

# blueprint for innovation

## KCI Launches New CIO Program for Educators



School districts across California face a critical staffing gap that can impact whether they are able to adequately prepare students for the future. To take full advantage of technology integration in the classroom, districts obviously need the infrastructure, but what is often lacking is the staff who understand both the back-end hardware and network side as well as the educational purpose and goals that technology must support. In short, to be effective they must understand the “big why” for the bigger picture of technology and how devices and apps will be used for teaching and learning.

KCI’s new **Chief Innovation Officer (CIO) program** is designed to fill that gap and to give educators who want to elevate their professional practice a way to implement educational change. One of the main goals of

the program is to create a new breed of educational leaders—those with both the educational background and technical skills required to lead a district’s educational technology efforts. The CIO’s role is pivotal for a district since it guides the educational and technological planning process, as well as the maintenance of ever-changing technology learning environments. KCI is fortunate to partner with CETPA K-20 Technologists and CUE to supplement KCI curriculum and to provide support to the CIO candidates throughout the program.

In July, educators from across the state started their journey to earn a 27 college-unit certificate that will prepare them to pursue a career as a cabinet-level CIO. The participants represent a wide range of educators:

teachers, instructional coaches, Teachers on Special Assignment (TOSAs), principals and others in school or district leadership positions. The program is structured for the participants to attend Friday evenings and Saturdays once a month over seven months, supported by online collaboration, discussions, learning, and sharing between in-person classes. The first cohort kicked off at the Computer History Museum, with Andrew Schwab (pictured), Assistant Superintendent of Union School District, providing a keynote that focused on the importance and relevance of the CIO role.

Over the seven months, the cohort will cover diverse topics from technology ethics and educational law to an introduction to computer networks and servers. An underlying theme throughout the program is the impact technology can have on instruction. For example, participants will study instructional technology strategies and how to evaluate technology-based learning outcomes. Along the way the participants will create projects designed to assist them in planning, developing, and implementing innovative educational programs at their school or district. Participants will also create an online portfolio during the program.

For more information regarding KCI’s new **CIO Program**, contact Lisa DeLapo at [delapolisa@fhda.edu](mailto:delapolisa@fhda.edu).

# MERIT 2018 Update & 2016 Retrospective

The MERIT program continued to shine this July as 44 educators started the 2018 program, a 10-month journey to transform their teaching. They represent districts from across the Bay Area and California. While the two-week Summer Institute is rigorous and demanding, it is only the start of the journey as participants will attend four follow-up sessions through March 2019, take additional KCI classes, and earn 100 or more MERIT PD Points for educational technology professional development above and beyond enrollment in KCI classes.

To illustrate the power of MERIT, it is worth looking back at program graduates who have transformed the teaching and learning environments for their students. Halina Gallagher is one such teacher, and we are pleased to share her retrospective. Halina is the STEAM Director and teaches 5<sup>th</sup> grade at Mulberry School in Los Gatos. She graduated from Rensselaer Polytechnic Institute with BA degrees in Architecture and Building Science and minors in Visual Arts and Math. Halina joined the Mulberry School faculty in 2002 and participated in MERIT at KCI in 2016.

*“Two years ago, I showed up for the MERIT orientation in hopes of strengthening my knowledge of*

*progressive education. Little did I know, MERIT would completely change my perspective on effective instruction and set my own teaching career on an exciting new trajectory. Having only basic knowledge of technology, I had a lot to learn. Through exposure to new technology and the skills needed to navigate each technological platform, I was forced to think and work outside of my comfort zone. I grew not only as an educator, but also as a lifelong learner.*

*Nothing exists in a vacuum. MERIT equipped me with the tools to guide my students in making connections between the work we do in the classroom and what is happening globally. Through our **Watershed Investigations** project, we were able to participate in our first creek clean-up. By merely connecting the trash we found to our behavior, analyzing each piece, and sharing that data globally with Litterati, our class was ready to engage more deeply through a design thinking challenge. This allowed students to further investigate the impact of plastics in water pollution. The students embraced the challenge of passionate and playful exploration, using their creativity to iterate solutions to the problem. Excited to share this process with others, I applied for and received a **KCI Microsoft Innovation Award**. This experience gave me confidence*

*to restructure my whole STEAM curriculum to better focus on environmental stewardship, global citizenship, and the concept of being called to action.*

*Now service learning through the creek clean up is a regular part of my curriculum. Twice a year my students and I clean Ross Creek. In the spring we invite the 4<sup>th</sup> grade to join us so they can be introduced to the tradition of stewardship. Our spring creek clean-up with the 4<sup>th</sup> grade shows my current 5<sup>th</sup> grade students the impact of our action. In spring, there was so much less trash and more signs of animals returning to the creek, such as beaver and salmon, compared to the fall clean-up.*

*This year, we decided to create art out of trash as our call-to-action. We cleaned and sorted the trash for possible artistic creation and utilized the design thinking process to prototype the art pieces. As a class, we decided to create two art pieces: a turtle and a fish. We used iPads to document each group’s iteration and made a collective design decision for the final draft, with all students contributing through discussion.*

*We were able to showcase our art at the **Sixth International Marine Debris Conference**. Organized by NOAA and the **United Nations Environment Programme**, the conference was*



held in San Diego where over 700 participants from 70 countries attended. The goal of the event was to take a deep dive to address plastic pollution.

While at the conference, I met many scientists and activists from Norway, France, Malaysia and other countries who are leading on the marine debris issue. I also had a chance to speak personally with NOAA representatives, Van E. Reidhead from the **U.S.**

**Department of State–Office of Oceanic and Polar Affairs**, and Jack Johnson, whose **Johnson Ohana Foundation** sponsored the art exhibit. This opportunity energized and further engaged my students with a call-to-

action. My students wrote letters on behalf of sea animals to governor Jerry Brown, and Panda and McDonald's Corporations, bringing awareness of the danger to sea creatures caused by plastic bags and straws.

Through MERIT, I became comfortable with letting go of teacher-led instruction and moved more toward student-centered learning. This has truly impacted each of my students; they understand because they have experienced the call-to-action, and now grasp that through multi-disciplinary work, with the guidance of a passionate educator, individuals working together can and will make a difference in protecting a

sustainable planet. **Project-based learning, service learning and design thinking** are all integral components of my educational repertoire. Through these important forms of instruction, my goals for my teaching practice and content have changed as well. Using math, science, language arts, and art, paired with technology became the vehicle by which I could instill compassion and empathy in my students who are the global problem solvers of the next generation."

For more information on KCI's **MERIT Program**, please contact Lisa DeLapo at [delapolisa@fhda.edu](mailto:delapolisa@fhda.edu).

## Message from the Executive Director

The Krause Center for Innovation experienced an exceptionally successful summer since beginning our professional development work in 2000. We have served 565 educators in 15 intensive PD programs and trainings since spring. Many of those programs are new this year. In addition to serving educators, we also conducted six technology camps for almost 100 youth, ages 11-16.

As we recap our spring and summer highlights, we look forward to fall and the 2018-2019 academic year. I am hopeful you will keep in mind the challenges educators face and how important they are in preparing our next generation to address the key issues of society. Educators are at the heart of resolving at least three of the most important issues facing our country and the world at large:

- ( 1 ) **An educated and informed next generation of young people, which is essential to ensure we maintain our principles of a democratic and free society.**
- ( 2 ) **A workforce that is well educated, which is essential to ensuring our country maintains its competitiveness in a global economy.**
- ( 3 ) **An educated next generation is essential to give us a better chance for peace in the world.**

Thank you to our educators as they continue to prepare our next generation. And thank you to KCI supporters who make our programs possible. The training educators receive at KCI to better serve and engage students is the best possible return on all of our investments in them, both supportive and financial.

Sincerely, 

PLEASE CONSIDER  
*Donating*

**ONLINE:** [foundation.fhda.edu/how-to-give](http://foundation.fhda.edu/how-to-give)

**BY CHECK:** Krause Innovation Center, 12345 El Monte Road, Los Altos Hills, CA 94022  
(Attention: Gay Krause, KCI Executive Director)

# Makerspace Certificate Program Provides Training for New Career Path



Makerspaces are popping up across the educational spectrum, at schools, libraries, and youth centers. The **Maker Movement** has revitalized an interest in hands-on projects and the use of various tools for designing and prototyping. Once-empty school shops and computer labs are being reborn as makerspaces, and the curriculum is gender-neutral so girls and boys have the opportunity to make. Makerspaces are collaborative work spaces with high-tech and low-tech tools. For example, the **KCI Makerspace** is equipped with 3D printers, laser cutters, CNC machines, soldering stations, and even sewing machines.

School districts, libraries, and youth centers now have a need for trained staff to run and manage makerspaces. In response, KCI has launched a new state-approved certificate. The **Makerspace Coordinator Certificate** is a 10-month, 18-unit program designed for people who are seeking employment in fabrication laboratories and makerspaces in educational settings.

This summer, KCI kicked off two Makerspace certificate programs—one for the general population and the other specifically for women, titled **UniDiversity**. Both programs provide

instruction and support for building models and prototypes, strategies to spark innovation and invention, and creative problem-solving and collaboration. The 44 participants in both programs have been introduced to design thinking, computational thinking, and physical computing. The certificate is ideal for classified and certificated personnel at schools, community center employees and volunteers, and librarians and library assistants.

The **UniDiversity** program's aim is to bring more diversity to makerspaces, where typically the majority of users are middle-aged, white males. This isn't surprising as many champions of 'making' come from the engineering community, which reflects this demographic. UniDiversity targets women, especially women of color, women who have served in the military, and women with special needs (i.e., learning or physical disabilities). Lisa DeLapo, KCI Innovator in Residence and creator of the Makerspace Coordinator Certificate, has experienced gender discrimination while working in public education technology: "We would go to meetings and the men would huddle around

together as the good old boys group. Whenever the women would express an idea or make a decision, they'd say, 'oh, that's so cute.' It was just demeaning. I want to empower women so they have the skills to get around those situations."

One of the goals is to support women in taking on tech leadership roles, securing pay raises and breaking through glass ceilings. Mandie Cline, STEAM Coordinator for Ruby Bridges Elementary in the Alameda Union School District, is part of the first UniDiversity cohort and is enthusiastic about the program: "There's so much to appreciate about KCI's UniDiversity program! At the top of the list is that I now have a strong network of women in STEAM from around the Bay Area to talk to and learn with. This certificate program has strengthened my skills as a professional working in STEAM education and validated the work I am already doing at my elementary school. I'm so proud to be in this program and excited for the next set of classes." UniDiversity is grant funded thanks to support from the **Morgan Family Foundation**.

For more information about the **Makerspace Coordinator Certificate**, please contact Lisa DeLapo at [delapolisa@fhda.edu](mailto:delapolisa@fhda.edu).

# Upping the Ante in Math PD



KCI doubled down on math professional development this summer. Not only was the **FAME (Faculty Academy for Mathematics Excellence)** program for middle and high school teachers offered for the ninth year, but KCI also launched **EMPowered**, a new math PD program specifically for 4<sup>th</sup> and 5<sup>th</sup> grade teachers.

FAME is a blended program that consists of six face-to-face days, supported by an additional 30 hours of online work. Participants deepen their learning by returning for follow-up days throughout the school year, enrolling in additional KCI classes, and completing 50 sharing and learning points before the end of the program. They also create an e-portfolio demonstrating their experience and how their professional practice has changed. This year's active cohort was led by Ed Campos and Michelle

Giles. Ed has been program director for Blended FAME since its first year, and Michelle is a FAME graduate and Silicon Valley Math Initiative coach, as well as a member of the current MERIT cohort.

The 2018 cohort rated the program highly: 93% affirmed that FAME completely addressed the intended professional learning goals; 100% looked forward to applying their new skills in their classrooms; and 100% stated that the skills learned would improve their overall teaching practice.

Taking the best practices from FAME, KCI developed and launched **EMPowered (Elementary Math Powered by KCI)**, which focuses on the eight mathematical practices and introduces how to use computer and web-based technologies to support teaching and learning. EMPowered targets 4<sup>th</sup> and 5<sup>th</sup> grade teachers, as

they typically hold multiple-subject credentials, not math credentials. Not surprisingly, many elementary teachers are not comfortable teaching math and lack the confidence to move beyond the textbook to make math more interesting and engaging for students.

Based on the theories of **Jo Boaler, Professor in the Stanford Graduate School of Education** and author of *Mathematical Mindsets*, the program also strives to debunk the myth that only certain people are good at math. EMPowered helps teachers build confidence in their ability to understand and teach math. Teachers work on developing their own mathematical persistence, so they can pass that skill on to their students.

The EMPowered cohort of 22 attended six face-to-face days in July and completed 24 hours of online work. Like their FAME colleagues, the EMPowered participants will attend four follow-up sessions during the school year, enroll in additional KCI classes, and complete 50 sharing and learning points. At the end of the Summer Institute, one participant wrote, "Before this program, I was going through my math curriculum, following lesson by lesson. I did not have any supplemental ideas or activities. Thanks to EMPowered, I am walking away with useful, imaginative and inspiring math tools that will take my teaching to a whole new level. I have been exposed to activities, lessons, websites, resources that I never would have discovered on my own or obtained through my district."

## Register Online for KCI Classes

A variety of for-credit online, on-campus, and hybrid classes are offered each quarter. For best course selection register early since classes fill quickly. It's easy! Visit [krauseinnovationcenter.org/classes](https://krauseinnovationcenter.org/classes) to view and register for FASTtech classes.



# KCI Computer Science Programs Serve Critical Role

A strong demand for computer science (CS) professional development exists in the Bay Area. Parents are requesting that schools offer CS courses, but few teachers are appropriately trained to teach CS. Even though California has not completed its computer science standards for education, it's clear that teachers are interested in how they can integrate CS in their classrooms or prepare themselves to teach CS courses. As a result, KCI conducted three well-attended **CS Crash Course** programs—two locally and one at the **Pathfinders Summer Institute**, an intensive week of in-person professional development in CS and Making held at Indiana University/ Bloomington and sponsored by Infosys Foundation. Over 70 teachers participated in the three programs.

KCI sees the demand at two levels. Elementary teachers are interested in learning how to integrate CS principles and coding into various subject areas, especially math and science. And middle and high school teachers are interested in taking the additional courses needed to earn a California Supplemental Authorization that allows them to teach stand-alone CS courses. KCI also works with teachers who already are qualified to teach CS, but are still unsure about the pedagogy needed to be successful. KCI's CS Crash Course, a 28-hour program, addresses these educator needs.

One of the main goals of the Crash Course is to show teachers that CS is more than coding. Topics covered during the program include algorithms,

data, internet and the impact of computing. The impact of CS in several fields is demonstrated, and the participants gain practice in computational thinking and the problem-solving aspect of CS. And yes, they do learn to code. This summer the participants could choose between Scratch or Python coding programs to use for their projects. They also had the opportunity to code more complex problems independently by learning best practices in coding, and how to debug code.

Besides building confidence in the CS concepts and coding, the program also models successful teaching practice since it is designed and taught by teachers who are active in middle and high school classrooms. The instructors effectively demonstrated lessons coupled with discussion on specific challenges faced in teaching CS. Differentiation strategies to deal with both struggling and advanced students, the use of collaboration, and projects that include choices and engage all students including girls and minorities were specifically discussed.

Educator feedback on the Crash Course was extremely positive: 100% of the participants agreed that the course content and curriculum met or exceeded their expectation and 100% said they would recommend the program to other teachers. One teacher wrote about the program, "I was a complete beginner at the start of this course. I learned so much about computer science and coding and feel that I can help other teachers and students start learning as well."



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