked by the Bill & Melinda Gates Foundation to become a demonstration and replication site for its Small School Initiative. In addition to opening new schools on its San Diego campus, HTH developed a replication strategy that brought on ten sister schools as part of an extended national HTH Network across the United States. However, because of concerns about maintaining oversight and model fidelity of schools across the country — particularly HTH's unwavering commitment to project-based instruction and no stu-

dent tracking — the HTH board voted in 2004 to discontinue this approach. Instead, HTH focuses only on replication of its schools within the Greater San Diego area, employing a "mitochondria" strategy that provides all new schools with a director and core set of teachers who have worked previously within the HTH system.

HTH does not consider itself a franchise or model, but rather an organization that advocates its design principles. HTH emphasizes what it sees as a dynamic relationship between vision and practice, and believes that any significant innovation requires teachers and administrators at individual school sites to work out their own meanings and develop their own learning agendas, building on successes as they go. HTH tries to provide conditions of work that encourage teachers and students to explore new ways of realizing the HTH design in practice.

With five times as many families and students applying to HTH schools as space available, HTH is looking at new ways of scaling up and giving more students access to HTH programs. In addition to opening new schools within its North County and Chula Vista villages, the network plans to roll out its full-time HTH "Flex" program, a project-based online learning initiative that utilizes social collaboration tools to personalize assignments and make real world connections. Currently in its piloting phase, Flex will serve a wide swath of students in San Diego, Riverside, Imperial, and Orange County who will attend HTH remotely, while also meeting in-person with their academic advisors and fellow students on a regular basis. Additionally, HTH sees its Teacher Certification and Graduate School of Education programs as key elements of its replication strategy. Through training teachers and school leaders in HTH's project-based methodologies, the network hopes to inspire and influence the creation of more HTH-like schools and programs.

Key Operational Partnerships

Although High Tech High schools operate autonomously as small schools with independent directors and budgets, they also benefit from a relationship with the centralized network offices, which offer both administrative and academic assistance. HTH schools also share a valuable connection with the High Tech High Graduate School of Education (HTH GSE) that opened in 2007 on the Point Loma campus and embeds its students as teachers and directors within HTH schools. HTH GSE is the first graduate school of education to open in California in over 20 years, and the only one located within a K-12 learning community. The HTH GSE awards master's degrees in Teacher Leadership and School Leadership to both HTH employees and outside educators.

SCHOOL/DISTRICT CONTEXT

- Early in its implementation as an independent charter, HTH enjoyed a benign and hands-off relationship with the San Diego Unified School District (SDUSD).
- In 2002, when the district tackled the conversion of four comprehensive and failing San Diego high schools into campuses of Small Learning Communities, High Tech High received a dissemination grant to work with them on the project. This included the participation by SDUSD teachers in HTH residencies, as well direct consultation on best practices in facilities design and project-based learning.

STATE POLICY CONTEXT

- As a Statewide Benefit Charter in California, HTH must adhere to all charter laws within the state with the exception of geographic limitations.
- HTH may operate at multiple sites throughout the state, and was originally required to open at least two new sites/schools in different San Diego counties in areas with struggling schools.
- Now that the first two sites, HTH North County and HTH Chula Vista, have operated for more than two years and met all of their performance objectives, HTH is free to open two additional sites each year.

COMMUNITY CONTEXT

- HTH is both a product of and a resource to the local business community, which hosts HTH interns and participates actively in the life of the school as mentors, presentation panelists, and project collaborators.
- The HTH Point Loma village is located in the middle of a mixed-use development containing a rich collection of educational, commercial, business, and cultural organizations, many of which provide the foci for student internship and field study experiences.
- HTH also works to create and nurture its adult learning community – both “in-house” and beyond. Through school tours, institutes, residences, conferences, and the HTH GSE speaker series, HTH hosts over 3,000 visitors annually.

HTH is the first charter school that has been authorized by the state of California to fully credential teachers. The HTH Teacher Credentialing program (HTH TCP) was launched in 2004, and offers subject area certification to approximately 25 teachers per year, about half of whom work as full-time HTH teachers, with the other half coming from outside of the network. HTH TCP is affiliated with University of San Diego, which has lent institutional support to the endeavor.

Use of Time

A TYPICAL DAY	
For Students	For Teachers
Begins at 8:30am	Begins at 7:30am with one hour of teacher collaboration time
2 blocks each of Humanities and Math Science, 1 block each of Spanish and Electives	Teacher Partner meeting (three times per week)
Advisory period (meets two times per week)	Faculty meeting focused on student work
Ends at 3:30pm	Ends at 3:30pm

As these two charts illustrate, HTH schools utilize a modified six-block schedule. From grades six through ten, the schedule is composed of a double block of integrated Humanities, a double block of Math and Science, one block of Spanish, one elective, a fitness elective (“X” block) that meets two times a week, and an advisory period that meets twice a week. The HTH school year runs from late August to late June—approximately two weeks longer than traditional school calendars in California. The HTH school day runs from 7:30 a.m. to 3:30 p.m. for teachers, and 8:30 a.m. to 3:30 p.m. for students. HTH teachers meet for one hour of daily, before-school, teacher collaboration time. HTH teachers spend 20 hours per month talking and meeting with each other in varied configurations. All teachers meet three times per week with their teaching partners: once a week in subject area teams, and once a week as a whole faculty. Every second faculty meeting is devoted to looking at and reflecting on student work.

EXAMPLE OF HIGH TECH HIGH STUDENT COURSES				
Grade Level	Humanities	Math	Science	Exploratory (1 semester each)
9	World Cultures and Geography/English 1	Math 1	Physics 1, 2	Additional Lab Science 3,4
10	Modern World History/English 2	Math 2	Chemistry	Spanish 1,2/Spanish 3
11	US History/English 3	Math 3	Biology & Biotechnology 1,2 or Principles of Engineering	Spanish 3/Internship
12	English 4/World Lit	Math 4 or Calculus	Environmental Engineering	Painting/Visual Tech 1,2/ Digital Art and Mixed Media 1,2/ Physics 3,4

Many HTH schools also hold “intersessions” for students, which last from one to three weeks and occur once or twice a year. At the Gary and Jerri-Ann Jacobs HTH, intersession takes the form of a two-week long intensive elective course. HTH Media Arts hosts “One World Week,” in which students participate in out-of-school excursions and expeditions. HTH International hosts “Immersion Week,” in which students often travel nationally and internationally.



HTH offers or sponsors a variety of after school athletic and academic programs. HTH middle school programs provide extended day opportunities through “PrimeTime,” an academic support and enrichment program offered for free through After School Education and Safety (ASES) state grant funds. Summer school is available for those students who require academic enrichment or need to make up credits. A two-week “Summer Bridge Program” serves to orient all incoming sixth grade students.

The HTH learning environment extends into the community.

Beyond extensive field projects as part of regular classes, each student must complete a workplace “academic internship” of at least 100 hours. Whereas in the past, juniors at HTH schools completed their internship during afternoons and at different times of the year they now complete their internship requirement during a three-week intensive experience working full-time at internship sites. HTH devotes thoughtful attention to internship coordination, with advisors and teachers working to provide a context where students can reflect on and articulate the meaning of their internship experience. Since 2002, HTH students have completed over 1,500 internships at over 300 sites. According to Chris White, HTH Director of College Advising, the internship plays a critical role in convincing HTH students to go to college—especially first-generation attendees.

Facilities – Use of Space

HTH places great importance on ensuring that its buildings communicate the feel of a non-traditional learning environment to occupants and visitors. HTH facilities strive to model what the network believes to be to good practices for 21st century teaching and learning, with every building emphasizing flexible use, community gathering, team teaching, active learning, and the regular exhibition and presentation of student work. Large window openings permit views in and out of all learning and meeting spaces, in an effort to make the life and workings of the school visible, coherent, and charged with activity and excitement.

Non-traditional spaces and features found in all HTH facilities include:

- A centrally located **Commons Area** for formal and informal large and small group meetings
- **Multi-Purpose Classrooms** with flexible furniture for project-based learning, ubiquitous technology, and movable walls for team teaching



- **Studio Spaces** for informally supervised and un-programmed individual and group study
- **Grade Level Neighborhoods** of clustered classrooms and teachers offices around a shared Studio space
- **Specialty Labs** for designing, building, and storing student projects
- **Shared Teacher Offices** for cross-discipline teaming and collaboration
- **Multiple Display Areas** for the ongoing presentation, exhibition, and display of student work
- **Outdoor Courtyards** that extend learning beyond the classroom.

Funding

HTH sees its success as both academic and financial. Due partly to economies of scale, partly to a lean administrative model, and partly to successful fundraising to meet startup costs and reduce facilities debt service—the HTH schools are able to meet operational expenses within the California per-pupil allocation of \$7,000. The High Tech High network is funded through revenues generated from per pupil state funding, in addition to monies earned through curriculum institutes, residencies, and technical assistance offered to schools groups nationally and internationally. Each High Tech High school contributes approximately 8% of their operating budget to the HTH central network, as compared to the 23% contribution that SDUSD schools make to the district.

As ones of its key demonstration sites and replication models, HTH has worked in partnership with and received funding from the Bill & Melinda Gates Foundation, and it enjoys ongoing philanthropic support from the Jacobs Family, co-founders of the school and owners of Qualcomm. Most support has come in the form of seed money to fund or finance facility acquisition and renovation.

In 2008, HTH received a \$2 million dissemination grant from the California Department of Education to document and disseminate its best practices in middle school teaching and learning. The outcome is a book entitled *Learning By Design*, published by HTH and available for free to any person working in a public California middle school, and at cost to all others.

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Scale

HTH leadership chose to open fewer schools, and “do them well,” as opposed to continuing a national replication strategy that did not allow for full quality control of their sites. Instead, the organization seeks to spread its practices and to influence national dialogue

about school reform through publications such as “Un-Boxed,” and web-based resources and tools, institutes and residencies, its graduate school and certification programs, the Graduate School for Education speaker series, and an open door policy that allows visitors to observe and learn from the network’s teachers and students.

All HTH schools are replicated in-house through the network’s “mitochondria model,” with each new HTH school planned and populated by seed groups of three to five HTH teachers and teacher leaders, all of whom have lived and breathed the HTH experience by working in an HTH school for two or more years. Although this approach can present challenges to existing schools—momentarily draining them of valued teachers and leaders—it assures the network that each new school both understands and adheres to the four HTH design principles and three HTH integrations (see Instructional Experiences for a description).

The specific program elements that HTH requires of each new school are:

- No student tracking
- Daily (before school) planning time for teachers
- Ongoing professional development for teachers
- Student advisories
- A focused and uncompromising approach toward the development of robust and integrated student projects

III TEACHING AND LEARNING

Instructional Experiences, Curriculum and Pedagogy

The High Tech High program and curriculum are grounded in earlier work of Larry Rosenstock, Rob Riordan, and their colleagues in the New Urban High School Project (NUHS)—an initiative of the U.S. Department of Education’s Office of Vocational and Adult Education from 1996-1999. The initiative sought to identify, study, and provide technical assistance to six inner-city high schools that were using student-centered strategies, such as internships, field work, and project-based learning as levers for whole-school reform. NUHS findings were summarized in a practitioner’s guide and a high school planning guide that centered on six design principles.

Four design principals facilitate a student-centered school culture: **personalization; adult world connection; common intellectual mission; and teacher as designer.**

High Tech High went on to compress the six NUHS design principles into three: **personalization, adult world connection,** and **common intellectual mission.** Each of these principles connects to the broad mission of preparing students for the adult world of work and learning, and call for structures and practices not generally employed in traditional schools. High Tech High later added a fourth design principle, known as **teacher as designer.**

HTH endeavors for its design principles to permeate every aspect of life at HTH schools: the small size, the openness of the facilities, the personalization through advisory, the emphasis on integrated, project-based learning and student exhibitions, the requirement that all students complete internships in the community, and the provision of ample planning time for teacher teams during the work day.

Personalization

Every HTH student has a staff advisor who monitors their personal and academic development and serves as the point of contact for the family. Students pursue personal interests through projects and compile and present their best work in personal digital portfolios. Students with special needs receive individual attention in a full inclusion model. Facilities are tailored to individual and small-group learning, including networked wireless laptops, project rooms for hands-on activities and exhibition spaces for individual work.

Adult World Connection

HTH students experience much of their learning outside the school walls. Juniors complete a 100-hour academic internship in a local business or agency. Seniors develop substantial projects that connect to problems of interest and concern in the community. Earlier, in ninth and tenth grade as well as middle school, students may “shadow” an adult through

KEY HIGH TECH HIGH PROGRAM FEATURES

- Student projects throughout the year and in all subject areas
- Field studies that bring students into the community and connect them with adult professionals/mentors
- Performance-based assessment through frequent Presentations of Learning (POLs) and formal exhibitions of student work
- Advisories groups of 12-15 students that meet two times per week, are multi-grade, and remain consistent over middle and high school years
- Academic internships of 100 hours for all Juniors that include workplace projects and humanities-based reflection
- Senior projects that allow students to delve deeply into their interests and passions
- Digital portfolios that provide all 6-12 grade students with a forum for editing, reflecting on, and celebrating their work and growth
- Internships and community service experiences that expose students to adult mentors and the world of work
- Ubiquitous technology that enables students to navigate, utilize, and synthesize digital information
- Academic teaching teams organized by grade and integrated across disciplines, with limited teacher loads of 50-75 students
- Daily meeting time for teachers, for collaboration, project planning, professional development, and reflection Heterogeneous grouping of students in all HTH classes



a workday, perform community service in a group project, or engage in “power lunches” with outside adults on issues of interest. The HTH facilities themselves strive to have a distinctive high-tech workplace feel, with windowed seminar rooms, small-group learning and project areas, laboratories equipped with the latest technology, ubiquitous wireless laptop access, and common areas where artwork and prototypes are displayed.

Common Intellectual Mission

Intentionally, HTH makes no distinction between college prep and technical education in order to qualify all students for success in both college and the world of work. Enrollment at HTH is non-selective, and there is no tracking of its students by ability levels. The curriculum aims to be rigorous, and is designed to meet California’s A-G requirements. Assessment at HTH is performance-based; all students develop projects, solve problems, present findings to community panels, and complete an academic internship, a substantial senior project, and a personal digital portfolio. HTH teaching teams use planning time to devise integrated projects, common rubrics for assessment, and common rituals by which all students demonstrate their learning and progress toward graduation.

Teacher as Designer

HTH teachers work in interdisciplinary teams to develop the program for 50-70 students per team. The HTH schedule accommodates team teaching, common planning time, project-based learning, work-based learning, and other regular student and teacher interaction with the outside world.

High Tech High believes that its strong emphasis on projects as a learning strategy helps students to develop a personal connection to their work in the classroom and beyond. As they explore their individual interests and passions, students make connections to their emerging identities as learners, workers, and citizens. When such projects take them into the world of work, they also encounter the attention, support, and high standards of adult mentors. Insight into the individual learner deepens in the advisory groups to which all High Tech High students belong. Here, 12-15 students meet regularly with a teacher-advisor who closely follows their personal and academic development.

Three Key Integrations

HTH intends for its design principles to replace what it believes to be three entrenched tenets of traditional American high schools:

- Isolation of adolescents from the adult world they are about to enter
- Segregation of students by class, race, gender, language ability, and perceived academic ability
- Separation of academic from technical teaching and learning.

It replaces these with three key integrations: school and community; students; and hands and minds.

Connecting School and Community

The HTH learning environment extends to the community in a variety of ways. Beyond extensive field projects as part of regular classes, each student must complete a workplace “academic internship.”

Bringing Students Together

HTH admission is non-selective, and there is no tracking at High Tech High—a commitment that extends to special education. HTH teachers believe that heterogeneous grouping benefits students at both ends of the academic spectrum. It doesn’t label them as dumb or smart, and is made possible by the multiple entry points that projects allow.

Linking Hands and Minds

HTH seeks to reverse what it sees as a 100-year history of separating technical and academic subjects in American high schools, by linking cognitive and hands-on work in a project-based environment. All HTH students use technology to engage in scientific, mathematical, literary, historical, and artistic pursuits.

Educators and Administrators

Teachers exhibit strong leadership and collaboration skills by playing active roles in running HTH schools, and helping to make key decisions about curriculum, schedule, and budgets.

High Tech High schools employ a relatively flat administrative structure. Each high school operates with a Director, who serves as the academic leader of the school; a Dean of Students, who works directly with students on academic and behavior issues; a College Advisor, who devises a college readiness and application plan with each student; an Information Technology Coordinator, who oversees the school’s technology infrastructure, and a Receptionist, who focuses in administrative matters. Each middle school operates with only a Director, IT Coordinator, and Receptionist.

Teachers play extremely active roles in running HTH schools, helping to make key decisions and recommendations about curriculum, schedule, and budget allocation. HTH school directors are generally individuals who started out working at HTH as teachers and exhibited strong leadership and collaboration skills.

The HTH central organization seeks to facilitate the development of HTH schools. It provides support to individual schools through administrative assistance, business, and back-office services, coordination of special education services, research and data collection, materials development and dissemination, human resources, and fundraising. The central organization also provides school sites with the educational vision, professional development experiences, project-based learning tools, and overarching curricular coordination and assistance that enable them to put the HTH design principles into practice.

Competency Based Structures and Assessment

Throughout the school year, High Tech High students develop multiple projects in which they think critically to solve problems, create products, and interpret their findings. Curriculum units usually end with student presentations before an audience, and more formal presentations take place on a regular basis. Student presentations are referred to as POLs (Presentations of Learning) and offer feedback to students on their work. POL panels are composed of teachers, students, parents, and visiting community professionals. Once a year, a campus-wide exhibition and evening open house is held to showcase student work.

Students develop critical thinking and problem-solving skills through a project-based learning environment that reflects real world demands.

When presenting POLs, students are expected to exhibit mastery of subject matter and habits of mind. If a POL is not done well the first time, teachers require that they be repeated. The faculty sees exhibitions and POLs as powerful ways to achieve personalization, encourage student ownership, foster family involvement, witness emerging community standards, and stimulate teacher learning and growth. Across the middle and high school years, students also organize and present their work in a cumulative digital portfolio,

collecting evidence that they have met the standards of the school and the state. Most HTH schools adopted versions of the Habits of Mind (HOMs), originally developed by the the Coalition of Essential Schools, to frame student projects and guide their presentation and assessment. Most schools' HOMs include: perspective, evidence, relevance, connections, and supposition—all critical thinking skills that enable students to function as intellectuals capable of organizing, expressing, and supporting their ideas. In addition to HOMs, teachers must align project requirements and assessments with California academic standards.

Presentations of Learning generally comprise a part of a student's grade and play an important role in creating a culture of learning that supports and celebrates high quality student work. HTH teachers report that students come to expect and prepare for the real world, real-time feedback that POLs provide. Students become more adept and honest when reflecting on and presenting their work, and the bar for what constitutes high quality work tends to rise.

Students receive report cards at the end of every semester. Although much of the work done at HTH may be seen as non-traditional, the schools choose to report their assessment of students through traditional looking grades and classes. HTH wants colleges to have an easy time understanding their students' transcripts. Teachers and advisors also write meaningful, personalized comments about each student, believing that these comments capture progress better than a simple letter grade ever could. Parents also have the opportunity to discuss their students' progress with teachers during parent-teacher conferences that occur twice per year.

HTH students also take traditional tests within their classes. They are also required to take and pass the full battery of state mandated tests in order to graduate. These include the California Standards Tests known as the STAR, and the California High School Exit Examination (CAHSEE). All HTH students prepare for and take the PSAT and SAT exams.

Grouping for Learning

To achieve personalization, High Tech High has chosen to limit the size of its schools to 100-140 students per grade level. By collaborating in teams that work with the same students, HTH provides teachers with opportunities to share important information about students' individual needs, as well as integrate curricula and projects across academic disciplines. Students in grades six through ten have two core academic teachers: a math-science teacher and a humanities teacher (English and social studies). Each teaching team shares responsibility for 50-70 students during four blocks of the day, giving them the flexibility to organize instructional time as needed.

Professional Development for Educators

HTH administrators actively support the work of HTH teachers to put the HTH design principles into practice by offering a variety of learning opportunities for practitioners, including teacher residencies and institutes at High Tech High, teacher ambassador programs, and on-site technical assistance. HTH also provides resources for educators, including guides to project-based learning, curriculum integration, internship program development, teaching to diverse learners, student advisory, college advising, facilities development, technology infrastructure and policies, and management. HTH makes its growing library of resources available through an online, open-source, Intranet site operated by the HTH Graduate School of Education.

HTH strives to position its teachers for success. Their schedule permits them to come to school an hour before the students each day to plan projects, discuss student work, and engage in professional development activities. First- and second-year HTH teachers participate in the network's Odyssey Program, meeting weekly to discuss their questions and challenges, and partnering with an HTH teacher mentor for two years. All HTH teachers receive professional development throughout the year through daily planning meetings, five to six staff planning days interspersed throughout the school year, and eight days of summer development and planning.

Strategies for meeting the needs of English Language Learners, special education, and struggling students

HTH is able to group its students heterogeneously by providing them with differentiated instruction within the classroom, as well as structuring multiple entry points to student projects.

Admission to HTH is non-selective (through a blind lottery), and there is no student tracking—a commitment that extends to special education. English Language Learners (ELL) and special needs students receive individual attention, but within the HTH full-inclusion model. HTH is able to group its students heterogeneously by providing them with differentiated instruction within the classroom, as well as structuring multiple entry points to student projects. Although often challenging, HTH teachers believe that this approach benefits students at both ends of the

KEY BEHAVIOR AND ACADEMIC INDICATORS

Behavior Indicators (2009 - 2010)

Attendance	95%
Students receiving one of more D or F grade	16%
Retention	1%
Attrition	10%
Graduation	100%

California High School Exit Exam (CAHSEE) - % pass by end of 11th grade (2008-2009)

English Language Arts	95%
Math	90%

SAT

Participation	91-94% of HTH Seniors take the SAT exam as compared to 48% district-wide and 37% statewide.
Average combined Math and Verbal SAT scores	1052
Average combined Math, Verbal, Writing SAT scores	1554
Subgroups	On average HTH subgroups out-performed the state and national averages in 2007-09.

OTHER

Academic Performance Index	Academic Performance Index rankings (API) place HTH schools among the highest achieving public schools in the state.
African-America students	Outperform district and statewide peers by a wide margin vis-à-vis test scores, percentage who take chemistry, physics, and advanced math (100%), and college entry (100%).
Math or Science Field	Over 30% of HTH alumni enter math or science fields (vs. 17% national rate).

academic spectrum. It should be noted that HTH's ELL population is low at 3%, while its 10-12% Special Needs population is similar to the state average.

HTH joined the Desert/Mountain Special Education Local Plan Area (SELPA) in 2004 as an LEA, or Local Education Authority. This LEA status gives HTH the autonomy and resources to put together what they report to be a well-supported, full-inclusion program without the burden of costly payments to the San Diego Unified District. Depending on the school, HTH schools now

have an equal or higher percentage of special education students than the district, the county, and the state—and they spend three times as much on special needs students as HTH spent before leaving the district’s SELPA.

All HTH students receive extra support as needed in class and in a variety of tutorial contexts during and after school, including sessions with a special education teacher. HTH aims to support its teachers to work with students with different needs through its extensive professional development program.

IV EVIDENCE OF EFFECTIVENESS

High Tech High leaders believe that its greatest achievement to date has been to create and sustain a learning environment that prepares a diverse group of students for post-secondary success. The school’s personalized, hands-on approach to learning, along with its emphasis on connecting to the adult world through internships, has afforded traditionally underserved students access to college and other post-secondary options.

HTH has a diverse student population admitted by lottery, yet achieves very strong results in college enrollment and attainment. The 295 graduates in the Class of 2009 were admitted to college at a 99 percent rate, with 80 percent planning to attend a four-year university. Overall, 80 percent of HTH graduates have enrolled at four-year universities, including Johns

KEY HIGHER EDUCATION INDICATORS	
University of California (UC) Entry Requirements	100% of HTH students take all the classes they need to meet the UC entry requirements compared to a state average of 33%. The class of 2009 was accepted into the UC system at a rate of 60% compared to a state average of 23%.
Application Rate	100%
Acceptance Rate	99% of HTH’s graduates have been admitted to college, with approximately 80% admitted to four-year programs.
Attendance	99% college bound, with 73% attending 4 year colleges.
First Generation	Approximately 35% of HTH graduates attending college are first-generation college students.
Completion	82% have graduated or are still enrolled in college.

Hopkins University, Massachusetts Institute of Technology, Stanford University, Howard University, University of Southern California, University of San Diego, University of California at Berkeley, New York University, and Northwestern University. The retention rate is also high: out of 774 HTH graduates since 2003, 82 percent have graduated or are still enrolled in college.

V STUDENT, PARENT, AND COMMUNITY ENGAGEMENT

Student Engagement

HTH has sustained a personalized and hands-on learning environment that prepares a diverse group of students for post-secondary success.

The HTH design principles of personalization, adult world connection, and common intellectual mission all strive to foster and support students' active engagement in their learning and within the school community. The project- and performance-based nature of the HTH program emphasizes pro-active learning, with teachers taking on the role of coach and facilitator, and students discussing and self-assessing their work on a regular basis.

Students discuss issues that affect the school community within their advisory groups, as well as in regularly scheduled all-school meetings. Those students wishing to play a more active role in school government can participate in the Associated Student Body (ASB), which elects students as representatives. HTH schools host a wide variety of after school clubs, and students are encouraged to take the initiative to find adult sponsors should they want to start a new club of their own.

Projects become increasingly student-driven and personalized as students master the process of organizing and executing them throughout their years at HTH. Students record and reflect on their project work through digital portfolios that they construct and maintain from the start of their HTH experience in middle or high school. Digital portfolios highlight all phases of project work, including successive drafts of written pieces, and final products in a wide variety of media. Through the process of developing and maintaining digital portfolios, students are engaged in an ongoing process of exploring personal interests, skills, and talents, as well as monitoring their progress on school learning goals.

The high degree of transparency in HTH facilities creates an atmosphere in which students feel free to navigate their schools independently. Whether they are working individually or in small groups within classrooms and studio spaces, or gathering within conference or commons areas—student learning is always on display. The creation of grade level neighborhoods—each containing 100-120 students and 4-5 teachers within a clearly articulated cluster of spaces—also aim to help students develop a sense of community, engagement, and accountability.

Parent Engagement

HTH schools encourage parents to become engaged in a variety of ways, such as volunteering, serving as visiting panelists for Presentations of Learning (POLs), hosting “power lunches” as visiting professionals, planning events and information sessions, fundraising, and participating in the Parent Advisory Committee. However, HTH emphasizes to its parents that their most important form of engagement in the school is to act as cheerleaders, advisors, advocates, schoolwork monitors for their children as they progress through their years at HTH and, as juniors and seniors, make choices about post-secondary options and directions. HTH parents are expected to participate in their children’s student conferences and strongly encouraged to attend their POLs and exhibitions. Attendance at these events is generally very high.

Community Opportunities and Involvement

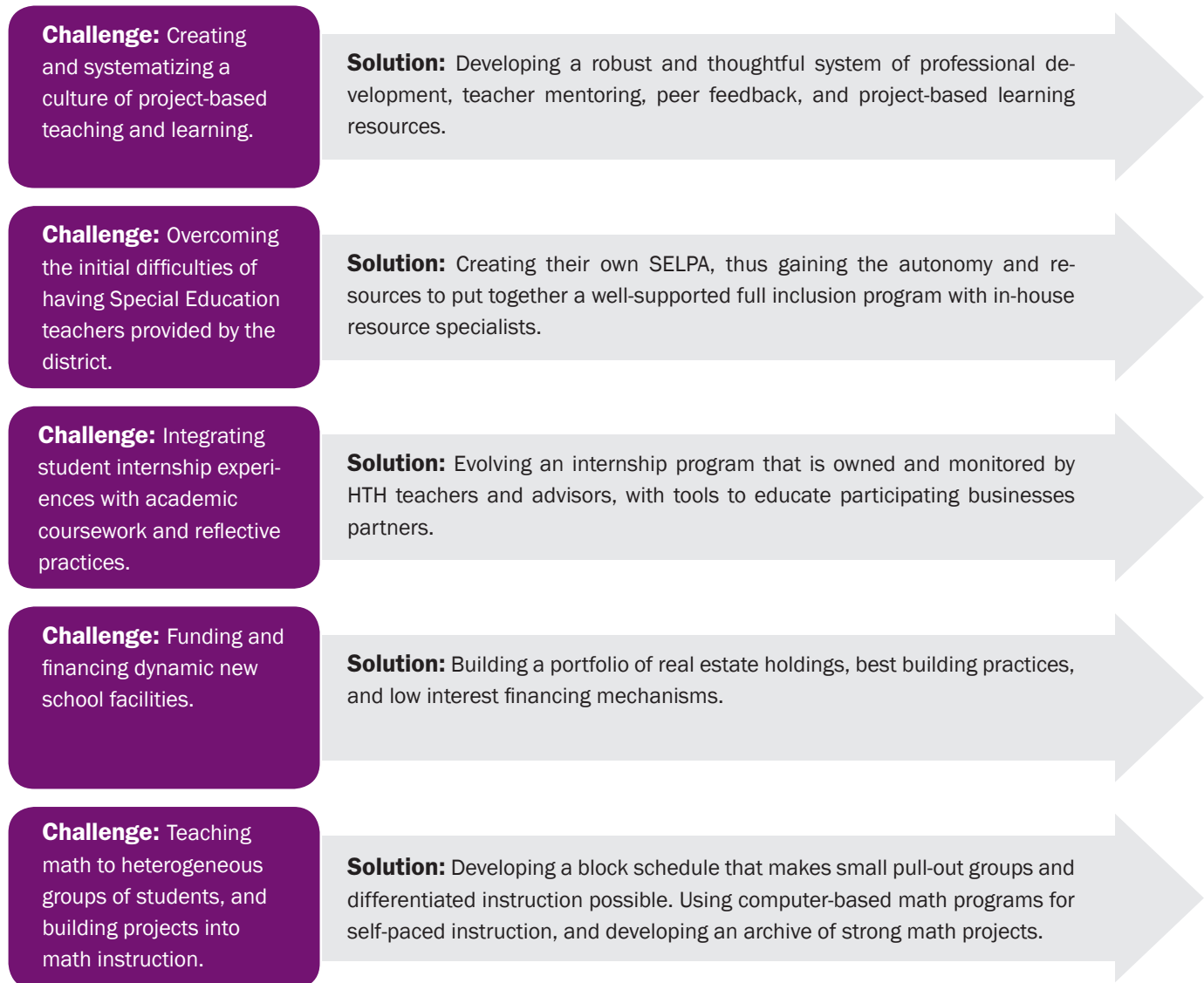
Originally launched by an educator and industry coalition, HTH has had strong ties to the San Diego business and cultural communities from its inception. Over the past 10 years, the HTH Academic Internship Program has placed students in more than 1,500 internships in over 300 community businesses and 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.

Many students go on to intern or work at their internship site during the summer or their senior year, and/or focus their senior project on a product or service of benefit to the internship site or community. Additionally, many HTH teachers and students have developed ongoing partnerships with local businesses, media enterprises, environmental groups, and research entities through field studies connected to student projects.



VI ACCOMPLISHMENTS AND CHALLENGES

HTH has faced and met many challenges during its first 10 years of development. The diagram below outlines some of these key challenges and the school's approaches toward working with them.



Key areas where High Tech High is working now and areas for improvement

HTH believes that the building blocks are in place for its continued growth and success: the Statewide Benefit Charter, the LEA status for Special Education, the development of a K-12 vision at the San Diego campus, and, most importantly, the capacity to develop a core of teachers and leaders who can carry the HTH culture to new venues. The network asserts that none of its schools have reached the “achieved state,” and they probably never will. It considers HTH more of a laboratory than a model, working to better understand the HTH principles and accumulate a growing body of applied experience.

The areas in which HTH is focusing its attention at this time include:

- “Bricks and Clicks,” looking at blending school-based and virtual learning in effective and meaningful ways, both within HTH schools and within the HTH Graduate School of Education
- Scaling the HTH professional development model to reach as many practitioners as possible
- Forging “Communities of Practice” with other innovative schools around the world, through efforts, such as their web-based Saturday Collegial Conversations, and the HTH GSE Leadership Certificate Program
- Gathering, interpreting, and using data to get the word out about the efficacy of HTH strategies

Key areas in which HTH seeks to improve its practice include:

1. Further development of online learning platforms
2. Recruitment of more minority staff
3. Improved orientation and support of first year students who often have big adjustments to make when they enter HTH schools

VII CONCLUSION

High Tech High schools are designed to promote a deeper learning experience that equips students with the skills and knowledge needed to thrive in college and careers. The school’s success is attributable to differentiated and personalized approaches, including a variety of multi-disciplinary and field-based learning opportunities that enable students to build skills in critical thinking, problem solving, and communication, in addition to core subject areas. Students are evaluated through formative and summative assessments, and progress is based on mastery – not the time spent in class. HTH teachers take on the role of skilled facilitators and advisors in addition to content experts, by designing and implementing coursework that meets California standards and exposes students to new experiences. Each teacher works to develop strong, respectful relationships and a personalized school culture, which is supported externally by a network of community members, parents and professionals. These adults create expanded educational opportunities that add to the rigor of course content and help to foster a sense of community and belonging for students. HTH has a high rate of college enrollment and retention – results that show its graduates are better prepared for a complex and fast-changing world after high school.

VIII APPENDIX: RESOURCES

Links and Tools

In addition to providing onsite learning opportunities for practitioners, HTH has developed an impressive collection of open-source online learning resources for educators. HTH is actively working to make these resources increasingly robust. They include:

1. **HTH Projects** (www.hightechhigh.org/projects/): A collection of 66 HTH project write-ups, overviews, outlines, and appendices
2. **How To: High Tech High** (<http://videos.hightechhigh.org/>): A collection of 144 professional quality videos illustrating what HTH teachers and students do.
3. **High Tech High Student Videos** (<http://videos.hightechhigh.org/>): A collection of 46 videos made by HTH students about what they are doing and learning.
4. **Learning Videos** (<http://videos.hightechhigh.org/>): A collection of 79 relatively unproduced videos about both adult and student learning. HTH Graduate School of Education student produced videos appear here, as well as work done by educators from around the world who participate in HTH professional development.
5. **Unboxed** (http://www.hightechhigh.org/unboxed/issue5/editors_welcome.php): HTH's publication on innovative educational practices.
6. **High Tech High Newsletter** (<http://newsletter.hightechhigh.org/>): 5 years of HTH in the news.
7. **The High Tech High Teacher** (<https://sites.google.com/a/hightechhigh.org/gse/Home/the-high-tech-high-teacher>): Guidelines for HTH teachers.
8. **New Teacher Tips** (<https://sites.google.com/a/hightechhigh.org/gse/Home/new-teacher-tip>): Tips of classroom and project management.
9. **GSE Library** (<http://gse.hightechhigh.org/books/>): A comprehensive listing of books on education used by the HTH Graduate School of Education.
10. **External GSE webpage** (<https://sites.google.com/a/hightechhigh.org/gse/>): A protocol for looking at student work.
11. **Faculty handbook** (<https://sites.google.com/a/hightechhigh.org/gse/>): A guide for faculty members to HTH practices and procedures.
12. **Student handbook** (<https://sites.google.com/a/hightechhigh.org/gse/>): Rules, regulations, and expectations at HTH.
13. **HTH structures** (<https://sites.google.com/a/hightechhigh.org/gse/>): A collection of videos of HTH practices.
14. **Most significant learning experience** (<https://sites.google.com/a/hightechhigh.org/gse/Home/facilitator>): An activity to identify elements of strong projects.
15. **Developing projects from interests** (<https://sites.google.com/a/hightechhigh.org/gse/Home/facilitator>): An activity to model strong project development.
16. **Consultancy protocol** (<https://sites.google.com/a/hightechhigh.org/gse/Home/facilitator>): A protocol for looking at student work.

17. **Collegial conversations video protocol** (<https://sites.google.com/a/hightechhigh.org/gse/Home/facilitator>): A protocol for sharing student work.
18. **High Tech High Online:** A synchronous environment in which High Tech High has begun offering professional development to educators online.
19. **Collegial Conversations at a distance:** A forum where educators from around the world gather virtually to look at student work and to discuss educator dilemmas through structured conversations known as “protocols.” Collegial Conversations at a distance occur on the 2nd Saturday of every month at 10:30 am (Pacific).
20. **HTH Online Symposia:** An online follow up to HTH residencies and institutes.

Third Party Videos and Articles

21. **Project Based Learning at HTH** (http://www.youtube.com/watch?v=6rv_rmJYorE): 15 minute Mobile Education Institute video about Larry Rosenstock and project-based learning.
22. **Collection of Edutopia videos about High Tech High** (<http://www.edutopia.org/collaboration-age-high-tech-technology-video>):
 - Transformed by Technology: High Tech High Overview
 - The DNA of Learning: Teens Tackle Animal Poaching Through Genetics
 - Team Teaching: Two Teachers, Three Subjects, One Project
 - Adult-World Connections: An Internship with Real Impact for Rescuers
 - High Tech, Higher Learning: A School Grows Its Own Teachers
 - Taking the Lead: An Interview with Larry Rosenstock
23. **High Tech High in the News** (<http://newsletter.hightechhigh.org/newsarchive.php>): Link to over 25 articles about HTH, including Business Week and Forbes Magazine.



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