VIDA
Vista Innovation Design Academy

Inspired by Qualcomm® Thinkabit Lab™

VISTA, CA

School Profile

Vista Innovation & Design Academy
Location: Vista, CA
School district: Vista Unified School District
Grades: 6-8
Student population: approx. 700 (2015-2016)
· 67% Latino
· 13.2% English language learners
· 65% Eligible for Free Reduced Lunch
· 33% Homeless
· 17% Students with disabilities

Golden Bell Award, California School Boards Association, 2015

Inspire Award Honorable Mention, Classroom of the Future Foundation, 2015

" The Thinkabit Lab is what we should be doing in schools. ... If we could duplicate this experience over and over again, the future of our economy and future lives for students will be improved.

Dr. Eric Chagala
Principal, VIDA

" Many of our kids do not know what an engineer is—'success' was not necessarily engineering. Now it may play a part in their success and future.

Teacher
VIDA

Increasing student and community interest in STEM at Vista Innovation & Design Academy

A design thinking-based magnet school for 6th-8th grade students, Vista Innovation & Design Academy (VIDA) in Vista, California, provides science, technology, engineering and math (STEM) education in an innovative way. VIDA views STEM as an opportunity for engineering and science to intersect with the arts and has integrated these opportunities into all content areas throughout the school.

VIDA provides some of these opportunities in the form of hands-on engineering experiences at its Inspired by Qualcomm® Thinkabit Lab™, the result of a collaboration with Qualcomm. In another creative move, VIDA makes this lab available not just to its own students and teachers but also to other schools, teachers and community members who are interested in having these kinds of experiences.

Challenge

» The U.S. Department of Labor estimates that more than half of the 1.4 million new computing jobs anticipated by 2018 could go unfilled because candidates will not possess sufficient education and qualifications. To fill the demand, more people who are traditionally underrepresented in the computer science and engineering fields must be brought into the equation.

> **2013 Engineering Occupations[1]**
> (a) Women 14.8%   (b) Latinos 6.57%   (c) African Americans 3.64%

» VIDA opened its doors in 2014, with the theme: "To nourish the creative thinking skills of students and approach learning through the well renowned Design Thinking process that will empower students to take what they have learned and apply those skills to create non-traditional solutions to yesterday's, today's, and tomorrow's problems."

» VIDA adopted the Project Lead the Way Gateway program which empowers students to lead their own discovery and engages them in activities in computer science, engineering and other STEM subjects.

» The school provides students with Design Labs—specialized classes that enhance creativity, build technical skills or focus on the Design Thinking process. Design Labs cover a range of topics and interests, such as robotics, computer science and poetry, and are incorporated throughout the school's curriculum.

» VIDA provides spaces where students can be creative while learning about science and engineering. For example, their Innovation Studio (iStudio) is a makerspace where teachers bring their Design Lab classes for one week each quarter to engage in maker-based experiences that do not require the use of technology. Teachers give students a problem, and students use the design-thinking process to build a solution. Students can also use the iStudio before and after school to work on design projects for their core classes.

» The Thinkabit Lab opened in 2014 at Qualcomm's San Diego headquarters. The Vista Unified School District's superintendent toured the lab and was so impressed with what he saw that he arranged for VIDA students to visit. Sixth grade students and their teachers began taking field trips to the Qualcomm Thinkabit Lab where they were immersed in career development and exploration and fun, hands-on engineering activities led by Qualcomm employees with STEM and teaching backgrounds. The visitors were engaged from the moment they walked in and left feeling inspired, motivated, better prepared to align their unique talents to a future career and confident that they had the skills to become engineers. Teachers began asking how they could continue the experience.

» Due to the growing number of requests from schools and teachers to visit Thinkabit Lab, Qualcomm launched an expansion initiative in 2015 to help schools create similar spaces and activities to meet the need for engineering learning experiences. Based on VIDA's commitment to design thinking, innovation and technology—and its enthusiastic leadership and staff—Qualcomm invited VIDA to become a pilot school for the Inspired by Thinkabit Lab expansion initiative.
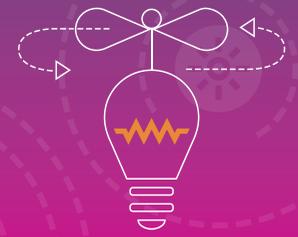
Solution

» As part of its commitment to VIDA, Qualcomm helped transform a classroom into a colorful, Inspired by Qualcomm Thinkabit Lab filled with technology and opportunities for enhancing students' learning experiences. Instructors from Thinkabit Lab supported VIDA's leadership team through the build-out process, from space design to content development, to teacher training. This included painting the walls in bright, Thinkabit Lab-branded hues; placing inspirational quotes and graphics on the walls; purchasing materials and equipment, such as Arduinos (microcontrollers), servo motors, laptops, a 3-D printer, an ELMO document camera, flat screen TVs for projection, and arts and crafts materials. The room is furnished with tables and chairs, arranged so students can work in teams or individually, and includes storage for materials and tools.

» VIDA's Inspired by Thinkabit Lab opened in 2016. Students who were in sixth grade in 2015 learned coding, programming and robo-crafting during their one-day experience at the Qualcomm Thinkabit Lab. To get all students trained in using Arduinos and servos, instructors from Thinkabit Lab taught a version of the one-day Thinkabit Lab experience to students and teachers at VIDA's Inspired by Thinkabit Lab. Once everyone was trained, teachers could expand their lessons and innovate in all subject areas.

» All teachers have access to the Inspired by Thinkabit Lab through a reservation system and are welcome to bring their students for an innovative learning experience that focuses on design-based thinking, problem solving, collaboration, coding and technology.

» VIDA's principal envisions the Inspired by Thinkabit Lab as a community hub where teachers, parents and students in the broader community can have access to design-thinking and project-based engineering experiences:

- Qualcomm or VIDA teachers are able to provide the one-day Thinkabit Lab experience for VIDA middle school students
- Teachers are enabled to facilitate technology-based learning experiences for their own subjects through Design Labs and challenges using the Inspired by Thinkabit Lab space
- School staff could provide opportunities for community members and other schools to engage in design-based experiences
- School and district staff could host professional learning for schools and teachers interested in developing skills and knowledge around design-thinking and project-based learning

» VIDA's leadership team and educators have access to a free, online portal created by Qualcomm to extend the Thinkabit Lab experience to schools, educators and students, regardless of their location. The system contains a wide variety of resources, such as Thinkabit Lab-branded materials; recommended equipment, tools and supplies; videos; lesson plans; and more.

Impact

» Having an Inspired by Thinkabit Lab leaning environment at their school enhances the experiences that VIDA's teachers can provide students. Whereas the iStudio is intended for building low-tech prototypes that do not require technology, the Inspired by Thinkabit Lab allows for more advanced work, providing opportunities for students to design projects that incorporate technology and have real-world applications. These experiences provide potential opportunities to foster students' understanding of how what they are doing relates to the real world, help them to acquire technical skills that may better prepare them for working in an innovation economy and foster a greater level of interest in STEM.

» The number of girls enrolled in the school's robotics course rose significantly. Before having the hands-on Thinkabit Lab experience, only four girls were enrolled in the course. After the experience, 12 girls enrolled.

» A high school outside VIDA's district has used the middle school's Inspired by Thinkabit Lab for professional development.

» VIDA's principal and teachers reported that the collaboration with Qualcomm affirms the school's mission to support innovation and creativity for students through design-thinking and project-based learning experiences.

» Qualcomm's investment in VIDA inspired a great sense of pride for students, families and the district.

» Influenced by the day-long Qualcomm Thinkabit Lab experience, including the Qualcomm® World of Work (QWOW™) activities and the opportunities to code, collaborate, build and present their creations, VIDA's leadership is considering ways in which it can provide students opportunities to further develop the skills and knowledge necessary for their future career trajectories. For example, VIDA expanded its robotics program to build capacity for students to develop transferrable skills within coding and programming. The addition of a public speaking class emerged from realizing the importance of communicating one's ideas in the entrepreneur world.

[1]National Science Foundation, 2013