

CAFECs CREATES A BUZZ ABOUT COMPUTER SCIENCE IN CHICAGO

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When Victoria Chávez had to choose her high school elective, she picked computer science mostly to defy her mom, who wanted her to take band. She had no idea how much this would change her life; she fell in love with the subject, reveling in the opportunity to solve complex problems in a variety of new ways.

“I loved finally feeling challenged in school without feeling lost,” she said.

Growing up in a working-class family on Chicago’s west side, Victoria planned to go straight to work after high school in order to help her single mom pay the bills. After her first year in a computing course; however, she felt empowered through her interest, talent, and the unwavering encouragement of her teacher, Mr. Yanek, to create an entirely new future for herself and her family. She has since completed her B.S. in Computer Science and Hispanic Studies at Brown University and is now pursuing her Master's in Urban Education Policy. She plans to improve the American education system by marrying her two passions in computer science and education to help every student develop crucial problem-solving skills.

Victoria continues to share her passion for CS as an ambassador for [Technolochicas](#).



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The class that shifted Victoria’s career trajectory was Exploring Computer Science ([ECS](#)), a research-based, introductory computer science curriculum and teacher professional development program. While computer science is currently required for high school graduation in [Chicago Public Schools](#), this accomplishment was borne out of a decade long effort by Chicago Public Schools, DePaul University, Loyola University, University of Illinois Chicago, and The [Learning Partnership](#), collectively known as the Chicago Alliance for Equity in Computer Science, or [CafeCS](#).

CafeCS began to take shape in 2008, when a group of Chicago computer science teachers came together to discuss how to best serve their huge, diverse population of students, (47% Hispanic, 37% African-American, 78% who qualified for free/reduced lunch, and 18% who do not speak English as their first language) through relevant and compelling computing education.

That group went on to form the Chicago Computer Science Teachers Association, which in turn partnered with Chicago Public Schools (CPS) to implement the ECS course under the mentorship of the ECS program outreach director, [Gail Chapman](#).

Getting the course off the ground in Chicago, however, was no easy task.

With almost 400 thousand students, the CPS district is the 3rd largest in the US, and the group faced

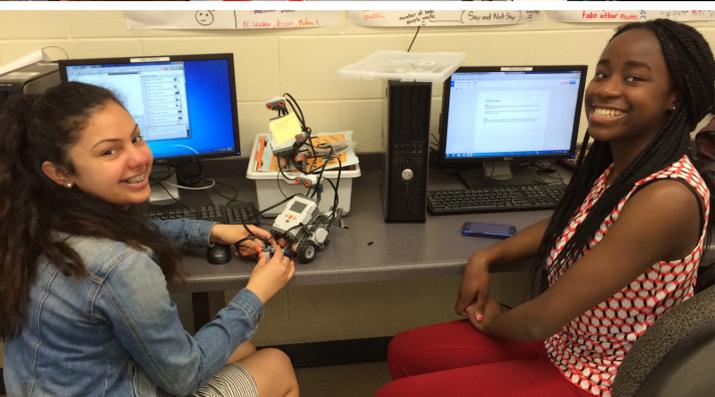
seemingly insurmountable challenges like shrinking budgets, teacher capacity, non-believers, and the bureaucracy of a large school district. They found a champion in Brenda Wilkerson, who established the Office of Computer Science and pioneered “[CSforAll](#),” a term that has since turned into a consortium of CS education support and a national phenomenon.

Now, over 300 teachers have been trained as ECS teachers in Chicago, and several are providing professional development not only for fellow Chicago teachers but across the United States, including Puerto Rico. Support from the National



CAFECS team and Chicago Public School CS teachers with Gail Chapman (bottom row center) at the 2017 meeting for the Special Interest Group on Computer Science Education (SIGCSE).

Science Foundation has been integral in launching and maintaining this massive effort, from the early stages of professional development implementation, to dissemination of results, to the ongoing partnership between education researchers and Chicago Public Schools. Currently, NSF support enables ECS teacher coaching so that teachers can become workshop facilitators and peer mentors all over the country.



Top panel: Chicago teachers at an ECS professional development event. Bottom panel: ECS students learn how to program robots.

CafeCS has moved the needle in Chicago and nationally. However, there is still work to be done.

In order to reach a “steady-state” of prepared teachers in Chicago, the district needs to train 100 more teachers to teach the ECS curriculum. They are also working to grow the number of teachers with a CS Endorsement. CafeCS is grappling with how to implement ECS for a variety of diverse learners and students in alternative learning centers including schools for students involved with the justice system or for pregnant girls.

Through the strategic implementation of ECS, collaboration with stakeholders across the school district, and support from Federal, industry, and academic partners, CafeCS is working to institutionalize computer science in Chicago public schools.

The impact on students is obvious.

Since the beginning of this initiative over 45,000 CPS high school students have taken ECS. In the 2018 school year, nearly 700 students (of which 37% were Hispanic and 14% African American) took at least one of the Advanced Placement CS courses beyond ECS, with the

majority scoring a 3 or higher on the national exam. Importantly, the increasing opportunities for computer science education in Chicago are helping students like Victoria change the courses of their future.

As Victoria’s CS teacher, Mr. Yanek, sees it:

“Young people are really smart. We’ve seen that they can do some really incredible things and they see problems in their community that they want to solve and they recognize that computer science and technology can help them solve those problems. They want to change things.”